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2023 REVISED MINE PLAN OF OPERATIONS ROGERS WASH PROJECT MARICOPA COUNTY, ARIZONA

by Haley & Aldrich, Inc. Phoenix, Arizona

for Rattler Resources, LLC Wickenburg, Arizona

File No. 0201775-003 December 2023





HALEY & ALDRICH, INC. One Arizona Center 400 E. Van Buren St., Suite 545 Phoenix, AZ 85004 602.760.2450

1 December 2023 File No. 0201775-003

Rattler Resources, LLC 340 West Wickenburg Way Suite A91 Wickenburg, Arizona 85390

Attention: Brad Matney, Operations Manager

Subject: 2023 Revised Mine Plan of Operations, Rogers Wash Project, Maricopa County, Arizona

Dear Brad:

Haley & Aldrich, Inc. (Haley & Aldrich) has revised the following Mine Plan of Operations (MPO) for Rattler Resources, LLC (Rattler) Rogers Wash project. Revisions are based on changes to operational needs and our discussions with Rattler since the publication of the previous MPO and replaces the MPO dated 9 September 2022.

Thank you for the opportunity to assist Rattler with the Rogers Wash project. Please contact Jason Poulsen at 208.401.1317 with any questions or further requests.

Sincerely yours, HALEY & ALDRICH, INC.

Rich Brown, RG Senior Geologist

Aason E. Poulsen, PWS Client Leader | Natural Resource Scientist

**Enclosures:** 

2023 Revised Mine Plan of Operations, Rogers Wash Project, Maricopa County, Arizona.

https://haleyaldrich.sharepoint.com/sites/KilcullenVenturesLLC/Shared Documents/0201775 Rogers Wash Mine/Rattler Permitting Services/NEPA Services/EA/Revised EA and MPO-October 2024/Revised MPO/Dec. 2024 REVISED MPO-2023-1201 MPO Rogers Wash Project.docx

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## 1. Operator Information

#### 1.1 **OPERATOR**

Rattler Resources, LLC

Physical and Mailing Address: 340 West Wickenburg Way, Suite A91 Wickenburg, Arizona 85390

Employer Identification Number (EIN) 83-4602982

#### **1.2 AUTHORIZED FIELD REPRESENTATIVE**

Brad Matney (Agent for Rattler) 340 West Wickenburg Way, Suite A91 Wickenburg, Arizona 85390

Alternative Field Representative: Robert Graham 340 West Wickenburg Way, Suite A91 Wickenburg, Arizona 85390

#### 1.3 CLAIMANT/CLAIM INFORMATION

Rattler Resources, LLC (Rattler) owns placer claims within the entire proposed Mine Plan of Operations (MPO) boundary (Project). The 17 unpatented mining claims (Project) controlled by Rattler as part of this MPO are listed below by phase:

Phase I	<u>Phase II</u>
KC 26-1	Rogers #33-1
KC 26-2	Rogers #33-1A
RR 26-10	Rogers #34-1
RR 26-16	Rogers #34-2
RR 26-16A	
RR 27-1A	
RR 27-7	
Rogers #27-1	
Rogers #27-2	
Rogers #27-3	
Rogers #27-4	
Rogers #27-5	
Rogers #27-6	

The proposed operations outlined in this MPO do not include the use of the entire acreage associated with each mining claim. The configuration of the mining action only requires the use of portions of each claim for extraction and road access (see Figure 1, Site Location Map and Figure 2a, Site Detail Map).



# 2. Description of Operations

## 2.1 SUMMARY

Rattler is proposing the operation of a mine for gold-bearing gravels from alluvial placer deposits that would be gravity processed on the Project site to produce gold concentrate and other valuable minerals. The Project would be located in the historically producing San Domingo mining district on public land administered by the Bureau of Land Management (BLM) Phoenix District Hassayampa Field Office. Previous exploration activities at the Project site are similar to the proposed Project and have been conducted under the BLM approved and bonded Notice of Intent (NOI) for Exploration Notice (6 December 2021, AZ-38444).

The proposed Project boundary encompasses approximately 330 acres (17 claims) located on public land managed by the BLM. Approximately 95.5 acres would be disturbed over the two-phased duration of the Project. Active, un-reclaimed disturbance at any one time would not exceed 50 acres for either Phase I or Phase II. This includes a 5-acre process area that would be used during both phases of operation and haul road development between existing roads of Phases I and II. Mining disturbance would be reclaimed concurrently by using washed native materials to backfill mine excavations. Disturbed ground that are not backfilled and recontoured would be limited to 50 acres within both operational phases. Phase I (Upper Wash) would result in up to 79.4 acres of disturbance, and Phase II (Lower Wash) would result in up to 16.1 acres of disturbance, both totals include the 5-acre process area. The 5-acre process area would be reclaimed following the conclusion of the mining and processing operations.

The primary commodity sought at the Project is gold; however, other valuable minerals would be extracted from the concentrate. Byproducts of the concentrate may include other precious and base metals, strategic minerals, and rare-earth elements (REEs). Figures 1, 2a, and 2b, provide a depiction of the proposed mine operation area.

#### 2.2 PROPOSED PROJECT BOUNDARY AND CLAIMS INFORMATION

The Project is located on public lands administered by the BLM within the Hassayampa District. The locations of the claims and the proposed Project boundary are shown in Figure 2a. The claims controlled by Rattler comprise two blocks, and the proposed Project boundary includes these two blocks of claims and a corridor of ground not controlled by Rattler between the Upper Wash and Lower Wash phases (Phases 1 and 2, respectively). Proposed operations would be in portions of Sections 26, 27, 33, and 34, all in Township 7 North, Range 4 West (Gila and Salt River Meridian).

The mine claim (RR 27-7) located between the Upper Wash and Lower Wash phases is public land administered by the BLM. Only a narrow strip of land along the southern claim boundary would be used for road access between the Upper and Lower washes. The corridor would be used only to the extent needed for efficient movement of people, equipment, and materials between the Upper and Lower wash phases. No mining extraction activities would occur within this claim area. It would only be cleared and graded to connect existing roads with the Upper and Lower wash phases. This road would be reclaimed at the conclusion of mining operations.



Table 1 below provides additional claims information related to general location, size, and BLM Active Mine Claim number associated with each of the claims associated with the proposed Project site. The proposed operations outlined in this MPO do not include the use of the entire acreage associated with each mining claim. The configuration of the mining action only requires the use of portions of each claim for extraction and road access.

Claim Nama	Located in			A	PLM Active Case Number		
Claim Name	Section	Township	Range	Acres	BLIVI ACTIVE Case Number		
Phase I – Upper Wash							
KC 26-1	26	7N	4W	20	AZ105260032		
KC 26-2	26	7N	4W	20	AZ105260033		
RR 26-10	27	7N	4W	20	AZ105799812		
RR 26-16	26	7N	4W	20	AZ105817265		
RR 26-16A	26	7N	4W	20	AZ105817266		
RR 27-1A	27	7N	4W	20	AZ105793481		
RR 27-7	27	7N	4W	20	AZ105793474		
Rogers #27-1	27	7N	4W	20	449112		
Rogers #27-2	27	7N	4W	20	449113		
Rogers #27-3	27	7N	4W	20	449114		
Rogers #27-4	27	7N	4W	20	449115		
Rogers #27-5	27	7N	4W	20	449118		
Rogers #27-6	27	7N	4W	20	449119		
Phase II – Lower Wash							
Rogers #33-1	33	7N	4W	20	449120 / AZ105792937		
Rogers #33-1A	33	7N	4W	20	AZ105792938		
Rogers #34-1	34	7N	4W	20	449121		
Rogers #34-2	34	7N	4W	10	449122		

#### 2.3 PROJECT SITE ACCESS

The Project site is accessible by existing roads as depicted on Figures 2a and 2b. The existing roads provide reliable access for light vehicles and smaller trucks. West Pepperwood Circle leads east to West San Domingo Peak Trail from U.S. Route 60 which leads directly to the proposed Project site. The proposed Project boundary is approximately 1.5 miles from U.S. Route 60, as shown in Figure 1.

On a temporary basis, until the Project area has been reclaimed, Rattler would post signs as needed to preclude vehicles, except for mine-related traffic, from the immediate area of operations. The proposed operation would have no other effect to existing access to public lands.

#### 2.4 EXISTING DISTURBANCE

Existing disturbance within the proposed Project boundary consists of exploration work completed under BLM approved and bonded NOI for exploration notice-level authorizations. Specifically, a gold recovery water wash plant was installed, and exploration pits and trenches were dug to allow collection of bulk samples. These areas would be incorporated into the Project, so that the Reclamation Cost Estimate (RCE) includes reclamation of these areas. Upon placement of the bond for the Project, existing disturbance would be bonded, and the Notice level bond would be returned or credited to the Project.



Disturbance unrelated to mineral exploration is also existing within the proposed MPO boundary. The area is used for recreation, and off-highway vehicle tracks are present throughout.

## 2.5 PROJECT DESCRIPTION

The purpose of this Project is to facilitate extraction of surface material from mining claims in Rogers Wash and processing of that material at the Project site for recovery of gold and other valuable minerals. Rogers Wash is a dry wash located east of U.S. Route 60 and north of (and parallel to) the San Domingo Wash in Maricopa County.

Rogers Wash flows west and joins the Hassayampa River approximately 1 mile from the proposed Phase I disturbance, and approximately 700 yards (0.4 miles) from the proposed Phase II disturbance. The total disturbance footprint of the proposed Project would not exceed 95.5 acres, consisting of 79.4 acres in Phase I, and 16.1 acres in Phase II, with a single 5-acre processing area for both phases. Additionally, an approximate 1.5 acres would be developed for use as a haul road between existing roads within Phase I and Phase II. This additional 1.5 acres would be accounted for in the total 50-acre disturbance calculations once Phase II operations have been initiated. The location of the mining disturbance footprint would move over time, and less than 50 acres of mining disturbance (excavations that have not been backfilled and recontoured) occurring at any given time during active mining operation of either phase. Thus, active surface disturbance for the Project would be no more than 50 acres during Phase I and Phase II, including the 5-acre process area.

Phase I would include exploration and mining in Upper Rogers Wash, setting up and operating a wash plant, and connecting the existing water wells to the wash plant with flexible pipeline placed on the ground surface. Phase II would include exploration and mining in Lower Rogers Wash, construction of a haul road to connect with existing roads in Phase I, and use of the same processing wash plant as in Phase I. For both phases, washed native materials from the wash process area would be used to reclaim mining disturbance concurrent with mining operations. The proposed disturbance areas (anticipated Area of Disturbance [AAD]) is shown in Figures 2a and 2b with Figure 3, Typical Mining Cross-Section.

Surface disturbance would consist of mining excavations, processing wash area, storage areas, small stockpiles, a haul road to the wash area, and general access/operation areas of compacted earth due to vehicle travel. The Project is anticipated to last for approximately seven to ten years, although economic factors and discovery of additional ore could prolong the mine life. Creation of up to six jobs in Phase I is anticipated, with up to two more jobs in Phase II. Operations would be conducted seven days per week, during daylight hours. Ore would be extracted in open pits that may be up to 30 to 50 feet deep.

Prior to ore excavation, topsoil would be removed and stockpiled near the excavation and reserved for future reclamation. An area less than 50 acres would be mined at one time in addition to the 5-acre wash area disturbance. To provide slope stability, grade control, and safety to operators, excavations would generally be made in lifts, benches, or slopes from 3 to 10 feet high (as materials allow). The decision to mine to the full 30 to 50 feet with additional benches would be based on operational, safety, economic, and geologic factors. Within a given area of excavation, non-pay zones may be encountered, either as overburden or as layers between ore zones. This material would be set to the side from the current cut being worked and then used for backfilling once ore from that excavation area was processed. Generally, as testing and recoveries indicate positive economics, additional benches would be excavated down to the total depth of ore.



Prior to and concurrent with mining, the proposed mine areas would be explored to identify priority ore zones. Generally, trenches or pits would be excavated, and bulk samples of the material would be processed to determine gold content. The area to be explored would be located within the AAD mining. These exploratory excavations could be considered a subset of the mining excavation as they are made with the same equipment and result in the same type of disturbance but on a smaller scale. Exploratory excavation conducted during Phase I (or Phase II) would be within the AAD footprint. Exploration would therefore not result in additional disturbance, and no additional reclamation cost estimating or bonding are necessary.

Ore would be trucked or trammed to the wash plant for the washing and processing. Processing would consist of gravity concentration and related physical processes; no reagents would be employed; however, it is possible that biodegradable and environmentally friendly flocculant may be used for water recycling. Water would be fed to the wash area with the ore. In addition to controlling dust, water will be essential to the operations of washing native materials for gold recovery. The wash plant within the process area, would consist of screens, sluices, trommels, jigs, and concentrators that operate on the physical (primarily density) properties of the alluvial ores. The process removes the less dense material grains and minerals, concentrating the gold and other valuable minerals.

Trucks, excavators, or loaders returning to the excavation site would haul washed native material back and place the native material as backfill. Light Detection and Ranging (LiDAR) imagery (topographical data) was collected from the Project site in 2023 by Haley & Aldrich, Inc. (Haley & Aldrich) and would be used for reclamation purposes. Reclamation and grading activities would mimic the pre-disturbance topography. This concurrent reclamation minimizes the amount of remaining reclamation at any given time.

Rattler proposes to process up to 100 cubic yards (cy; 170 tons) of gold-bearing native material (ore) per hour through the described process circuit. The wash plant is designed to thoroughly wet the ore and recover gold using a combination of screens, trommels, jigs, and sluices and gravity concentrators. The process system would be configured to allow collection of the black sands, which are a common component of gold placers, and are comprised of the most durable and dense minerals. Black sands may contain other precious and base metals, strategic minerals, and REEs. These black sands may be sold as concentrates or further fractionated to concentrate minerals or metals.

Because some of the gold and black sands occur as very fine particles, a jig and/or centrifuge may also be used following the wash plant process. A jig operates by agitating the ore with a pulsating action that allows recovery of the denser materials through differential settling. Thus, a jig essentially consists of a tank that contains the ore and process water. Process water is fed to the jig and the denser gold and black sands are discharged from the tank bottom while the other native materials are discharged from the upper portion of the jig. A centrifuge, or centrifugal concentrator, is essentially a vertical conical bowl with riffles along the sides. The bowl spins and material to be processed is fed in at the bottom of the bowl. As the centrifuge spins, material is carried up the sides of the bowl via centrifugal forces, and denser particles are trapped beneath the riffles while less dense material is discharged over the bowl top. Jigs and centrifuges are manufactured in a wide variety of sizes and configurations.

Rattler continues to evaluate the optimal equipment for their ore characteristics, and specific equipment makes and models have not been determined. Water, ore, and other native materials are contained by the process equipment and associated piping so that there is not discharge of water other than to the settling pond. However, both the jig and centrifuge operate on gravimetric principles and



Rattler does not anticipate the need for additional flocculants in the ore wash process. However, if the need arises during the wash process, Rattler could employ the use of biodegradable flocculants similar to OF 1050X-Organic Flocculant (Heartland Energy Group LTD.), if needed. This type of biodegradable flocculant is an environmentally friendly treatment system that can effectively bind heavy metals, reduces total suspended solids levels, and lowers the overall biological and chemical oxygen demand of the water treated. This biodegradable flocculant is a non-hazardous, non-toxic, and environmentally safe alternative to other common flocculants used in similar applications. Following treatment application (if used), the water can be recycled after treatment without concern of future soil and/or surface/groundwater impacts. In the event this type of biodegradable flocculant is required in the wash process, Rattler will obtain the applicable regulatory agency approvals and associated permits prior to implementation.

Once gold and other valuable metals are removed from the native materials, these native materials may be processed with a sand screw to separate and dewater the coarser fraction. Similarly, a dewatering cyclone may be used to recover and dewater the fine native materials. The dried coarse and fine native materials would be placed in an unlined Dry Holding Pit with dimensions of approximately 275 feet by 100 feet by 15 feet deep. At this point, the washed native material would have adequate moisture to prevent dust emissions but be dry enough so that free water would not drain from them. The dry native materials would be taken from the Dry Holding Pit and hauled back to the mining excavation as backfill and used to recontour mining disturbance areas. Water recovered from the sand screw and from the dewatering cyclone would be returned to the lined settling pond for reuse as process water (Figure 4, Mining Flow Chart).

The settling pond would be lined with 40-mil, coated, reinforced polyethylene liner to preclude loss of any water to the underlying soils. Berms with spillways would be constructed within the settling pond to facilitate settling of solids and recirculation of clear water back to the process wash plant. These berms would result in segregation of the native materials into an initial settling pond, recirculating pond, and clean water pond, as shown in Figure 5, Settling Pond Schematic Diagram. Most of the native materials would settle out in the first compartment or settling pond. A mud pump would be used to remove fine native material from the settling pond for use in reclamation. Solids would continue to settle, and the water would continue to clarify as it progressed through the recirculating pond and the clean water pond. Water would be pumped from the clean water pond back to the wash plant as makeup water. This system has been designed to maximize water recycling and minimize the consumption of fresh water.

A layer of native materials approximately 6 to 12 inches thick would be left in the settling pond until final reclamation so that the liner is protected from the sand screw and dewatering cyclone. An anchor trench would be excavated around the perimeter of the settling pond; the edges of the liner would be placed in the anchor trench and the anchor trench would then be backfilled to secure the liner. The settling pond would be excavated into native ground. The top 12 to 24 inches (approximately) of the excavated material would be reserved as topsoil for reclamation. This topsoil would be stockpiled immediately adjacent to the settling pond, around its perimeter. The underlying excavated material would be stockpiled for future processing that would take place once the settling pond pit has been lined. To account for the anchor trench and the placement of topsoil, the surface disturbance for the settling pond would effectively consist of an area 100 by 275 feet.



The clarified water, known as "make-up water," is pumped back to wet the incoming ore as it is being fed to the wash plant. A more detailed description of Rattler's plans to manage and conserve water is provided in Section 2.10. To the extent possible, mining and/or hauling equipment that has just completed transporting ore to the process wash plant would return to the mining area with drained native material as backfill for recontouring and reclamation. This reduces overall mining operational costs and completes reclamation concurrently with mining process. Figure 4 provides a flow chart of the mining and water management sequence.

Rattler may process small amounts of ore from other properties in the vicinity to support ongoing exploration efforts and assist in evaluation of those properties. These ores are of similar character and the wash plant would be run in the same manner regardless of the source of material. Should other viable ore bodies be identified for mining and processing, they would be developed and authorized under modification to this MPO, or a new MPO would be developed as appropriate and directed by the BLM.

Construction and use of two water supply wells are proposed for development before mining actions begin on Phase I and Phase II. Water from the wells would be piped to the process wash plant. The pipe would be flexible, lightweight, polyethylene pipeline or collapsible (fabric) pipe. This pipe would be laid across the ground surface manually with no ground disturbance or machinery required.

Rattler proposes to conduct the Project in two phases consisting of 79.4 acres for Phase I, and 16.1 acres of disturbance for Phase II. Separate RCEs have been developed for each phase. Phase I would be initiated immediately upon BLM authorization and acceptance of the reclamation bond. The Phase I bond would be based on estimated reclamation costs for disturbance within the footprint of Phase I. Disturbance within the footprint of Phase II would not be authorized until placement of the Phase II bond.

#### 2.6 SAFETY AND SECURITY

Rattler would post signs as needed to preclude vehicles except for mine-related traffic from the immediate area of operations. Mine excavations would be guarded with berms and or portable fence as needed to reduce/prevent the risk of recreationalists or other vehicles from driving into an unsecured excavation.

Recording video cameras would be installed, as appropriate, to provide additional security. Within the process area, a gated chain-link fence would be erected to secure the wash process area and mobile equipment. At the end of each day, mobile equipment would be moved to the fenced area and the gate would be locked. The fenced area would encompass an area of approximately 1 acre and would not preclude access to public lands using existing roads. If deemed necessary, Rattler would hire a night security guard to provide additional safety and security.

The settling pond would be located within the fenced process area. This would minimize the potential for impacts to wildlife and livestock inadvertently entering the pits. Flotation devices on lines would be placed at strategic locations around the settling pond as a safety measure should any workers accidentally enter the pond.



Rattler's Spill Contingency Plan and Emergency Notification List, provided in Appendix A, also includes emergency health and law enforcement contacts. This document would be made available to all employees and posted in a conspicuous location near the process wash plant.

### 2.7 EQUIPMENT AND VEHICLES

Rattler proposes to use the equipment and vehicles listed below. This list should be considered approximate, as specific models may vary over the life of the Project. Given the duration of the Project, adjustments may be made to the fleet in keeping with the general types and scope of equipment below.

The list of equipment below has been developed for Phase I operations. During Phase II, a similar list of equipment and vehicles would be used, resulting in a doubling of the numbers of equipment, although Rattler would attempt to conserve resources by sharing equipment between phases to the extent possible.

- Two excavators Cat model 349 or similar
- Two loader Cat model 988 or similar
- One haul truck 25-ton end-dump
- One water truck Mack 10-wheel (approximately 7,000-gallon capacity) or similar
- One dozer Cat D6 model or similar
- One backhoe loader JCB model 3CX or similar
- One skid steer Cat 236D Model or similar
- Support vehicles (pickups and all-terrain vehicles):
- One 300 kW diesel-powered generators
- Two, 35 kW diesel powered generators
- One Gravity Wash Plant
  - Includes a stationary grizzly/hopper, vibrating screen, conveyor belts, and sluice plant, jigs and concentrators
- One mobile high frequency vibrating screen
- Support tools
  - Includes water pumps, and compressors, and power tools
- Water pumps
  - Includes supply/recycling pumps at process wash plant and submersible pump for water well
- One office trailer
  - Kept at the Project site for use as office space, sample storage, and laboratory space
- One double-walled diesel tank, 600 gallons
- One mobile double-walled diesel tank, 600 gallons

#### 2.8 BUILDINGS, STRUCTURES, AND OTHER FACILITIES

There are no buildings or permanent structures proposed as part of this mine development and operation. However, a small mobile office trailer would be used at the Project site during mine



operation. This trailer would be used for office space, laboratory work, and general office-related storage. As noted in Section 2.6, a chain-link fence would be erected for additional security within the process area.

#### 2.9 ANCILLARY FACILITIES

Portable toilets would be provided for employees and would be maintained by a third-party contractor. Ordinary trash cans, boxes, or barrels would be used to collect incidental wastes. These wastes would be transported off the Project site for disposal, as needed. Trash would be disposed in accordance with applicable local and state regulations.

Equipment and mechanical supplies (non-fluids/machine parts) would be stored neatly and orderly on the ground within the process area. Ground to be used for the process area requires only minimal grading to provide relatively level working or storage areas. Small excavations would be made adjacent to the wash plant to hold native materials during the drying process, prior to use in reclamation. Areas around the storage and work yard (within the 5-acre wash area) would be compacted by traffic. The temporary storage or laydown areas would require minimal earthmoving to construct and reclaim. Equipment and materials would be removed as part of reclamation.

#### 2.10 WATER USE AND CONSERVATION

Two new water wells would be installed in accordance with applicable Arizona Department of Water Resources (ADWR) regulations and associated permits at a location between Phases I and II. These wells would be operated to augment or replace the existing water supply. The well would be approximately 500 feet below ground surface (bgs) based on a review of regional well data. It is anticipated that it would intersect groundwater at approximately 100 feet bgs. An average consumption rate of 50 to 80 gallons per minute (gpm) per well is anticipated for the entire Project, including water used for dust suppression, water lost in the process wash plant due to evaporation, and incidental uses.

Rattler has developed a plan to minimize water consumption and recirculate water to reduce overall consumption. Evaporation from the process wash plant represents the largest controllable component of water consumption, and the narrow configuration of the settling pond reduces this source of water losses. No water would be discharged to ground as part of the operation.

Although the process wash plant is anticipated to circulate approximately 1,200 gpm, the actual water consumption rate will be much less. Water re-use is facilitated using water recycling equipment to dewater the course and fine solids. Equipment including sand screws, hydro-cyclones/high frequency vibratory screens, and thickening tanks may be utilized. This reclaimed water will be stored in lined holding ponds to eliminate loss of water to seepage back to ground. Only the amount of fresh water needed to replace evaporative losses, estimated at 60 to 100 gpm, and water used for dust suppression would be consumed. A typical plan and cross-section of the settling pond is shown in Figure 5.

Water would be introduced at the front of the process wash plant, wetting the ore, and allowing for effective separation of the gold. Once the gold has been recovered, the water is discharged along with the native materials as a slurry, wherein the native material is oversaturated. Generally, the solids settle quickly, leaving several feet of clarified water in the settling pond. To date, the ore encountered during BLM notice-level exploration and testing does not contain significant fine-grained materials such as silt and clay that would take longer to settle.



The settling pond is designed with effective dimensions of 100 feet long by 275 feet wide by 15 feet deep. The settling pond incorporates two internal separator berms to enhance solids settling. The berms act to create three distinct ponds, a native materials settling pond, a recirculation pond, and a clean water pond. The washed native materials pond created by the first berm would contain the majority of settled solids. An auger would be used to remove native materials and feed them to trucks or a dried holding pit. Mud pumps may be used to remove buildup or very fine, difficult to settle, particles, termed "slimes." Mud pumps, if used, would typically be placed in the recirculating pond, and would return mud to the native materials pond to settle the slimes. Native materials removed from the settling pond would be returned to the mining excavation as backfill.

Water overflowing the first berm would enter the recirculating pond with most of the solids already settled. The recirculating pond is the largest pond, and provides the most retention time, allowing for additional settling of solids. Water overflowing the second berm would enter the clean water pond. This water would be essentially clarified and recycled to the wash plant as clean make-up.

#### 2.11 ROADS

The proposed action includes construction of one road between Phases I and II. This road would be approximately 20 feet wide by 800 feet long, resulting in disturbance of approximately 0.4 acres. The haul road disturbance would be a component of the total mining disturbance associated with Phase II. Areas of compacted earth, creating a hardened surface similar in dimensions to a typical road, may also result from repeated operations traffic similar to the 5-acre process area described above. Reclamation of this surface road connecting Phase I and Phase II would be conducted as part of the process area reclamation.

#### 2.12 FUEL STORAGE AND DELIVERIES

Mining equipment and generators would be fueled with diesel, whereas the small generators and some smaller tools/equipment would be fueled with gasoline. Light vehicles that run on gasoline would be fueled offsite. One double-walled diesel fuel tank, with total capacity of 500 gallons or less would be installed near the process wash plant, within the fenced security area. A trailer-mounted diesel fuel tank with a capacity of 500 gallons or less would also be utilized, filled off-site, and used to fuel equipment on-site. Equipment using diesel fuel would travel to the diesel fuel tank to be fueled or be fueled by portable light-vehicle fuel tanks. An earthen secondary containment berm would be constructed around the stationary diesel tank. Gasoline stored at the Project site would be in approved containers in a fire-resistant cabinet. Estimated diesel consumption per day for Phase I would be 150 to 300 gallons. Estimated gasoline consumption would be less than 5 gallons per day. A fuel truck would travel to the Project site approximately once or twice per week to deliver diesel fuel.

#### 2.13 APPLICANT COMMITTED PRACTICES

Rattler has developed the Applicant Committed Practices (ACPs) cited here to reduce environmental impacts. These ACPs and associated measures would be communicated to all employees for implementation during mine development and operations.



#### 2.13.1 Air Quality

Air emissions would be permitted by a Non-Title Air Quality Permit, issued by Maricopa County Air Quality Department. Most emissions associated with the Project are associated with dust generation from vehicle traffic, excavation, and processing activities. The agency requires submission and implementation of a formal Dust Control Plan. Control measures identified in the plan include but are not limited to; maintaining regular use of a water truck on travel paths and mining areas, limiting vehicle speed to a maximum of 15 miles per hour, and employing a rumble gate at the exits.

Since the plant uses gravity concentration to separate gold concentrate from the less dense materials, ore would be completely wetted. For air emissions calculations, 4 percent moisture is considered the threshold for "wet processes." That is, emissions are expected to be well controlled when material moistures are maintained at 4 percent or greater. By comparison, ore must be completely wetted, resulting in a moisture estimated to be in the range of 25 to 30 percent, for the wash plant to function properly. Therefore, it is expected that processing-related emissions would be kept minimal. There is also potential for emissions from the two diesel fuel tanks and three generators that will support site operations, as outlined in Section 2.7 above. Tanks would be kept in good condition and kept capped when not in use. All three generators would be equipped with certified Tier 4 engines.

#### 2.13.2 Water Quality

Rogers Wash is a dry stream bed that only flows during extreme precipitation events. There would be no discharge of water to the ground surface other than in lined pits specifically designed to impound wash water and native materials. Based on preliminary well depths in the area, the groundwater table is thought to be approximately 100 feet bgs. At a maximum depth of 30 to 50 feet, mine excavations are not expected to encounter groundwater.

Any stormwater that would flow off site would be covered under the National Pollutant Discharge Elimination System (NPDES) Multi-Sector General Permit (MSGP). Rattler has prepared a Stormwater Pollution Prevention Plan (SWPPP) detailing methods to manage stormwater runoff from the Project site. This SWPPP will be included as part of Rattler's application for inclusion in Sector G (Mineral Mining Facilities) of the MSGP.

As mentioned above in Section 2.5, Project Description, Rattler does not anticipate the need for additional flocculants in the ore wash process. However, if the need arises during the wash process, Rattler could employ the use of biodegradable flocculants similar to OF 1050X-Organic Flocculant (Heartland Energy Group LTD.), if needed. This type of biodegradable flocculant is an environmentally friendly treatment system that can effectively bind heavy metals, reduce total suspended solids levels, and lower the overall biological and chemical oxygen demand of the water treated. This biodegradable flocculants used in similar applications. Following treatment application (if used), the water can be recycled after treatment without concern of future soil and/or surface/groundwater impacts. In the event this type of biodegradable flocculant is required in the wash process, Rattler will obtain the applicable regulatory agency approvals and associated permits prior to implementation.

Fuels, lubricants, and other antifreeze and oils would be stored in appropriate containers, including storage cabinets for small containers and diesel fuel storage tank(s) with built-in secondary containment.



#### 2.13.3 Water Quantity

At steady-state operations, water consumption would average approximately 60 to 100 gpm over a 10- to 12-hour daily shift. Most of the water would be used to suppress dust from traffic and to wet ore as it is introduced to the wash plant. A minor amount of water would be used as make-up water to replace evaporative losses in the process wash plant and settling pond. Intermittently, Rattler would use water at higher rates to charge the system and provide a working inventory of water. Rattler would obtain the appropriate permits or water rights required, and water consumption would be in accordance with permit limitations. Pumps, pipes, and wash plant sprays would be maintained to reduce and eliminate leaks. The native material settling ponds would be maintained with deeper pump ponds to allow recycling to the maximum extent possible. Additional detail on water uses and conservation is provided in Section 2.10.

#### 2.13.4 Solid Waste

Solid waste generated at the Project would be stored in portable containers such as trash cans, barrels, or dumpsters and transported off site for disposal, as needed. Restroom facilities would be portable and would be regularly maintained by a local service provider. No solid waste would be disposed on the Project site.

#### 2.13.5 Wildlife Resources

Wildlife would be impacted through the temporary loss of up to 95.5 acres of native, dry wash desert habitat. Rattler would reduce these short-term impacts by disturbing no more than 50 acres of active disturbance for each phase of operation. New disturbance (i.e., disturbance on previously undisturbed ground) would not be conducted during the seasonal nesting season from 15 January through 31 August. If it is necessary to clear or grub ground, remove or limb trees, or otherwise remove vegetation during the nesting season, a survey would be conducted to identify active nests. The BLM would be notified of the survey and supplied with the survey results. If active nests were found, Rattler would obtain approval from the BLM prior to conducting the disturbance activities, establish a buffer, and avoid these areas until the young have fledged, as determined in consultation with the BLM.

Cornerstone Environmental Consulting (Cornerstone) conducted a Biological Evaluation for the proposed Project (October 2021), attached as Appendix B. Cornerstone concluded three protected species, the Sonoran Desert Tortoise, southwestern willow flycatcher, and western yellow-billed cuckoo, have the potential to occur in the Project area, because habitat for these species was found. For each of these species, Cornerstone concluded that the Project has the potential to affect, but is not likely to adversely affect, the species.

#### 2.13.6 Cultural Resources

Cornerstone conducted an archaeological survey across the proposed Project Site in summer of 2023 along with a report of their findings (Appendix B; Prorok R. and E. De Santiago, 2023). The cultural resource survey identified no previously recorded sites, two newly recorded sites, and 25 Isolated Occurrences (IOs). The IOs are not eligible for inclusion on the National Register of Historic Places (NRHP), and no additional avoidance or protection is recommended. The two new recorded sites are late historic Euro-American mining sites that were evaluated for significance under the theme Euro-American gold and silver mining in Arizona during the late-historic period (1900 to 1960s), as it relates to Criterion A of the NRHP. The lure of gold brought some of the first Europeans and Americans to Arizona,



bringing miners, merchants, and money to the state. Boom towns throughout the state followed mineral deposits and provided a foundation for the establishment of towns and railroads. Over the last 150 years, gold and silver mining have been extremely important to Arizona's economy; however, neither of the recorded sites contribute meaningfully to this history and neither present any indication that they possess significant data potential.

Both sites are recommended not eligible for inclusion on the NRHP. Both were evaluated for NRHP significance under the theme Euro-American gold and silver mining in Arizona during the late historic period (1900 to 1960s) and recommended not eligible. The potential for direct or indirect effects of the proposed undertaking were considered in determining management recommendations.

Please note, based on current BLM cultural protection requirements, the 2023 Cornerstone cultural report cannot be provided as support documentation to this MPO.

The BLM concurred with these findings and recommended that the following statement also be included within this MPO:

If inadvertent discoveries of cultural resources or human remains are encountered during project activities, all activities must be discontinued within 30 meters of the discovery, and BLM notified immediately. Work must not resume until BLM has been notified and allowed time to adequately address the nature and significance of the discovery. If human remains, funerary objects, or sacred ceremonial objects are encountered during ground-disturbing activities, all work must immediately cease within 30 meters (100 feet) of the location and the area must be secured. The BLM must be notified of the discovery. All remains will be treated in accordance with Arizona Revised Statutes (ARS § 41-844), as appropriate, and work must not resume in this area without authorization from BLM.

The statement above provided by the BLM would be implemented as standard protocol for mine operations.

#### 2.13.7 Soil Resources

The desert character of the area is not indicative to topsoil development. Additionally, the flow channels in Rogers Wash are scoured every few years by monsoonal rains, eroding and redepositing surface soils along Rogers Wash. However, during BLM Notice level exploration and reclamation, Rattler has observed that the top (approximate) 6 to 18 inches of alluvium generally have a higher proportion of organics and fine-grained material than deeper layers. Rattler would strip this surface layer and stockpile this material immediately adjacent to the active mining excavation. Following recontouring, the salvaged surface soils would be spread on the recontoured surface. The bottoms of channels are subject to monsoonal flooding and erosion, and the limited soil resource would not be placed in these areas.

#### 2.13.8 Vegetation Resources

Vegetation is sparse within the mining zones and are generally located in the dry stream bed of the Project site. Impacts to vegetation would be short term and reclamation would be conducted concurrently with mining.



A Cornerstone biologist conducted native plant counts for protected native plants that occur within the proposed disturbance area of the Rattler claims on BLM Land in Maricopa County, Arizona on 14 and 15 May and 7 June 2023. A systematic survey was conducted that covered all areas that fall within the proposed disturbance area with transects covering at a minimum a width of 20 meters (approximately 66 feet). All plants that are identified in "Appendix A. Protected Native Plants by Category" of Title 3, Chapter 3, Article 11 of the Arizona Administrative Code were identified and tabulated. Table 2 shows the results for these surveys which identified the following species and the associated numbers of each:

Species	Quantity	
Mesquite ( <i>Prospis sp.</i> )		
Palo Verde (Park insomnia florida)	746	
Smoke Tree (Psorothamnus spinosus)	88	
Buckthorn Cholla (Cylindropuntia acanthocarpa)	1,220	
Fishhook Barrel Cactus (Ferocactus wislizen)	124	
Engelmann's Hedgehog Cactus (echinocereus engelmannii)	169	
Saguaro (Carnegiea gigantea)	112	
Pancake Prickly Pear (Opuntia chlorotica)	6	
Pencil Cholla (Cylindropuntia ramosissima)	4	
Ocotillo (Fouquieria splendens)	18	

Rattler used the results of the Native Plant Count Report to complete and submit an Arizona Protected Native Plants application, Wood Removal Application, and Notice of Intent to Clear Land. These applications and notice would be obtained prior to clearing and grading activities.

#### 2.13.9 Hazardous Substances

Hazardous substances at the Project site would be limited to diesel fuel, gasoline, and minor amounts of cleaning products, oils, antifreeze, and lubricants. These materials would be kept within containment areas and flame-resistant cabinets, as applicable. Equipment fueling would be conducted within containment areas with staged spill kits to facilitate immediate cleanup of incidental spills. The greatest risk from hazardous substances is the potential for a fuel spill during fueling operations or an oil/lubricant release from operating equipment. In the event of a spill, the relatively small amounts of petroleum products would be expected to have little environmental impact because of implementation of established best management practices (BMPs). In the case of an inadvertent spill or release, spill control measures would be implemented. This would include the immediate deployment of absorbent socks and/or materials to contain the release of liquid product. Petroleum-soaked dirt would be excavated and placed in barrels or other suitable containers and transported offsite for proper disposal.

The following procedures would be implemented to further reduce risk:

- BMPs and response procedures would be established in accordance with the SWPPP dated October 2023 (Haley & Aldrich, 2023).
- All employees would be trained on Rattler's Spill Contingency Plan and Emergency Notification List, detailed in Appendix A.
- Spill containment materials would be maintained at the Project and deployed as needed at the process and mining areas.



If oil/petroleum storage at the Project site exceeds 1,320 gallons cumulatively (in containers greater than 55 gallons), a Spill Prevention Control and Countermeasure (SPCC) Plan would be prepared in accordance with Title 40, Code of Federal Regulations (40 CFR) § 112.1.b. The SPCC Plan would establish the procedures, methods, and equipment used at the Project site to comply with the Environmental Protection Agency oil spill prevention, control, and countermeasures, standards and inspection, reporting, training, and record-keeping requirements. However, at this time, Rattler does not intend to exceed the cumulative amounts that would require an SPCC Plan.

#### 2.14 OPERATIONS SCHEDULE

Operations would be conducted 12 hours per day, 365 days per year, during daylight hours to the extent possible. The mining operation lifespan of the proposed Rogers Wash Mine is anticipated to last seven to ten years, with the possibility of extension based on recovery and economic conditions.

Rattler proposes to begin mine operation in spring of 2025, following approval of the appropriate local, state, and federal permits required before Project initiation. The Project is anticipated to last for approximately seven to ten years, although economic factors and discovery of additional ore could prolong the mine operations life.



# 3. Reclamation

#### 3.1 RECLAMATION PLAN

The Reclamation Plan for the proposed Project addresses reclamation activities for the mining areas, process wash area, and the water supply wells. The description of reclamation activities is applicable to both Phase I and Phase II.

#### 3.1.1 Mining Areas

Reclamation activities for the mining areas consist of backfilling the excavation areas with washed native materials, re-grading the land surface back to pre-mining contours, and applying a BLM-approved seed mixture to the disturbed areas to promote revegetation. It would not be necessary to rip or conduct seed bed preparation given the sandy nature of the native ground. A LiDAR survey was completed within the proposed mining area to develop an "existing condition" topographical map. This survey would be used during the regrading and reclamation process to mimic the pre-disturbance attributes of Rogers Wash.

Recontouring would be conducted concurrently with extraction operations. Haul trucks would travel from the mining area with a load of ore (native material) to feed the process wash plant. The haul trucks would then return to the previously excavated mine areas with a load of washed and dried native materials to backfill the mining excavation.

#### 3.1.2 Process Areas

Process area reclamation activities consist of removing the mine operations equipment and materials, concurrent filling of mine excavations, regrading and compacting and seeding the disturbed surfaces to promote revegetation growth.

To provide a conservative RCE, it is assumed that minor amounts of debris and non-hazardous waste would be removed from the Project site and properly disposed offsite in accordance with applicable regulations.

The area selected for the process wash plant has a slope that would require minimal grading to assist with proper wash plant operation. Some minor regrading of the area would be conducted and the spoils remaining from excavation of the settling pond and dried native materials would be contoured to blend with the surrounding topography based on the existing conditions associated with pre-mining disturbance topographic data previously collected. Reclamation would consist of returning the processed ore (washed native materials) to the mine excavation areas.

#### 3.1.3 Roads

The road between Phase I and Phase II would be reclaimed by recontouring and deploying the BLM-approved seed mixture to the areas to promote revegetation growth. Reclamation of the roads within the disturbance areas for the mining and process areas would be reclaimed as part of those area reclamation activities. The Project site access road would be left in place for post-mining access by the public and BLM.



#### 3.1.4 Well Abandonment

Rattler would plug and abandon the water supply wells pursuant to Title 43 Code of Federal Regulations (43 CFR) Part 3162.3-4. These wells may be left in place for other uses such as monitoring or wildlife water development, if desired by the BLM, but reclamation by abandonment is included in this MPO and the RCE.

#### 3.1.5 Reclamation Seed Mix

Because most of the area to be mined is alluvial stream sediment, vegetation in the area is very sparse. Rattler would keep a supply of reclamation seed at the Project site and hand broadcast it over any disturbed areas not located in the stream channel bottoms. BLM has prescribed the Sonoran Desert Wildflower seed mix for this Project. Table 3 shows the species included in this seed mix.

Species	Approximate	Approximate	Approximate
	Pounds per	Percent by	Seeds per
	Acre	Weight	Square Foot
Desert Bluebells (Phacelia crenulata)	1.50	15.0	27.5
Mexican Gold Poppy (Eschscholzia californica ssp. Mexicana)	1.30	13.0	25.4
Blanket flower (Gaillardia aristate)	1.20	12.0	3.6
Desert Globemallow (Sphaeralcea ambigua)	1.00	10.0	11.5
Gordon bladderpod (Lesquerella gordonii)	0.80	8.0	9.9
Sand verbena (Arbronia villosa)	0.70	7.0	0.6
Desert senna (Senna covesii)	0.60	6.0	1.5
Brittlebrush (Encelia farinosa)	0.50	5.0	2.0
Arizona poppy (Kallstroemia grandiflora)	0.50	5.0	1.1
Arroyo lupine (Lupinus succulentus)	0.50	5.0	0.2
Desert marigold (Baileya multiradiata)	0.40	4.0	9.7
Parry penstemon (Penstemon parryi)	0.40	4.0	5.6
Desert daisy (Perityle emoryi)	0.30	3.0	22.2
Firecracker penstemon (Penstemon eatonii)	0.30	3.0	4.1
Total	10.00	100.0	124.9

Table 3. Reclamation Seed Mix and Application Rate

#### 3.2 RECLAMATION COST ESTIMATE

Costs for reclamation by a third-party contractor have been estimated using the BLM's standardized reclamation bond calculation Excel file (AZ Reclamation Bond Calculator 2018.xlsx), referred to herein as the RCE Workbook. The RCE was determined for the various disturbance types and areas, including the mining areas, process areas, roads, and water supply wells. Additional miscellaneous input was entered based on prompts from the RCE Workbook. Input and assumptions for the RCE are described below and a printout of the RCE Workbook is included in Appendix C.

Using the input values listed above and detailed below, calculated reclamation costs for the Project are \$73,758 for both Phase I and Phase II. For purposes of this plan and associated RCE, it is assumed that Phases I and II would not be operated simultaneously. It is assumed that Phase II would not begin until



Phase I is near completion with minimal backfilling and contouring to be completed. The processing area would remain in its original location for the duration of the Project.

## 3.2.1 Mining Areas

The 50-acre mining area within Phases I or II at any given time was included as a "cleared area" with an approximate length of 1,000 feet and approximate width of 655 feet (maximum of 50 acres).

It is also assumed that a stockpile of overburden, equal in volume to the area of a single mining pass of 100 feet by 20 feet multiplied by a depth of 5 feet, would require reclamation. Although this overburden stockpile would be located within the mining area, the RCE spreadsheet automatically calculates that this feature would create an additional 0.1 acre of disturbance.

Finally, it is assumed that the working portion of the active mining trench, which is the excavation that has not yet been backfilled, would require backfilling. This backfill volume is calculated assuming an excavation depth of 30 feet, a trench width of 20 feet, and a trench length of 50 feet. The excavation depth is based on the maximum proposed depth of mining. The trench width is based on the reach of the excavation equipment. The trench length is based on safe and efficient working practices to avoid mixing backfill with ore, and to maintain a safe buffer between excavation and backfill operations, a space of approximately 50 feet would be maintained between the portion of the trench being excavated and the portion being backfilled. This mining trench would be located within the 50-acre mining area footprint and therefore not require additional disturbance calculations within the RCE Workbook.

### 3.2.2 Process Areas

The 5-acre process area was included as a "Cleared Area" with an assumed approximate length of 450 feet and width of 484 feet (5 acres). The specific length and width footprint may be altered based on terrain and logistical/operational needs.

It is also assumed that a small stockpile of ore could remain in the process area and require recontouring. This task was included by entering data in the "Stockpile" portion of the RCE Workbook. Stockpile dimensions selected for input are 80 feet long by 30 feet wide by 9 feet high, equal to 800 cy, which is equal to the daily material processing volume target of 800 cy. Although this ore stockpile would be located within the 5-acre process area footprint, the RCE Workbook automatically calculates a disturbance of 0.2 acres and adds it to Project disturbance total.

Finally, the settling pond is included in the process area portion of the RCE. These are entered in the RCE calculation spreadsheet as "Water or Silt Ponds." Assumed dimensions are 100 feet by 275 feet by 15 feet, as described in the "Project Description" of this MPO and shown in Figure 5. Although the settling pond would be located within the 5-acre process area footprint, the RCE Workbook automatically calculates a disturbance of 0.1 acre for this feature and adds it to the total disturbance for the Project.

#### 3.2.3 Roads

The haul road between Phase I and Phase II would be approximately 20 feet wide by 800 feet long, resulting in disturbance of approximately 0.4 acres. The access road into the Project site would be left in place for BLM use and access to the area for the public in the future.



#### 3.2.4 Water Supply Well

The RCE automatically calculates abandonment costs for a well based on neat cement grout being tremied from the bottom to the top of the hole, per ADWR requirements for worst case closure standards. A depth of 1,000 feet was provided, reflecting the 500-foot anticipated maximum depth for each of the two proposed wells.

#### 3.2.5 Waste Disposal and Miscellaneous

The RCE Workbook includes removal of equipment, vehicles, and refuse. Wickenburg's landfill and recycling station is 10 miles from the Project. Equipment rental is available in Phoenix, within 50 miles of the Project site. Other input is shown in the RCE Workbook printout in Appendix C.



# 4. Monitoring Plan

Rattler would monitor operations to comply with this MPO and to identify potential environmental impacts.

#### 4.1 AIR QUALITY

The spray bars on the wash plant would be inspected daily to confirm they are functioning, and findings would be recorded in a logbook. Rattler would also monitor air quality impacts from mining operations daily. Both the active mining excavation areas and the material haul routes would be observed for fugitive dust. Whenever dust emissions are visible beyond the immediate vicinity of the mining equipment, water would be applied to the excavation or haul route, and this occurrence would be recorded.

### 4.2 WATER QUALITY

No groundwater quality monitoring is proposed and there would be no discharge to groundwater. However, surface water quality monitoring is proposed, as needed, in accordance with the SWPPP application and permit submittal. No water bodies are located within the Project area and the dry wash only flows in response to extreme precipitation events.

#### 4.3 WATER QUANTITY

Groundwater quantity impacts would be monitored in accordance with water rights/permit conditions. Rattler would monitor and record water consumption annually. Both proposed wells would be equipped with a flow meter to provide accurate measurements of water consumption for annual record keeping and tracking efforts.

#### 4.4 **REVEGETATION**

Each spring, Rattler would evaluate reclaimed areas for vegetation. The evaluation would be conducted through visual inspection only. Rattler does not propose to survey the vegetation or otherwise quantify vegetative conditions. In addition to general vegetation success, Rattler would note and identify noxious weeds; if noxious weeds are identified, Rattler would coordinate with BLM to determine and implement needed mitigation actions. Rattler would record these observations and provide a summary report to BLM each year, no later than 1 June. Areas determined by BLM or Rattler to warrant seeding, would be reseeded as needed.

#### 4.5 STABILITY

Each spring, Rattler would monitor reclaimed and active areas for stability annually. Significant rills, washouts, or areas of excessive erosion would be noted. If reclaimed areas are found to be undergoing significant erosion, Rattler would notify BLM and stabilize these areas. The stability monitoring observations would be included in the annual revegetation monitoring report submitted to BLM by 1 June each year.



# 5. Interim Management Plan

As required by 43 CFR 3809.401, Rattler has developed an Interim Management Plan to manage the Project during periods of temporary closure (including periods of seasonal closure) to prevent unnecessary and undue degradation. Rattler intends to operate 365 days per year, and the climate is mild enough so that seasonal closures are not anticipated. Unplanned temporary closure is not expected to last more than a few days, at most.

#### 5.1 MEASURES TO STABILIZE EXCAVATIONS AND WORKINGS

Excavations would potentially consist of the active mining area (see Figures 2a and 2b) and a few smaller exploration pits. If an unanticipated temporary closure occurs and is expected to last more than three days, Rattler will provide temporary stabilization of soils at the Project site. Stabilization would include minimally recontouring to remove steep slopes from the excavations.

#### 5.2 MEASURES TO ISOLATE OR CONTROL TOXIC OR DELETERIOUS MATERIALS

Other than minor amounts of petroleum-based fluids (e.g., diesel, gasoline, and oils), Rattler would not store toxic materials at the Project site. During temporary closure periods, Rattler would lock the fueling tank and padlock flammable storage cabinets.

#### 5.3 MINE RECLAMATION, INCLUDING INFORMATION OF THE FEASIBILITY OF PIT BACKFILLING THAT DETAILS ECONOMIC, ENVIRONMENTAL, AND SAFETY FACTORS

Because Rattler would conduct concurrent reclamation, there would be very little reclamation work to conduct during post mining operations. The current mining plan and Reclamation Plan include complete backfill of the mining excavations integral to completion. As noted in Section 5.1, Rattler would stabilize excavations in the event of a temporary closure period exceeding three days.

#### 5.4 **PROVISIONS FOR THE STORAGE OR REMOVAL OF EQUIPMENT, SUPPLIES, AND STRUCTURES**

During temporary closure periods, Rattler would leave the equipment and supplies at the Project site. Equipment would be secured against unauthorized use. There are no permanent structures proposed.

#### 5.5 MEASURES TO MAINTAIN THE PROJECT SITE IN A SAFE AND CLEAN CONDITION

During periods of temporary closure, Rattler would secure vehicles and fuel supplies. Vendors with scheduled deliveries would be informed and advised not to travel to the Project site. Rattler would inspect the site daily to identify refuse, debris, unsafe conditions, or other conditions deviating from the MPO and resolve those conditions as soon as possible.

#### 5.6 PLANS FOR MONITORING PROJECT SITE CONDITIONS DURING PERIODS OF NON-OPERATION

As noted in Section 5.5, during periods of temporary closure Rattler would inspect the Project site daily to identify refuse, debris, unsafe conditions, or other conditions deviating from the MPO and resolve those conditions as soon as possible.



#### 5.7 A SCHEDULE OF ANTICIPATED PERIODS OF TEMPORARY CLOSURE DURING WHICH THE INTERIM MANAGEMENT PLAN WOULD BE IMPLEMENTED AND PROVISIONS FOR NOTIFYING BLM OF UNPLANNED OR EXTENDED TEMPORARY CLOSURES

Rattler intends to operate year-round and does not plan temporary closure periods. Should an unplanned closure occur, BLM would be notified by phone within 24 hours if and when an unplanned closure extends beyond three days.



# References

- 1. Cornerstone Environmental Consulting (Cornerstone), 2021. Biological Evaluation of 190 Acre BLM Parcel Near Wickenburg, Maricopa County, Arizona.
- 2. Cornerstone, 2023. Native Plant Report for Rattler Claims. June.
- 3. Haley & Aldrich, Inc. (Haley & Aldrich), 2023. Stormwater Pollution Prevent Plan, Rogers Wash Mine, Maricopa County, Arizona. October.
- 4. Prorok R. and E. De Santiago, 2023. Archaeological Survey of 283 Acres of Bureau of Land Management Land near Wickenburg, Maricopa County, Arizona. Cornerstone Environmental Consulting, Flagstaff, Arizona.

https://haleyaldrich.sharepoint.com/sites/KilcullenVenturesLLC/Shared Documents/0201775 Rogers Wash Mine/Rattler Permitting Services/NEPA Services/EA/Revised EA and MPO-October 2024/Revised MPO/Dec. 2024 REVISED MPO-2023-1201 MPO Rogers Wash Project.docx



**FIGURES** 





#### LEGEND

----- ACCESS ROAD



PROCESS AREA (5 ACRES)

ANTICIPATED AREA OF DISTURBANCE (AAD), WITHIN MINING CLAIM

UNDISTURBED AREA

BOUNDARY OF MINING CLAIMS (PROJECT BOUNDARY)

#### NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. AERIAL IMAGERY SOURCE: ESRI



2,000 1,000 SCALE IN FEET

ALDRICH

ROGERS WASH MINE MARICOPA COUNTY, ARIZONA

#### SITE PLAN

JANUARY 2025



#### LEGEND



#### NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. DEFINITIONS: GEN = GENERATOR CON = CONVEYOR BELT

3. AERIAL IMAGERY SOURCE: ESRI



80

SCALE IN FEET

**ALDRICH** 

ROGERS WASH MINE MARICOPA COUNTY, ARIZONA

#### SITE DETAIL MAP PROCESSING AREA

JANUARY 2025

FIGURE 2B







APPENDIX A Spill Contingency Plan and Emergency Notification List
#### APPENDIX A SPILL CONTINGENCY PLAN and EMERGENCY CONTACTS Rattler Resources Rogers Wash Project

Rattler Resources, LLC (Rattler) operates the Rogers Wash placer gold mine, immediately east of US Highway 6, approximately 5 miles South of Wickenburg, AZ. This Spill Contingency Plan documents procedures to respond to spills of petroleum products and provide appropriate notifications.

Brad Matney is Rattler's Operations Manager and is responsible for maintaining this plan and providing training to all employees. Each and every Rattler employee is responsible for operating and equipment and maintaining equipment and fuel storage facilities in accordance with Rattler's standard procedures to eliminate or minimize the potential for release of petroleum products. All employees are also responsible for responding to spills and providing appropriate notification.

Mine employees routinely observe the condition of fuel tanks and mobile storage equipment for leaks. Any spill is immediately reportable to the operations manager. Upon observing a spill, employees will provide immediate notification to the Operations Manager, assess the situation, and safely secure the source to eliminate any ongoing release.

Spill kits containing absorbents and buckets will be kept at strategic locations and deployed as needed. Heavy earthmoving equipment is available on site as part of ongoing operations. This heavy equipment will be used if necessary to provide earthen containment for spills. Materials such as absorbents or soils that have been contaminated with petroleum products will be placed into barrels or on a liner on the ground for subsequent removal. All spills will be remediated by transporting the contaminated soil or absorbent offsite for disposal.

Generally, small spills are not reportable, and are those where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area or by maintenance personnel. Such incidental spills are generally not considered to require emergency response teams. For instance, a small spill could be a leaky pump that a maintenance employee fixes or an accidental release of a material in the workplace by an employee who handles that material regularly as part of his or her job, and as such, knows its properties and hazards. Personnel will receive training on the proper handling of spilled substances (that is, hazard communication [HAZCOM] and personal protective equipment [PPE] training) and proper disposal of waste materials (waste management).

Large spills are threatening releases of hazardous substances where there is a potential for offsite migration, property damage, fire, explosion, chemical exposure, or other health or safety hazards that require an emergency response effort consisting of employees or other designated responders from outside the immediate release area (for example, local fire departments).

The Operations Manager will be responsible for providing notification to agencies as needed. Remember, it is better to overreport than to underreport. No enforcement actions have been taken for reporting when not required, but the penalties for failure to report when required can be severe.

#### APPENDIX A SPILL CONTINGENCY PLAN and EMERGENCY CONTACTS Rattler Resources Rogers Wash Project

- Rattler will immediately report to the Arizona Department of Environmental Quality (ADEQ) if a petroleum spill enters a waterway and/or causes a visible sheen on the water surface, or otherwise affects the environment.
- Rattler will notify ADEQ HazMat Incident response for large spills or conditions for which technical response assistance is required.
- Rattler will notify the National Response Center in the event of a diesel fuel spill that exceeds 220 liters (approximately 50 gallons).

#### APPENDIX A SPILL CONTINGENCY PLAN and EMERGENCY CONTACTS Rattler Resources Rogers Wash Project

## **Emergency** Notification List

## Designated person responsible for spill prevention: Brad Matney, Operations Manager

## **Emergency Telephone Numbers**

Brad Matney, Operations Manager	(602) 501-6557
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### Local Emergency Response

Maricopa County Sheriff (non-emergency)	602-876-1011
Maricopa County Sheriff (Gila Bend substation – non-emergency)	928-683-2223
Gila Bend Fire and Rescue (non-emergency)	928-683-2370
West Valley Hospital Emergency Room 525 S. Watson Rd, Buckeye, AZ 85326	623-925-3980

### **Response/Cleanup Contractors**

Overley's Environmental Department	480-821-5455
MP Environmental	602-278-6233
Environmental Response Inc.	480-967-2802

### Notification

National Response Center	1-800-424-8802
Maricopa County Dept. of Emergency Management (LEPC)	800-411-2336
Arizona Department of Environmental Quality (ADEQ)	602-771-2300 800-234-5677 (after hours)
ADEQ HazMat Incident assistance	602-390-7894
Arizona State Emergency Response Commission	602-771-0397
Maricopa County Department of Public Health Services	602-252-4449

APPENDIX B Cornerstone, 2023. Biological Evaluation of 190 Acre BLM Parcel Near Wickenburg, Maricopa County, Arizona and Native Plant Report for Rattler Claim

www.haleyaldrich.com



## **BIOLOGICAL EVALUATION ADDENDUM** ROGERS WASH PLACER MINE WICKENBURG, ARIZONA

by Haley & Aldrich, Inc. Boise, Idaho

for Rattler Resources, LLC Santa Fe, New Mexico

File No. P201775-007 January 2025





HALEY & ALDRICH, INC. 1649 W. Shoreline Drive Suite 200 Boise, ID 83702 208.401.1300

31 January 2025 File No. P201775-007

Rattler Resources, LLC 403 W. San Francisco Street Santa Fe, New Mexico 87501

Attention:	Brad Matney, Chief Operations Officer
Subject:	Biological Evaluation Addendum Rogers Wash Placer Mine Wickenburg, Arizona

## Background

A Biological Evaluation (BE) of the proposed Rogers Wash parcel managed by the U.S. Bureau of Land Management (BLM) was prepared by Cornerstone Environmental Consulting (Cornerstone) for the proposed Project (October 2021 – amended May 2023 – revised November 2024). Section G of the Cornerstone BE did not identify potential effects to species or critical habitats listed under the Endangered Species Act (ESA). The BE also indicated there would be no effects to Arizona Game and Fish Department (AZGFD) listed species and migratory birds. However, the BE identified potential habitat in the Project area for three BLM-listed Sensitive species: Sonoran Desert Tortoise (*Gopherus morafkai*), Gilded Flicker (*Colaptes chrysoides*), and Purple Martin (*Progne subis*).

Comments on the BE by the BLM Phoenix District Office and Hassayampa Field Office (HFO) indicated the federal status of the Monarch butterfly (*Danaus plexippus*) changed from Candidate to Proposed Threatened in December 2024. Additional comments were provided regarding BLM-listed, AZGFD-listed, and migratory bird species effects. This BE Addendum addresses federally listed species and effects determinations based on recent updates.

#### **SPECIES ADDRESSED**

This BE Addendum was prepared to address the potential effects on federally protected species in relation to updates by the U.S. Fish and Wildlife Service (USFWS). Specifically, this BE Addendum addresses the USFWS proposal to list the Monarch butterfly as a Threatened species and designate a critical habitat under the ESA, and considers possible effects outlined in the December 2023 Environmental Assessment (EA). A list of Threatened and Endangered species that may occur in the Project area, or that may be affected by the proposed action, was obtained from the USFWS Information for Planning and Conservation (IPaC) on 22 January 2025. The updated species list is included in Appendix A.

The Monarch butterfly is addressed in this BE Addendum, as they may occur near the Proposed Rogers Wash Placer Mine Project area. Other species do not occur and, thus, have a "No Effect" determination; they are not further evaluated in this BE Addendum.

Table 1. List of Threatened or Endangered Species Obtained from the USFWS							
Common Name	Common Federal Name Scientific Name Status Occurrence						
		Birds					
California least tern	Sterna antillarum browni	Endangered	The action area is outside the known range of the species.	No Effect			
Southwestern Willow Flycatcher	The species and critical habitat do not occur within the Project area. However, critical habitat is within 100 meters of the project boundary <sup>1</sup> .		No Effect				
Western yellow-billed cuckoo	The s hab estern <i>Coccyzus</i> Withi illed cuckoo <i>americanus</i> Threatened Howe is wi the F		The species and critical habitat do not occur within the Project area. However, critical habitat is within 100 meters of the Project boundary <sup>1</sup> .	No Effect			
		Fishes					
Gila Topminnow	Poeciliopsis occidentalis	Endangered	The species is known to occur within the action area.	No Effect			
		Insects					
Monarch Butterfly Danus plexippus		Proposed Threatened	No milkweed has been identified in the Project area. However, milkweed may be present along the Hassayampa River. Monarchs may also utilize lesser nectar sources during migration.	May Affect, Not Likely to Adversely Effect			
<b>Notes:</b> <sup>1</sup> Determination by Corners	stone (November 2024)						



#### **CONSULTATION HISTORY**

No consultation with federal agencies, other than the BLM, has been conducted to date for the Project.

#### PURPOSE AND NEED FOR THE ENVIRONMENTAL ASSESSMENT

#### **Purpose**

The purpose of the federal action is to respond to Rattler Resources, LLC's (Rattler) application to mine its 17 unpatented mining claims for placer gold deposits within Rogers Wash and provide it with authorized use to extract minerals from public land managed by the BLM.

#### Need

The need for this action is established by the BLM's responsibility under the 1872 Mining Law, as amended, the 2008 Energy and Mineral Policy, Section 302 of the Federal Land Policy and Management Act of 1976 (FLPMA), and the BLM Surface Management Regulations found in Title 43 of the Code of Federal Regulations (CFR), Sections 3809 and 3715, to take actions necessary to prevent unnecessary or undue degradation (UUD) of public lands administered by the BLM.

#### DESCRIPTION OF THE PLANNING AREA AND DECISION AREA

#### **Planning Area**

The proposed Project area is located east of the Hassayampa River and the Venture Mountains, southwest of Monarch Wash, and south of the Wickenburg Mountains in Maricopa County, Arizona. Elevations range from 1,950 feet above mean sea level (amsl) at the western edge to 2,220 feet amsl at the eastern edge of the Project area. The proposed Project area is located in Sections 26, 27, 33, and 34, Township 7 North, Range 4 West, within the seasonally dry Rogers Wash, a tributary of the Hassayampa River to the west. The Project Site is accessed via West Pepperwood Circle off U.S. Highway 60 (shown in Figure 1).

The proposed Project would be operated within the lower reaches of the larger Rogers Wash, which is located east of U.S. Highway 60 and approximately 5 miles southeast of Wickenburg, Arizona. The 17 mining claims associated with Rogers Wash are located on public land administered by the Hassayampa BLM District and would encompass a Project Site boundary of approximately 330 acres on public land. Rogers Wash flows west and joins the Hassayampa River approximately 700 yards (0.4 miles) from the closest mining claim associated with the proposed Project.

The Project area is located within the Basin and Range Province. The physiographic area is characterized by broad, open-ended basins or valleys of gentle slopes. Soils within the Project area include welldrained sandy loam soils on floodplains, well-drained very gravelly loam on fan terraces, and welldrained very gravelly clay loam on mountain slopes. The soils consist of the parent materials of mixed alluvium and alluvium derived from volcanic rock.



The Project area is located within a xeroriparian habitat with a network of alluvial washes and surrounding hills. The vegetation surrounding the Project area is identified as Sonoran Paloverde-Mixed Cacti Desert Scrub (SPMCDS). SPMCDS areas are dominated by a sparse, emergent tree layer of saguaro and/or a sparse canopy co-dominated by xeromorphic, summer deciduous tall shrub, Paloverde.

#### **Decision Area**

Within the 330-acre Project Site boundary, the Anticipated Area of Disturbance (AAD) is projected to be approximately 95.5 acres (shown in Figure 2). As proposed, active mining disturbance is anticipated to occur in two Phases with active, un-reclaimed disturbance, totaling no more than approximately 50 acres at a given time. There is one approximately 5-acre, temporary ore processing wash plant that is proposed for both Phases and is included within the approximate 50-acre disturbance total. The proposed 5-acre ore processing wash plant is proposed to include equipment storage, gold-recovery (mechanical) wash plant with appropriately sized water storage pond, access road, and ore stockpile area.

Increased dust, vibration, noise, road construction, use of heavy machinery, and the potential for increased lighting, volume and duration of water flow (downstream sedimentation), vegetation clearing, and increased human presence during mine operation may contribute to indirect impacts. Mining operation will only be operated during daylight hours, and increased lighting concerns are extremely unlikely. Downstream sedimentation is unlikely to be a factor because the system has a high suspended sediment load in natural conditions, and mining activities will not contribute to the load to the system beyond natural conditions.

## **Proposed Action**

#### **PROPOSED ACTION**

#### **Phases**

The proposed action would be completed in two Phases. The mining disturbance footprint within each Phase would move from the upper claims in the northeastern section of Rogers Wash (Phase I) to the lower claims in the southwestern sections of Rogers Wash (Phase II) over the operation's lifespan. Less than 45 acres of mining disturbance (excavations that have not been backfilled and recontoured) would occur at a given time during active mining operations; thus, active surface disturbance for the Project would be no more than 50 acres during Phase I and Phase II, which would include a 5-acre process area. Ore would be extracted in open pits, which may be up to approximately 50 feet below ground surface (bgs).

The total AAD of the proposed Project would not exceed approximately 95.5 acres, consisting of approximately 79.4 acres in Phase I and approximately 16.1 acres in Phase II, with a single 5-acre processing area to support both Phases. Additionally, an approximate 1.5 acres would be developed for use as a haul road between existing roads within Phase I and Phase II. The additional 1.5 acres would be accounted for in the total 50-acre disturbance calculations once Phase II operations have been initiated.



Phase I would include exploration and mining in the Upper Rogers Wash, setting up and operating a wash plant, and connection of the existing on-Site water wells to the wash plant with flexible pipeline placed on the ground surface. Phase II would include exploration and mining in Lower Rogers Wash, construction of a haul road to connect existing roads in Phase I, and use of the same processing wash plant as in Phase I. For both Phases, washed native materials from the wash process area would be used to reclaim mining disturbance concurrent with mining operations.

As stated above, un-reclaimed disturbance at a given time is proposed to be equal to or less than 50 acres during each Phase of operation. This 50-acre disturbance total includes a 5-acre process area that would be used to process mined ore from both Phases, and the 1.5-acre haul road development for Phase II. Phase I (Upper Rogers Wash) would result in up to approximately 79.4 acres of total anticipated disturbance, with Phase II (Lower Rogers Wash) resulting in up to approximately 16.1 acres of total anticipated disturbance. The 5-acre process area is proposed to contain a mechanical gold-recovery ore wash plant with an appropriately-sized water storage pond, access road, and ore stockpile area for ore and washed materials and would be located within the upper area of Rogers Wash. Mining disturbance would be reclaimed concurrently by using spent ore to backfill mine excavations. Disturbed ground that is not backfilled and recontoured would be limited to less than 45 acres within both mining Phases, plus the 5-acre process area, for a total of 50 acres.

#### **Project Operations: In-Wash**

The proposed Project involves dry extraction of sedimentary material mining within the dry wash, followed by material processing to produce gold concentrate and other valuable minerals. Extraction mining would occur in longitudinal passes through the sedimentary materials to a maximum depth of approximately 50 feet bgs, as graphically shown within attached Figure 3 – Typical Mining Cross-Section. The backfill sections are explained further below within the 'Placer Mining Extraction/Reintroduction Process' Section.

The in-wash mining extraction process would be completed as follows:

- Extraction would move from the uppermost AAD of Phase I, while working downstream in an iterative extraction of several hundred feet along one-half width of the wash channel bed.
- Erosion protection measures would include installation of Jersey barriers (K-Rails) and/or a combination of soil berms that would be placed in an alignment, which would guide potential rainfall runoff moving through the wash away from the extraction area (Figure 3).
- The native materials would be transferred to the wash plant for mineral extraction.
- The native material would then be transferred to the settling pond for a sufficient time to allow for drying.
- The native material would then be returned to the area of original extraction, where it would be placed in lifts and compacted by the machinery action of placing the material.
- The extraction operation would then switch to the other side of the wash channel bed, following the same cycle as the mining moves downstream to the lower reaches of Phase II.



• A re-seeding schedule would be implemented to bring the reclaimed areas back into vegetated compliance. If it is determined that irrigation is necessary for seed establishment, it would be provided at that time.

Given the limited volume of concentrate that would be separated from the ore during the extraction process, the return material volume would be similar to the original extraction and the channel bed can be replaced and compacted returning to the original elevations; the result would be that Rogers Wash would be returned to its pre-mining conditions.

Ongoing mining operations would comply with relevant Mine Safety and Health Administration (MSHA) rules and regulations, including those rules covering powered haulage. Where required, the mine operator would build and maintain temporary safety berms along roadways adjacent to pits or other hazards. Rattler would be required under permits to construct, move, and maintain roadways and safety berms as needed to support operations and comply with applicable MSHA regulations. Rattler would be required to inspect and maintain berm outlets and perform necessary repairs or modifications to prevent flood-induced erosion and ensure future flows are protected from erosion.

## **Evaluated Species**

#### INTRODUCTION

A species proposed as Threatened under the ESA is addressed in this BE Addendum (Table 1). This chapter describes the following for the species:

- Species description;
- Rangewide occurrence;
- Occurrence in the action area;
- Critical habitat;
- Direct and indirect effects;
- Cumulative effects;
- Interrelated and interdependent effects;
- Incidental take, where applicable; and
- Effects determination and rationale.

The environmental baseline is defined by the regulations implementing the ESA (50 CFR, Part 402.02) as the following:

- Past and present impacts of all federal, state, and private actions and other human activities in the action area;
- The anticipated impacts of all proposed state or federal projects in the action area that have already undergone formal or early Section 7 consultation; and
- The impact of state or private actions that are contemporaneous with the consultation process.



#### **SPECIES**

#### **Monarch Butterfly**

Western Monarch butterflies are threatened by a variety of interrelated factors, including habitat loss in breeding and overwintering sites, habitat degradation, disease, pesticide exposure, and climate change (California Department of Fish and Game [CDFG], 2025). As a result, the USFWS proposed to list the Monarch butterfly as a Threatened species under the ESA in December 2024. USFWS may make changes to proposed listing based on public comments/new information.

Western Monarch butterflies depend on a variety of roosting trees, nectar, and milkweed (*Asclepias spp.*) resources during all stages of the year, from spring and summer breeding to fall migration and overwintering. Female Monarch butterflies lay their eggs on the leaves of milkweed species, the sole food source for their caterpillars. Monarch butterflies living west of the Rocky Mountain range in North America generally overwinter in California along the Pacific Coast near Santa Cruz and San Diego (U.S. Forest Service [USFS], 2025). Monarch butterflies in Arizona migrate to known overwintering destinations in Mexico and California, while small numbers overwinter in the lower desert regions in Arizona (Morris, et al., 2015; Van Devender, et al., 2022).

Milkweed in bloom are reportedly the favored nectar for breeding Monarch butterflies in Arizona. While milkweed in bloom is the favored food source, they have also been observed feeding on other common plants and invasive species (Morris, et al., 2015). Nonetheless, Monarch butterfly reproduction is completely dependent on the presence of their larval host plants (i.e., milkweed; Lynch, et al., 1993).

#### Rangewide Occurrence

Adult Monarch butterflies have been reported every month in some years in Arizona, but at varying elevations (Morris, et al., 2015). Data from Monarch butterflies tagged in the southwestern states in the fall suggest those in Nevada migrate to California, those in New Mexico migrate to Mexico, and those in Arizona migrate to either Mexico or California (USFWS, 2020).

The Project area is situated within the low and middle altitude deserts (below 1,067 meters [3,500 feet] amsl) climate zone of Arizona. During warm winters, Monarch butterflies were most commonly reported from September until mid-May in the lower desert elevations. During the fall breeding season, evergreen milkweeds were the primary host plants to breeding Monarch butterflies in the low and midaltitude deserts (Morris, et al., 2015).

#### Occurrence in the Project Area

One Monarch butterfly was reported at the Hassayampa River Preserve near Wickenburg, Arizona in 2014 (Morris, et al., 2015). However, no Monarch butterflies and no milkweed were observed within the Project area during the biological fieldwork completed by Cornerstone in 2023.



#### Critical Habitat

The USFWS has proposed a critical habitat for the species at a portion of its overwintering sites in coastal California. However, no proposed critical habitat is mapped within or near the Project area.

#### Direct and Indirect Effects of the Proposed Action – Monarch Butterfly

Direct and indirect effects could occur through vegetation and topsoil removal, as well as increased noise within the proposed mining disturbance areas. Night operations are not planned as part of the current operating procedures, and lighting is not likely to have an adverse impact on Monarch butterflies. Although the BE did not identify Monarch butterflies or milkweed in the Project area, no specific surveys were completed, as they were not listed as Proposed Threatened under the ESA during that time. Thus, it is unknown if milkweed or any other potential nectar sources are present or absent for Monarch butterflies at the Site. Regardless, it is considered unlikely that milkweed is wide-ranging within the Project area, considering none have been documented. It is more probable that any potential Monarch butterflies would utilize ancillary sources of nectar or nearby habitat along the Hassayampa River west of the Site.

#### Cumulative Effects of the Proposed Action – Monarch Butterfly

Cumulative effects are the additive effects of reasonably certain to occur future state, private, and tribal activities. Cumulative actions that are reasonably certain to occur in the Project area include continued recreational activities and livestock grazing. These types of activities are not anticipated to disturb breeding areas, as no milkweed has been documented in the Project area. Moreover, these activities are not expected to result in substantial disturbance to migrating individuals. Therefore, no cumulative effects are expected to occur.

#### Interrelated or Interdependent Effects

There would be no interrelated or interdependent effects on the Monarch butterfly.

#### Incidental Take

There would be no incidental take for the Monarch butterfly.

#### Effects Determination and Rationale

Implementing the proposed action **may affect**, **but is not likely to adversely affect** the Monarch butterfly.

Proposed action is unlikely to adversely affect the Monarch butterfly, as no Monarch butterflies or milkweed were identified in the Project area during the biological surveys performed by Cornerstone in 2023. Direct effects could occur to ancillary nectar sources, however; these are not anticipated to result in substantial impacts.



Should you have any questions or comments, please do not hesitate to contact us.

Sincerely yours, HALEY & ALDRICH, INC.

Ryan M. Tobias, PWS Environmental Scientist

Enclosures:

Jose Mm

Jason Poulsen, PWS Associate Natural Resource Scientist

References Figure 1 – Site Location Map Figure 2 – Site Plan Figure 3 – Typical Mining Cross-Section Appendix A – USFWS List of Threatened and Endangered Species

https://haleyaldrich.sharepoint.com/sites/KilcullenVenturesLLC/Shared Documents/0201775 Rogers Wash Mine/Rattler Permitting Services/NEPA Services/EA/BE Addendum/2025\_0131\_HAI\_RR\_Biological Evaluation Addendum\_F.docx



## References

- 1. California Department of Fish and Game (CDFG), 2025. *Monarch Butterfly*, accessed 23 January, <u>https://wildlife.ca.gov/Conservation/Invertebrates/Monarch-Butterfly</u>
- 2. Cornerstone Environmental Consulting (Cornerstone), 2024. *Biological Evaluation of 280 Acre BLM Parcel Near Wickenburg, Maricopa County, Arizona*.
- 3. Haley & Aldrich, Inc. (Haley & Aldrich), 2023. *Rattler Resources, LLC. Rogers Wash Placer Mine, Environmental Assessment*, DOI-BLM-AZ-P010-2024-0017-EA, U.S. Department of the Interior, Bureau of Land Management, Hassayampa Field Office, Phoenix, Arizona, December.
- Lynch, S.P. and Martin, R.A., 1993. *Milkweed Host Plant Utilization and Cardenolide* Sequestration by Monarch Butterflies in Louisiana and Texas, in Malcom, S.B., and Zalucki, M.P., eds., Biology and Conservation of the Monarch Butterfly, (Los Angeles: Natural History Museum of Los Angeles County), pp. 107–123.
- 5. Morris, G.M., Kline, C., and Morris, S.M., 2015. *Status of* Danaus plexippus *Population in Arizona*, Journal of the Lepidopterists' Society, 69(2):91-107.
- 6. U.S. Bureau of Land Management (BLM), 2015. *Proposed Grazing Lease Renewal for JV Bar Allotment #06222*. U.S. Department of the Interior, Bureau of Land Management, Hassayampa Field Office, Phoenix, Arizona.
- 7. U.S. Fish and Wildlife Service (USFWS), 2020. *Monarch* (Danaus plexippus) *Species Status Assessment Report*, V2.1, pp. 96 and appendices, September.
- U.S. Forest Service (USFS) 2025. Monarch Butterfly, Migration and Overwintering: <u>https://www.fs.usda.gov/wildflowers/pollinators/Monarch\_Butterfly/migration/index.shtml</u> [Accessed January 23, 2025].
- 9. Van Devender, T.R., and Reina-Guerrero, A.L., 2022. *Monarch Butterflies in Sonora and Adjacent Northwestern Mexico*. Dugesiana 29(2), pp. 181-193, 15 July.

https://haleyaldrich.sharepoint.com/sites/KilcullenVenturesLLC/Shared Documents/0201775 Rogers Wash Mine/Rattler Permitting Services/NEPA Services/EA/BE Addendum/2025\_0131\_HAI\_RR\_Biological Evaluation Addendum\_F.docx



**FIGURES** 





#### LEGEND

----- ACCESS ROAD



ANTICIPATED AREA OF DISTURBANCE (AOD)

PHASE I MINING CLAIM AREA (260 ACRES)

PHASE II MINING CLAIM AREA (70 ACRES)

PROCESS AREA (5 ACRES)



PROJECT SITE BOUNDARY

#### NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. GEN = GENERATOR

3. 79.4 ACRES OF AOD WITHIN THE PHASE I MINING AREA. 16.1 ACRES OF AOD WITHIN THE PHASE II MING AREA.

4. AERIAL IMAGERY SOURCE: ESRI



2,000 1,000 SCALE IN FEET

**ALDRICH** 

ROGERS WASH MINE MARICOPA COUNTY, ARIZONA

### SITE PLAN

OCTOBER 2023

FIGURE 2



APPENDIX A
USFWS List of Threatened and Endangered Species



# United States Department of the Interior

FISH AND WILDLIFE SERVICE Arizona Ecological Services Field Office 9828 North 31st Ave #c3 Phoenix, AZ 85051-2517 Phone: (602) 242-0210 Fax: (602) 242-2513



In Reply Refer To: Project Code: 2025-0045447 Project Name: Rogers Wash Placer Mine 01/22/2025 16:15:53 UTC

# Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The Fish and Wildlife Service (Service) is providing this list under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). The list you have generated identifies threatened, endangered, proposed, and candidate species, and designated and proposed critical habitat, that *may* occur within the One-Range that has been delineated for the species (candidate, proposed, or listed) and it's critical habitat (designated or proposed) with which your project polygon intersects. These range delineations are based on biological metrics, and do not necessarily represent exactly where the species is located. Please refer to the species information found on ECOS to determine if suitable habitat for the species on your list occurs in your project area.

The purpose of the Act is to provide a means whereby threatened and endangered species and the habitats upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of Federal trust resources and to determine whether projects may affect federally listed species and/or designated critical habitat. A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12. If the Federal action agency determines that listed species or critical habitat may be affected by a federally funded, permitted or authorized activity, the agency must consult with us pursuant to 50 CFR 402. Note that a "may affect" determination includes effects that may not be adverse and that may be beneficial, insignificant, or discountable. An effect exists even if only one individual

or habitat segment may be affected. The effects analysis should include the entire action area, which often extends well outside the project boundary or "footprint." For example, projects that involve streams and river systems should consider downstream affects. If the Federal action agency determines that the action may jeopardize a *proposed* species or may adversely modify *proposed* critical habitat, the agency must enter into a section 7 conference. The agency may choose to confer with us on an action that may affect proposed species or critical habitat.

Candidate species are those for which there is sufficient information to support a proposal for listing. Although candidate species have no legal protection under the Act, we recommend that they be considered in the planning process in the event they become proposed or listed prior to project completion. More information on the regulations (50 CFR 402) and procedures for section 7 consultation, including the role of permit or license applicants, can be found in our Endangered Species Consultation Handbook at: <a href="https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf">https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf</a>.

We also advise you to consider species protected under the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712) and the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668 *et seq.*). The MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when authorized by the Service. The Eagle Act prohibits anyone, without a permit, from taking (including disturbing) eagles, and their parts, nests, or eggs. Currently 1,026 species of birds are protected by the MBTA, including the western burrowing owl (*Athene cunicularia hypugaea*). Protected western burrowing owls can be found in urban areas and may use their nest/burrows year-round; destruction of the burrow may result in the unpermitted take of the owl or their eggs.

If a bald eagle or golden eagle nest occurs in or near the proposed project area, our office should be contacted for Technical Assistance. An evaluation must be performed to determine whether the project is likely to disturb or harm eagles. The National Bald Eagle Management Guidelines provide recommendations to minimize potential project impacts to bald eagles (see <a href="https://www.fws.gov/law/bald-and-golden-eagle-protection-act">https://www.fws.gov/law/bald-and-golden-eagle-protection-act</a> and <a href="https://www.fws.gov/program/eagle-management">https://www.fws.gov/program/eagle-management</a>).

The Division of Migratory Birds (505/248-7882) administers and issues permits under the MBTA and Eagle Act, while our office can provide guidance and Technical Assistance. For more information regarding the MBTA, BGEPA, and permitting processes, please visit the following web site: <u>https://www.fws.gov/program/migratory-bird-permit</u>. Guidance for minimizing impacts to migratory birds for communication tower projects (e.g. cellular, digital television, radio, and emergency broadcast) can be found at <u>https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation.</u>

The U.S. Army Corps of Engineers (Corps) may regulate activities that involve streams (including some intermittent streams) and/or wetlands. We recommend that you contact the Corps to determine their interest in proposed projects in these areas. For activities within a National Wildlife Refuge, we recommend that you contact refuge staff for specific information about refuge resources, please visit <u>this link</u> or visit <u>https://www.fws.gov/program/national-</u>

wildlife-refuge-system to locate the refuge you would be working in or around.

If your action is on tribal land or has implications for off-reservation tribal interests, we encourage you to contact the tribe(s) and the Bureau of Indian Affairs (BIA) to discuss potential tribal concerns, and to invite any affected tribe and the BIA to participate in the section 7 consultation. In keeping with our tribal trust responsibility, we will notify tribes that may be affected by proposed actions when section 7 consultation is initiated. For more information, please contact our Tribal Coordinator, John Nystedt, at 928/556-2160 or John Nystedt@fws.gov.

We also recommend you seek additional information and coordinate your project with the Arizona Game and Fish Department. Information on known species detections, special status species, and Arizona species of greatest conservation need, such as the western burrowing owl and the Sonoran desert tortoise (*Gopherus morafkai*) can be found by using their Online Environmental Review Tool, administered through the Heritage Data Management System and Project Evaluation Program (<u>https://www.azgfd.com/wildlife-conservation/planning-for-wildlife/project-evaluation-program/</u>).

We appreciate your concern for threatened and endangered species. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office. If we may be of further assistance, please contact our Flagstaff office at 928/556-2118 for projects in northern Arizona, our general Phoenix number 602/242-0210 for central Arizona, or 520/670-6144 for projects in southern Arizona.

Sincerely, /s/

Heather Whitlaw Field Supervisor Attachment

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds
- Wetlands

# **OFFICIAL SPECIES LIST**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

## Arizona Ecological Services Field Office

9828 North 31st Ave #c3 Phoenix, AZ 85051-2517 (602) 242-0210

## **PROJECT SUMMARY**

Project Code:	2025-0045447
Project Name:	Rogers Wash Placer Mine
Project Type:	Surface Extraction - Non Energy Materials
Project Description:	280 acres, placer mine. Operations would include mining gold-bearing
	gravels from alluvial placer deposits and gravity process the ore on site

Project Location:

The approximate location of the project can be viewed in Google Maps: <u>https://www.google.com/maps/@33.914089700000005,-112.65897054841568,14z</u>



Counties: Maricopa County, Arizona

## **ENDANGERED SPECIES ACT SPECIES**

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. <u>NOAA Fisheries</u>, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## BIRDS

NAME	STATUS
California Least Tern <i>Sternula antillarum browni</i> No critical habitat has been designated for this species. Species profile: <u>https://ecos.fws.gov/ecp/species/8104</u>	Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/6749</u>	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. Species profile: <u>https://ecos.fws.gov/ecp/species/3911</u>	Threatened
FISHES	

NAME	STATUS
Gila Topminnow (incl. Yaqui) Poeciliopsis occidentalis	Endangered
No critical habitat has been designated for this species.	
Species profile: <u>https://ecos.fws.gov/ecp/species/1116</u>	

## INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i>	Proposed
There is <b>proposed</b> critical habitat for this species. Your location does not overlap the critical	Threatened
habitat.	
Species profile: https://ecos.fws.gov/ecp/species/9743	

## **CRITICAL HABITATS**

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

# USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the <u>National Wildlife Refuge</u> system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

# **BALD & GOLDEN EAGLES**

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act  $^2$  and the Migratory Bird Treaty Act (MBTA)  $^1$ . Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

- 1. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 2. The <u>Migratory Birds Treaty Act</u> of 1918.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are Bald Eagles and/or Golden Eagles in your **project** area.

## **Measures for Proactively Minimizing Eagle Impacts**

For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the <u>National Bald Eagle Management Guidelines</u>. You may employ the timing and activity-specific distance recommendations in this document when designing your project/ activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to <u>Bald Eagle Nesting and Sensitivity to Human Activity</u>.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional <u>Migratory Bird Office</u> or <u>Ecological Services Field Office</u>.

If disturbance or take of eagles cannot be avoided, an <u>incidental take permit</u> may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the <u>Do I Need A Permit Tool</u>. For assistance making this determination for golden eagles, please consult with the appropriate Regional <u>Migratory Bird Office</u> or <u>Ecological Services Field Office</u>.

## **Ensure Your Eagle List is Accurate and Complete**

If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the <u>Supplemental Information</u> on <u>Migratory Birds and Eagles</u>, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Golden Eagle <i>Aquila chrysaetos</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31

## **PROBABILITY OF PRESENCE SUMMARY**

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read <u>"Supplemental Information on Migratory Birds and Eagles"</u>, specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

## **Probability of Presence** (

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

## Breeding Season (=)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

## Survey Effort ()

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

## No Data (-)

A week is marked as having no data if there were no survey events for that week.

				probability of presence breeding season survey					effort	— no data		
SPECIES	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bald Eagle Non-BCC Vulnerable	++++	<del> </del>  ≢	$\left  \right  \left  \right $		++++	++++		++++	++++	┼┼┼┼		┼╋┼┼

Golden Eagle Non-BCC Vulnerable



Additional information can be found using the following links:

- Eagle Management <u>https://www.fws.gov/program/eagle-management</u>
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/</u> <u>collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide avoidance and minimization measures for birds <u>https://www.fws.gov/sites/</u> <u>default/files/documents/nationwide-standard-conservation-measures.pdf</u>
- Supplemental Information for Migratory Birds and Eagles in IPaC <u>https://www.fws.gov/</u> media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occurproject-action

# **MIGRATORY BIRDS**

The Migratory Bird Treaty Act (MBTA) <sup>1</sup> prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

- 1. The <u>Migratory Birds Treaty Act</u> of 1918.
- 2. The <u>Bald and Golden Eagle Protection Act</u> of 1940.
- 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. <u>https://ecos.fws.gov/ecp/species/1626</u>	Breeds Oct 15 to Aug 31
Bendire's Thrasher <i>Toxostoma bendirei</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9435</u>	Breeds Mar 15 to Jul 31

NAME	BREEDING SEASON
Costa's Hummingbird Calypte costae This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9470	Breeds Jan 15 to Jun 10
Gila Woodpecker <i>Melanerpes uropygialis</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA <u>https://ecos.fws.gov/ecp/species/5960</u>	Breeds Apr 1 to Aug 31
Golden Eagle Aquila chrysaetos This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1680	Breeds Dec 1 to Aug 31
Lawrence's Goldfinch Spinus lawrencei This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/9464</u>	Breeds Mar 20 to Sep 20
Willet <i>Tringa semipalmata</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <u>https://ecos.fws.gov/ecp/species/10669</u>	Breeds elsewhere

# PROBABILITY OF PRESENCE SUMMARY

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read <u>"Supplemental Information on Migratory Birds and Eagles"</u>, specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

## Probability of Presence (

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

## Breeding Season (=)

Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

## Survey Effort ()

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

## No Data (-)



#### A week is marked as having no data if there were no survey events for that week.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds <u>https://www.fws.gov/library/</u> <u>collections/avoiding-and-minimizing-incidental-take-migratory-birds</u>
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC <u>https://www.fws.gov/</u> <u>media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-</u> <u>project-action</u>

# WETLANDS

Impacts to <u>NWI wetlands</u> and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local <u>U.S. Army Corps of</u> <u>Engineers District</u>.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

R4SBC

## **IPAC USER CONTACT INFORMATION**

Agency:Private EntityName:Ryan TobiasAddress:2769 NE Spring Water PlaceCity:BendState:ORZip:97701Emailrtobias@haleyaldrich.comPhone:5039313157

## LEAD AGENCY CONTACT INFORMATION

Lead Agency: Bureau of Land Management

# Biological Evaluation of 280 Acre BLM Parcel Near Wickenburg, Maricopa County, Arizona

Prepared for

**Rattler Resources, LLC** 

Submitted to

**Bureau of Land Management** 

Prepared by



October 2021 Amended June 2023 Revised November 2024

## **CONTENTS:**

- A. PROPOSED ACTION
- B. SITE VISIT
- C. AFFECTED ENVIRONMENT
- D. NO ACTION AND OTHER ALTERNATIVES
- E. ENVIRONMENTAL EFFECTS
- F. PROTECTED SPECIES
- G. DETERMINATION OF EFFECTS
- H. REFERENCES

Common Name	Scientific Name	Status	Determination
Endangered Species A	Act		
Sonoran Pronghorn	Antilocapra americana sonoriensis	FE	No Effect
Mexican Gray Wolf	Canis lupis baileyi	FE	No Effect
Western Yellow-			May Affect, Is Not Likely to
billed Cuckoo (DPS)	Coccyzus americanus	FT	Adversely Affect
Desert Pupfish	Cyprinodon macularius	FT	No Effect
	<i>v</i> •		No Effect, Potential
			Foraging Habitat but no
Monarch Butterfly	Danaus plexippus plexippus	С	breeding
Nichol's Turk's Head	Echinocactus horizonthalonius var.		
Cactus	nicholii	FE	No Effect
	Echinomastus erectocentrus var.		
Acuna Cactus	acunensis	FE	No Effect
Southwestern			May Affect, Is Not Likely to
Willow Flycatcher	Empidonax traillii extimus	FE	Adversely Affect
Roundtail Chub	Gilo robusta	С	No Effect
Sonoran Desert			May Affect, Is Not Likely to
Tortoise	Gopherus morafkai	С	Adversely Affect
Ocelot	Leopardus(=Felis) pardalis	FE	No Effect
Spikedace	Meda fulgida	FE	No Effect
Gila Topminnow	Poeciliopsis occidentalis occidentalis	FE	No Effect
Colorado			
Pikeminnow	Ptychocheilus lucius	FE	No Effect
Arizona Cliffrose	Purshia (=Cowania) subintegra	FE	No Effect
Yuma Ridgeway's	Rallus obsoletus (=longirostris)		
(Clapper) Rail	yumanensis	FE	No Effect
California Least Tern	Sterna antillarum browni	FE	No Effect
Mexican Spotted Owl	Strix occidentalis lucida	FT	No Effect
Razorback Sucker	Xyrauchen texanus	FE	No Effect
Bureau of Land Mana	agement		
			May Affect, Is Not Likely to
Gilded Flicker	Colaptes chrysoides	Sensitive	Adversely Affect
			May Affect, Is Not Likely to
Purple Martin	Progne subis	Sensitive	Adversely Affect
All Remaining Sensitiv	ve Species	Sensitive	No Effect
Arizona Game and Fi	sh Department	-	
All Protected Species		Protected	No Effect
Bald and Golden Eagle Protection Act			
Bald and Golden Eagle	3	Protected	No Effect
Migratory Bird Treaty Act			
			May Affect, Is Not Likely to
Migratory Birds			Adversely Affect

Table 1. Summary of Effects for Federally Listed and Sensitive and State Protected Species
# A. PROPOSED ACTION

Rattler Resources, LLC (Rattler) is proposing to conduct placer mining within a 280 acre claim on BLM land southeast of Wickenburg, Arizona. The project is proposed to be conducted in two phases, Phase I will mine up to 40 acres in the northeastern portion of the claim, and Phase II will mine up to 50 acres in the southwestern portion (Figure 1). A majority of the area to be mined occurs in the drainage bottom or on the lower portions of the nearby slopes. Mining will remove up to 3 million cubic yards, consisting of the top 6-30 feet of soil using heavy equipment including front loaders and excavators. The extracted materials will be brought to the wash plant which will use water and gravity to separate heavier minerals such as gold, silver, rare earth elements, strategic minerals, and precious metals from sand and gravel. Water for the washing process is from a nearby well will water acquired through permission from the well owner. Additional water needs will be filled through the drilling of an additional well that will be drilled by Rattler.

The separated sand and gravel will be used as fill to restore areas where extraction has taken place, and natural restoration allowed to take place. No revegetation is anticipated to occur. Vegetation other than saguaros will be removed as part of the mining process. Areas immediately surrounding saguaro will be left undisturbed so as not to impact the root system of the saguaros.

All fuel for work conducted on the site will be stored in double-walled tanks that are locked and stored in a fenced area. Fuel capacity will be limited to two tanks totaling approximately 1,000 gallons. All operators will be trained on spill response and clean up.

# **B.** AFFECTED ENVIRONMENT

The project area is in a Xeroriparian habitat with a network of alluvial washes and surrounding hills located east of Highway 60 (North Grand Ave.), east of the Hassayampa River and the Venture Mountains, southwest of Monarch Wash, a tributary to the Hassayampa River, and south of the Wickenburg Mountains. While not currently flowing, the unknown drainage that occurs in the center of the parcels is known to flow following monsoon rains; some standing water was observed as a remnant of recent rains.

The vegetation surrounding this project area is identified as Sonoran Paloverde-Mixed Cacti Desert Scrub (SPMCDS) according to the Southwest Regional GAP Analysis (2001). SPMCDS occurs from 150-1070 m with a bimodal distribution of annual precipitation, with approximately half occurring during the summer, monsoon season, and the remainder falling during the winter. This area is dominated by a sparse, emergent tree layer of saguaro and/or a sparse to moderately dense canopy codominated by xeromorphic, summer-deciduous tall shrub Paloverde. This group occurs on hillsides, mesas, and upper bajadas in southern Arizona and southeastern California (Brown 1982).

The hills within the project area consist predominantly of a poorly sorted light to medium brown consolidated conglomerate and sandstone with some mudstone, siltstone, and clastic rocks consisting of locally derived granites, mixed volcanic, and metamorphic rocks. The washes are predominantly younger alluvial deposits consisting of moderate to poorly sorted, unconsolidated

silt, sand and gravel deposits of active ephemeral washes and alluvial fans on the piedmonts of the Vulture and Wickenburg Mountains.

# C. NO ACTION AND OTHER ACTION ALTERNATIVES

No action and other action alternatives are not considered for this project.

# **D.** ENVIRONMENTAL EFFECTS (PHYSICAL ENVIRONMENT)

The proposed action is anticipated to occur over a multi-year time period, with resource extraction occurring during the entirety of that time. The immediate area has a long history of mining, with the Vulture Mine founded by Henry Wickenburg in 1863. Current estimates identify approximately 33,000 mining claims in the area, of which approximately 2,300 remaining active.

The project area is surrounded by BLM land to the north and west, with limited private property to the west and portions of the southern boundary. One road accesses the project area, with a limited road network extending to the northeast. This parcel is primarily undisturbed with no signs of OHV use and minor signs of trash, most of which is limited to the portions adjacent to private land to the west. A power line bisects the property running primarily from the northwest to the southeast in the western portion.

# **E. SITE VISIT**

A site visit to the project area was conducted on September 2-3, 2021 and June 7-8, 2023, by Cornerstone personnel. Surveyors surveyed the parcel at 15-30m intervals to identify all flora and fauna that occurs in the project area as well and identify potential burrows for desert tortoise (*Gopherus morafkai*) or cavities in saguaro for gilded flickers (*Colaptes chrysoides*) or purple martin (*Progne subis*). Table 2 identifies the flora/fauna identified during this visit. All burrows or cavities that could be used by any of the above species were marked using a Bed Elf<sup>®</sup> GPS receiver connected to a Bluetooth enabled iPad running ESRI's FieldMaps application.

Figure 3 shows the locations of burrows and cavities across the project area. All burrows except for one were located on slopes outside of the drainage bottom. They were located on bare slopes and under heavy vegetation (Figure 5). Surveyors used mirrors to reflect light into each of the burrows, no tortoises were seen. Additionally, no tortoise scat, tracks, or other potential sign was seen to identify any of these burrows as active. Most contained spider webs or dead vegetation at the entrance to the burrow. All cavities identified in saguaro were located on mesa or ridgetops outside of the drainage bottom. Many of the locations on the map identify multiple saguaros within a 10-20 m radius that contain cavities that show sign of use (Figure 6). No birds were seen within or around the cavities. General overviews of the project area are seen in Figures 7 and 8.

Scientific Name	Common Name
Acacia farnesiana	Sweet acacia
Ambrosia deltoidea	Triangleleaf bursage
Bouteloua curtipendula	Sideoats grama
Callipepla gambelii	Gambel's Quail
Carnegiea gigantea	Giant Saguaro
Cylindropuntia acanthocarpa	Buckhorn Cholla
Cylindropuntia leptocaulis	Pencil cholla
Datura sp.	Thorn-apple
Echinocereus engelmannii	Engelmann's hedgehog cactus
Ephedra sp.	Mormon Tea
Ferocactus wislizeni	Fishhook Barrel Cactus
Forestiera pubescens	Desert olive
Fouquieria splendens	Ocotillo
Larrea tridentata	Creosote bush
Melampodium leucanthum	Blackfoot daisy
Opuntia sp.	Prickly Pear
Parkinsonia florida	Blue Palo Verde
Prospis sp.	Mesquite
Anaxyrus punctatus	Red-spotted toad
Cnemidophorus sp.	Whiptail
Orthoporus ornatus	Desert Millipede
Cathartes aura	Turkey Vulture
Melanerpes uropygialis	Gila woodpecker
Streptopelia decaocto	Eurasian Collared Dove
Amphispiza bilineata	Black-throated sparrow
Lepus californicus	Black-tailed Jackrabbit
Neotoma albigula	Packrat midden
Sylvilagus audubonii	Desert Cottontail

 Table 2. Flora/fauna identified during site visit to project area.

# **F. PROTECTED SPECIES**

Table 3 identifies the species that are protected by the United States Fish and Wildlife Service (USFWS), the Bureau of Land Management (BLM), or Arizona Game and Fish Department (AZGFD) within the Hassayampa watershed of Maricopa County, Arizona (Watershed Code 15070103).

A total of 59 protected species were assess for their potential to occur in the project area, sixteen species protected by the Endangered Species Act (five species have critical habitat designated, one has proposed critical habitat), 43 species are listed as BLM Sensitive Species, and 58 have a level of state protection associated with them. Additionally, this project was assessed to determine if there is potential for a "take of eagles" as described by the USFWS in violation of the Bald and Golden Eagle Protection Act.

In accordance with the Migratory Bird Treaty Act, Executive Order 13186, and the MOU signed December 2008, this project was evaluated for its effects on migratory birds. Although other non-native migratory birds may be impacted, The USFWS IPaC resource list identified six species that are considered to be of concern and may have the potential to occur within the project area. One of these migratory species are addressed elsewhere based on status such as federally listed under ESA, federally protected under the Bald and Golden Eagle Protection Act, or as a BLM sensitive species. Three of the other species have the potential to occur in the project area, and the remaining two likely are temporary residents during their migration.

The project is more than 20 miles from any Arizona Important Bird Areas (IBA). IBA's are administered by local Audubon chapters with the stated goal of identifying a network of sites that maintain the long-term viability of wild bird populations while engaging with local communities to conserve areas of critical habitat. The IBAs in the region of the project support a variety of habitats, including desert riparian and wetland vegetation, that are important habitat for resident and migratory bird species, as well as for other wildlife. The primary threats to the IBAs that occur in this area, are the loss of habitat from the spread of invasive plants, urbanization, and a decrease in surface water flows and groundwater recharge.

For those species for which "Neither the habitat nor the species occur within the project area nor would be impacted by this project," there is no further discussion of the species. Though the Longfin Dace does not occur within the project area, it does occur in the Hassayampa River approximately 1 mile west. Rogers Wash is a dry stream bed that only flows during extreme precipitation. There would be no discharge of water, from the project activities, to the ground surface other than in lined pits specifically designed to impound wash water and native materials. Therefore, no water would flow down the wash into the Hassayampa River.

Five species have the potential to occur within or adjacent to the project area: Gilded flicker, purple martin, Sonoran Desert tortoise, southwestern willow flycatcher, and Western yellowbilled cuckoo. Each of these will be further analyzed.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
Pima Indian Mallow	Abutilon parishii	BLMS			h	Rocky slopes, desert mountains	The project area is outside this species' known distribution
Northern Goshawk	Accipiter gentilis atricapillus	BLMS			h	Healthy forests	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Murphey Agave	Agave murpheyi	BLMS			v	Low numbers, desert foothills, central AZ	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Longfin Dace	Agosia chrysogaster	BLMS	2		V	Aquatic	The species and habitat occur in the Hassayampa River approximately 1 mile west. There would be no discharge of water, from the project activities, to the ground surface other than in lined pits specifically designed to impound wash water and native materials. Water flow from project activities would not impact drainage to the specie's habitat in the Hassayampa River.
Arizona Toad	Anaxyrus microscaphus	BLMS	2		v	mid elevation riparian/wetlands	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Sonoran Green Toad	Anaxyrus retiformis	BLMS	2		v	Healthy grasslands	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
						Dry Plains and	
						Desert; primarily	
						found at the Barry	
						M Goldwater Air	
						Force Range and	Neither the species nor its
	Antilocapra					the nearby Cabeza	habitat occur within the project
Sonoran	americana					Prieta National	area or would be impacted by
Pronghorn	sonoriensis		1	FE/NEP	v	Wildlife Refuge	this project.
							Neither the species nor its
							habitat occur within the project
							area or would be impacted by
Golden Eagle	Aquila chrysaetos	BLMS	2		V		this project.
							Neither the species nor its
						Grasslands,	habitat occur within the project
Western	Athene cunicularia					undeveloped valley	area or would be impacted by
Burrowing Owl	hypugaea	BLMS	2		v	bottoms	this project.
							Noither the species per its
							hebitet eccur within the project
Kofa Mountain	Barbaris					Relict species in	area or would be impacted by
Rora Wiountain Berry	harrisoniana	BI MS			V	shady canyons	this project
Delly	narrisoniana	DLMS			v		
							Neither the species nor its
							habitat occur within the project
Ferruginous					_		area or would be impacted by
Hawk	Buteo regalis	BLMS	2		h	Healthy grasslands	this project.
						Mid- to high-	
						elevation	Neither the species nor its
						woodlands above	habitat occur within the project
Mexican Grey	<u> </u>				1	4,500 feet in	area or would be impacted by
Wolf	Canis lupis baileyi		1	FE/NEP	h	elevation	this project.
							Neither the species nor its
							habitat occur within the project
							area or would be impacted by
Giant Sedge	Carex spissa	BLMS			v	Springs	this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
Desert Sucker	Catostomus clarkii	BLMS	2		V	Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Sonora Sucker	Catostomus insignis	BLMS	2		V	Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Western Yellow- billed Cuckoo (DPS)	Coccyzus americanus		1	FT w/pCH	v-pCH	This species is associated with mature stands of cottonwood-willow riparian deciduous forest. It is also known to use dense thickets comprised of mixed hardwoods species with tamarisk included.	Critical habitat is within 100m of the project boundary. The project may affect but is not likely to adversely affect the species
Gilded Flicker	Colaptes chrysoides	BLMS	2		V	Strongly associated with saguaro forests of the Sonoran desert	Habitat for the species occurs within the project area, the project may affect, but is not likely to adversely affect the species
Townsend's Big- eared Bat	Corynorhinus townsendii	BLMS	1		V	Caves, mines	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Gunnison's Prairie Dog	Cynomys gunnisoni	BLMS	1		h	Healthy grasslands	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Desert Pupfish	Cyprinodon macularius		1	FE	V	Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
Monarch Butterfly	Danaus plexippus plexippus	BLMS		С	v	Nectar resources and milkweed required for breeding habitat	Foraging habitat for the species may occur within the project area, the project may affect, but is not likely to adversely affect the species
Nichol's Turk's Head Cactus	Echinocactus horizonthalonius var. nicholii			FE		Sonoran desertscrub, restricted to the Vekol and Waterman Mountains in Arizona	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Acuna Cactus	Echinomastus erectocentrus var. acunensis			FE w/CH	v-CH	Well drained knolls and gravel ridges	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Southwestern Willow Flycatcher	Empidonax traillii extimus		1	FE w/CH	h	This flycatcher breeds principally in (at low elevations) dense willow, cottonwood, and tamarisk thickets and woodland along streams and rivers, and (at high elevations) pure, streamside stands of Geyer willow.	Critical habitat is within 100m of the project boundary. The project may affect but is not likely to adversely affect the species.
Spotted Bat	Euderma maculatum	BLMS	2		h	Caves, mines	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Great Western Mastiff Bat	Eumops perotis californicus	BLMS	2		v	Caves, mines	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
American Peregrine Falcon	Falco peregrinus anatum	BLMS	1		v	Cliffs	Neither the species nor its habitat occur within the project area or would be impacted by this project.
California flannelbush	Fremontodendron californicum	BLMS			v	Relic populations in shady canyons	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Great Plains Narrow-mouthed Toad	Gastrophryne olivacea	BLMS			v	Healthy grasslands	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Roundtail Chub	Gila robusta	BLMS	1	С		Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Cactus Ferruginous Pygmy-Owl	Glaucidium brasilianum cactorum	BLMS	1		v	Dense Sonoran scrub washes, primarily in ironwood forests northwest of Tucson and Marana	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Sonoran Desert Tortoise	Gopherus morafkai	BLMS	1	С	v	Primarly in Arizona Upland Sonoran Desertscrub	Habitat for the species occurs within the project area, the project may affect, but is not likely to adversely affect the species
Pinyon Jay	Gymnorhinus cyanocephalus	BLMS	2		v	Healthy pinyon pine	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
						In Arizona most	
						occur in desert	
						habitats along the	
						Salt River, Verde	
						reservoirs	Neither the species nor its
						Dependent upon	habitat occur within the project
	Halaeetus					water for food	area or would be impacted by
Bald Eagle	leucocephalus	BLMS	1		v	sources	this project.
							Neither the species nor its
							habitat occur within the project
Allen's Big-eared	Idionycteris						area or would be impacted by
Bat	phyllotis	BLMS	2		h	Caves, mines	this project.
							Neither the species nor its
	Kinosternon						habitat occur within the project
Sonoran Mud	sonoriense						area or would be impacted by
Turtle	sonoriense	BLMS	2		v	Riparian/aquatic	this project.
						Desert scrub	
						communities in	Neither the species nor its
	Leonardus (-Felis)					only confirmed in	area or would be impacted by
Ocelot	nardalis		1	FE		Cochise County	this project
	paraans		1	12		county.	Neither the species per its
							habitat occur within the project
Northern Leopard							area or would be impacted by
Frog	Lithobates pipiens	BLMS	1		h	Wetlands	this project.
							Neither the species nor its
							habitat occur within the project
Lowland Leopard	Lithobates						area or would be impacted by
Frog	yavapaiensis	BLMS	1		v	Wetlands	this project.
							Neither the species nor its
							habitat occur within the project
California Leaf-	Macrotus		_				area or would be impacted by
nosed Bat	californicus	BLMS	2		V	Caves, mines	this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
Spikedace	Meda fulgida		1	FE w/ CH	h	Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Arizona myotis	Myotis occultus	BLMS			h	Caves, mines	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Cave Myotis	Myotis velifer	BLMS	2		v	Caves, mines	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Gila Topminnow	Poeciliopsis occidentalis occidentalis		1	FE	v	Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Desert Purple Martin	Progne subis hesperia	BLMS	2		v	Saguaro Cacti	Habitat for the species occurs within the project area, the project may affect, but is not likely to adversely affect the species
Colorado Pikeminnow	Ptychocheilus lucius		1	FE		Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Arizona Cliffrose	Purshia (=Cowania) subintegra			FE		Sonoran desertscrub on limestone formed from Tertiary lakebed deposits.	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
Yuma Ridgeway's (Clapper) Rail	Rallus obsoletus (=longirostris) yumanensis		1	FE	v	Found in dense cattail or cattail- bulrush marshes along the Gila River in central Arizona	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Speckled Dace	Rhinichthys osculus	BLMS			V	Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Lowland Burrowing Treefrog	Smilisca fodiens	BLMS	2		V	Healthy grasslands	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Schott Wire- lettuce	Stephanomeria exiqua ssp. exiqua	BLMS			h	Sand dunes, sandy soils	Neither the species nor its habitat occur within the project area or would be impacted by this project.
California Least Tern	Sterna antillarum browni			FE	h	Large lakes, recharge basins, or wetland areas	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Mexican Spotted Owl	Strix occidentalis lucida		1	FT w/CH	h	Known to nest in high elevation ponderosa pine/Gambel oak and mixed conifer and canyon lands.	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Aravaipa Woodfern	Thelypteris puberula var. sonorensis	BLMS			h	Few scattered springs	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Le Conte's Thrasher	Toxostoma lecontei	BLMS	2		v	Remote creosote scrub	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Common Name	Scientific Name	BLM	SGCN	USFWS	Occurrence	Habitat/Notes	Potential to Occur
Bendire's Thrasher	Toxostoma bendirei		2			Sonoran Desert among cholla cactus, shrubs, and grasses	
Tumamoc Globeberry	Tumamoca macdougalii	BLMS			V	Few populations, Sonoran Desert plains	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Arizona Sonoran Rosewood	Vauquelinia californica ssp. sonorensis	BLMS			v	Relict species in shady canyons	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Razorback Sucker	Xyrauchen texanus		1	FE w/CH		Aquatic	Neither the species nor its habitat occur within the project area or would be impacted by this project.
Joshua Tree	Yucca brevifolia	BLMS			v	Found in western Maricopa County, within the geographical reach of the Mojave Desert	Neither the species nor its habitat occur within the project area or would be impacted by this project.

Table 3. Protected species with the potential to occur within the project area.

Table Definitions:

- FE: Listed Endangered under the Endangered Species Act (ESA)
- FT: Listed Threatened under the ESA
- NEP: Experimental Non-Essential Population
- CH: Critical Habitat (p: proposed)
- BLMS: BLM Sensitive Species
- SGCN: AZGFD State Wildlife Action Species of Greatest Conservation Need
  - 1A: Scored "1" for Vulnerability in at least one of the eight categories and matches at least one of the following: Federally listed as endangered or threatened under the Endangered Species Act (ESA); Candidate species under ESA; Is specifically covered under a signed conservation agreement (CCA) or a signed conservation agreement with assurances (CCAA); Recently removed from ESA and currently requires post-

delisting monitoring; Closed season species (i.e., no take permitted) as identified in Arizona Game and Fish Commission Orders 40, 41, 42 or 43.

- 0 1B: Scored "1" for Vulnerability in at least one of the eight categories, but match none of the above criteria.
- 1C: Unknown status species. Scored "0" for Vulnerability in one of the eight categories, meaning there are no data with which to address one or more categories, and vulnerability status cannot be assessed.
- **S1** Critically Imperiled: Critically imperiled in the subnation because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the subnation. Typically 5 or fewer occurrences\* or very few remaining individuals (<1,000).
- **S2** Imperiled: Imperiled in the subnation because of rarity or because of some factor(s) making it very vulnerable to extirpation from the subnation. Typically 6 to 20 occurrences\* or few remaining individuals (1,000 to 3,000).
- S3 Vulnerable: Vulnerable in the subnation either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically 21 to 100 occurrences\* or between 3,000 and 10,000 individuals.
- S4 Apparently Secure: Uncommon but not rare, and usually widespread in the subnation. Possible cause of long-term concern. Usually more than 100 occurrences\* and more than 10,000 individuals.
- S5 Secure: Common, widespread, and abundant in the subnation. Essentially ineradicable under present conditions. Typically, with considerably more than 100 occurrences\* and more than 10,000 individuals.
- **SX** Presumed Extinct: Element is believed to be extirpated from the subnation. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
- SNR Unranked: Subnational rank not yet assessed. This includes the former state rank S?
- SU Unrankable: Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

#### Sonoran Desert Tortoise – Gopherus marafkai

Endangered Species Act Status: BLM Status: Recovery Plan: Critical Habitat: Effects Determination: Candidate, 2014 Arizona BLM Sensitive No None designated May Affect, Is Not Likely to Adversely Affect

#### Natural History

The natural history of the Sonoran Desert Tortoise is detailed in the Species Status Assessment and Candidate Conservation Agreement and these documents are incorporated by reference into this BE (USFWS 2015a, 2015b). The species is found in portions of western, northwestern, and southern Arizona and the northern two-thirds of the Mexican State of Sonora. In the United States, this tortoise is found primarily on rocky slopes and bajadas of Mohave desertscrub and Arizona Upland and Lower Colorado River Valley subdivisions of Sonoran desertscrub. The species most often occurs in paloverde-mixed cacti associations, but has been documented in additional habitats, including semi-desert grassland, interior chaparral, oak woodland, ponderosa pine-dominated coniferous forests, and thorn-scrub habitats (USFWS 2015b). Most individuals in Arizona have been found at elevations ranging from approximately 900 to 4,200 feet (275 to 1,279 meters).

This tortoise is an herbivore that has been documented to eat 199 different species of plants from a variety of categories, including herbs (55.3%), woody plants (22.1%), grasses (17.6%), and succulents (5%) [Ogden 1993,Van Devender *et al.* 2002, Brennan and Holycross 2006, Oftedal 2007, Ernst and Lovich 2009, Meyer *et al.* 2010]. It was previously assumed that these tortoises obtain most of their metabolic water from their diet, but recent research has shown that they are less reliant on vegetation than was thought, and tortoises become surface-active to drink free-standing water whenever precipitation occurs regardless of the time of year (Sullivan *et al.* 2014). When free-standing water is available, tortoises will drink to flush salts in their system that may have increased due to their diet, to reset the electrolyte balance in preparation for the next dry period, and to store water in their large, bi-lobed bladder.

Sonoran Desert tortoises spend up to 98% of their lives within burrows, both to escape temperature extremes, but also as a shelter for nesting or protection from predators. These burrows can be found in loose soil areas below rocks and boulders, beneath vegetation, on semi-open slopes, and within caliche caves of washes. Burrows are generally located on slopes of greater than 5%, with slope being a dominant predictor of tortoise occupancy in the Sonoran Desert (USFWS 2015b). These tortoises are attracted to areas that contain exposed calcium carbonate that they ingest for additional nutrient and mineral support, for assistance in griding plant material in their stomachs, or to expel parasites in their intestinal tracts.

The species is long lived and grows slowly, with adulthood generally considered around 16 years. Assumed longevity of the species ranges from 42 to 54 years with many individuals presumed to live longer. Due to their hard shells and size, adults of the species are relatively protected from natural predation, with an annual survivorship around 92%, but juveniles have a high mortality rate with an expected 7-13% of juveniles surviving to adulthood (Campbell *et al.* 2014, Zylstra *et al.* 2013).

Breeding generally occurs from July through October, with approximately half of the adult females in a population reproducing in a given year. Clutch sizes vary from 1-12 eggs per year with approximately 2/3 of those eggs hatching. Gila monsters (*Heloderma suspectum*), coachwhips ((*Coluber* (=Masticophis) *flagellum*) and gophersnakes (*Pituophis catenifer*) are reported to be predators of the eggs and young tortoises, with mammalian and avian predators also consuming numbers of young.

## Reasons for Listing/Threats

Threats to the Sonoran Desert Tortoise are fully examined in the 2014 Candidate Conservation Agreement. Sonoran Desert Tortoise was listed due to significant portions of habitat that have been lost due to commercial development, invasion by nonnative plants and altered fire regimes, impacts from recreation including OHV use; ironwood and mesquite harvesting for charcoal production and use in wood carvings; livestock grazing; undocumented human immigration; overutilization by private and commercial collectors; disease or predation by insects and mammals; predation from feral or off-leash dogs; human depredation and vandalism; the inadequacy of existing regulatory mechanisms; environmental contaminants; vehicle strike mortalities; balloons and trash; and, climate change.

### Critical Habitat

No critical habitat has been designated.

## Status of the Species

The 2015 12-Month finding on the Petition to List the Species as Endangered or Threatened states that the best available scientific information suggests that the species has not experienced any appreciable reduction in its overall range or abundance relative to historical levels (USFWS 2015c). It is predicted that there is approximately 38,000 sq mi of potential tortoise habitat, with 8-25% of that being categorized as primary quality, 62-75% categorized as secondary quality, and 13-17% categorized as tertiary quality. Using these habitat assessments, it is estimated that there are 470,000-970,000 total adult tortoises, with 310,000-640,000 of those in the United States (USFWS 2015c).

### Effects Analysis

Sonoran Desert Tortoise have to potential to be within the project area, with the BLM classifying the habitat as Class Two.

# Direct effects

Mining activities proposed for this project area will remove vegetation and 6-30 ft of topsoil throughout the proposed mining areas as identified in Figure 1. A slope analysis was conducted to identify areas with greater than 5% slope within the proposed mining area that highlights potential desert tortoise habitat. Approximately 65 acres of the proposed mining area contains slopes greater than 5%, with approximately 80% of that falling within a range of 5-35% slope (Figure 4). Of the nine potential burrows identified during the survey, two occurred within the proposed mining area, with one located under an overhang in the drainage bottom (Figure 3).

### Indirect effects

Indirect effects such as dust, vibration, noise, and lighting associated with clearing of the land and operation of the mine may cause desert tortoise to leave their burrows outside of normal time periods in and around the area identified as being affected by the proposed action.

#### Determination of Effects

*Effects to the Species:* The proposed action may affect, is not likely to adversely affect, the Sonoran Desert Tortoise.

*Rationale:* The likelihood of direct effects to Sonoran Desert tortoise exists through the disturbance and potential loss of 65 acres of habitat. Surveys identified two potential tortoise burrows within the proposed mining area and five additional burrows in areas adjacent to the proposed mining area that have the potential to be disturbed if in use. There was no sign that any of these burrows were in use or that any tortoises are present, but there exists a potential for Sonoran Desert tortoise to occupy these or any undiscovered burrows in the project area. No critical habitat has been designated for this species; therefore, none will be affected.

Gilded Flicker – Colaptes chrysoides	
Endangered Species Act Status:	None
BLM Status:	Arizona BLM Sensitive
Recovery Plan:	None
Critical Habitat:	None designated
Effects Determination:	May Affect, Is Not Likely to Adversely Affect

### Natural History

The gilded flicker is a large woodpecker that since 1995 has been considered a distinct species by the American Ornithologists Union, prior to this time, it was considered a subspecies, or at times the same species as, the northern flicker. The species occur mostly where saguaro and Joshua trees (*Yucca brevifolia*) exist along the Lower Colorado River, in southern Nevada, southern Arizona, and eastern California, south through Baja, and west through the Sonoran Desert. They are a non-migratory species that utilize mature saguaro, cottonwood, willow, and honey mesquite trees for nest cavities, with saguaro being the preferred nest substrate.

Nest cavity construction is conducted by both male and female species and can take weeks to complete. Nesting begins in mid-March with young observed in early April through early July. Average clutch size is 4.2 eggs per attempt with a potential for a second breeding attempt in a season if the first brood fails. Incubation takes approximately 11 days and fledging of the young between 21-27 days old.

This species feeds primarily on ants and ground beetles, with a shift to fruit in the fall and winter. They primarily forage on the ground, in soil, and in anthills, probing and utilizing their bills to access their prey. They are rarely seen to forage in trees.

Harris hawks (*Parabuteo unicinctus*), sharp-shinned hawks (*Accipiter striatus*), Cooper's hawks (*A. cooperii*), and broad-winged hawks (*Buteo platypterus*) have been found to prey on gilded flickers, with various species of rodents, lizards, snakes, crows, ravens, and racoons identified as common predators of nestlings.

#### Reasons for Listing/Threats

Threats to the gilded flicker include fire weather that may incinerate habitat; spring heat waves that endanger young birds in the nest; urbanization that may remove habitat; and drought that destroys water and food resources.

#### Critical Habitat

No critical habitat has been designated.

#### Status of the Species

The species is still fairly common throughout its range but is vulnerable to loss of habitat.

#### Effects Analysis

Gilded flicker have the potential to be present within the project area.

#### Direct effects

Mining activities proposed for this project area will remove almost all vegetation except for saguaros and 6-30 ft of topsoil throughout the proposed mining areas as identified in Figure 1. Mining will occur around the saguaro, so dust, vibration, noise, and lighting will be immediately adjacent to any saguaro within the mining path. Prey species including ant nests will be removed during the topsoil removal and those colonies will be lost.

#### Indirect effects

Indirect effects such as dust, vibration, noise, and lighting associated with clearing of the land and operation of the mine are not expected to result in any effects to the gilded flicker outside of the area identified as being affected by the proposed action.

#### **Determination of Effects**

*Effects to the Species:* The proposed action may affect, is not likely to adversely affect, the Gilded Flicker.

*Rationale:* During the field survey most of the cavities identified within saguaro that have the potential for use by purple martin were on ridgetops or outside of the proposed mining area. A majority of saguaro were seen on the flat ridgetop to the south of where Phase I mining is anticipated to occur. No gilded flicker were identified during the field survey, but there exists a potential for gilded flickers to occupy and nest in the project area. No critical habitat has been designated for this species; therefore, none will be affected.

Purple Martin – Progne subis	
Endangered Species Act Status:	None
BLM Status:	Arizona BLM Sensitive
Recovery Plan:	None
Critical Habitat:	None designated
Effects Determination:	May Affect, Is Not Likely to Adversely Affect

### Natural History

The purple martin is the largest member of the swallow family in North America and is found throughout the eastern US where they nest almost exclusively in man-made martin houses. In the western US, they are summer residents in parts of Arizona and uncommon breeders throughout portions of the Rocky Mountains and along the West Coast. The purple martin winters in South America, with three main migration routes occurring, the western population moving through Mexico, portions of the eastern population cross the Gulf of Mexico from the Yucatan Peninsula, and the third group moving through the Caribbean islands to Florida. Fall migration can start as early as mid-July and as late as October or November. In Arizona the species begins to arrive back from South America in March.

The Arizona population largely nests in abandoned woodpecker nest cavities in saguaro. The nests typically have 5-6 eggs with one egg laid per day at sunrise until egg-laying stops. Incubation is approximately 15 days and fledging occurs 25-35 days after hatching. They forage almost exclusively from the air, existing on a diet of insects. They have been known to eat wasps, winged ants, bees, flies, beetles, moths, butterflies, dragonflies, and some spiders.

### Reasons for Listing/Threats

Threats to the purple martin include loss of habitat and potential competition with the European starling (*Sturnus vulgaris*) and house finch (*Haemorhous mexicanus*) for nest sites.

### Critical Habitat

No critical habitat has been designated.

#### Status of the Species

The species has declined seriously in parts of the west and is currently declining in the east.

### Effects Analysis

Purple martin have the potential to be present within the project area.

### Direct effects

Mining activities proposed for this project area will remove almost all vegetation except for saguaros and 6-30 ft of topsoil throughout the proposed mining areas as identified in Figure 1. Mining will occur around the saguaro, so dust, vibration, noise, and lighting will be immediately adjacent to any saguaro within the mining path. Prey species populations may be diminished in the immediate area due to the loss of habitat from vegetation clearance.

### Indirect effects

Indirect effects such as dust, vibration, noise, and lighting associated with clearing of the land and operation of the mine are not expected to result in any effects to the purple martin outside of the area identified as being affected by the proposed action.

#### **Determination of Effects**

Effects to the Species: The proposed action may affect, is not likely to adversely affect, the purple martin.

*Rationale:* During the field survey most of the cavities identified within saguaro that have the potential for use by purple martin were on ridgetops or outside of the proposed mining area. No purple martin were

identified during the field survey, but there exists a potential for purple martin to occupy and nest in the project area. No critical habitat has been designated for this species; therefore, none will be affected.

#### Southwestern willow flycatcher – Empidonax traillii extimus

Endangered Species Act Status:	Endangered
BLM Status:	NA
Recovery Plan:	Final – August 2002
Critical Habitat:	Designated
Effects Determination:	May Affect, Is Not Likely to
	Adversely Affect

### Natural History

The southwestern willow flycatcher is one of four subspecies of willow flycatchers in the United States and was listed as endangered by the USFWS in 1995. This small, neotropical migrant breeds in patches of riparian habitat throughout the southwestern United States extending from southern California through the Four Corners region to western Texas and northwestern Mexico with winter ranges extending to northern South America.

Southwestern willow flycatchers require a moist microclimate, breeding only in a dense riparian habitat with saturated soils or surface water in the immediate area. They are known to build nests in nonnative tamarisk as well as native willows, usually in tall, dense stands between 4-7m in height. They typically prefer habitat patches that are larger in size (~200 hectares) but can utilize areas as small as 0.6 hectares. Winter migration routes tend to utilize similar habitat, but smaller, less dense areas are more likely to be used during this time than during breeding periods. Breeding season is usually from late April through August, with most fledging happening in June or July.

The species primarily feeds on insects, using short flights, or hovering techniques to pick insects out of the air or off of foliage. They will forage above and inside the canopy, utilizing the edge and openings of their territories, preying upon insects as diverse as flying ants, dragonflies, mosquitoes, gnats, aphids, etc.

#### Reasons for Listing/Threats

Threats to the southwestern willow flycatcher include the loss and degradation of dense, native riparian habitats due to the construction of dams, water diversions for agriculture, and groundwater pumping. Additionally, replacement of native habitat, livestock grazing, OHV use, increased fire, and urban development have all contributed to a loss of habitat and exposure to the brown-headed cowbird (*Molothrus ater*) a brood parasite.

#### Critical Habitat

Critical habitat has been designated with the nearest critical habitat occurring along the Hassayampa River, approximately 100m west of the parcel, but 500m west of the proposed disturbance.

#### Status of the Species

Breeding population numbers of the species have increased over the last two decades in part due to the increase in surveys, but the distribution and abundance of the species is still lacking information. As of the 2017 5-Year review, the rangewide territory numbers were still below the threshold set by the USFWS for downlisting or delisting.

# Effects Analysis

Southwestern willow flycatchers have the potential to be present within the project area for foraging or as part of their migration.

## Direct effects

Mining activities proposed for this project area will remove almost all vegetation except for saguaros and 6-30 ft of topsoil throughout the proposed mining areas as identified in Figure 1. Potential roosts and hunting perches for foraging or migrating individuals will be lost from this action.

## Indirect effects

Indirect effects such as dust, vibration, noise, and lighting associated with clearing of the land and operation of the mine are not expected to result in any effects to the southwestern willow flycatcher outside of the area identified as being affected by the proposed action. A 4-lane highway (US-60) separates the parcel from critical habitat for the species, which produces more consistent dust, vibration, noise, and lighting than is anticipated from the operation of the mine.

### Determination of Effects

*Effects to the Species:* The proposed action may affect, is not likely to adversely affect, the southwestern willow flycatcher.

*Rationale:* During the field survey no riparian habitat was observed, and no southwestern willow flycatchers were identified. No critical habitat has been designated within the project area for this species; therefore, none will be affected.

### Western Yellow-billed Cuckoo – Coccyzus americanus

Endangered Species Act Status:	Threatened
BLM Status:	NA
Recovery Plan:	None
Critical Habitat:	Designated
Effects Determination:	May Affect, Is Not Likely to
	Adversely Affect

# Natural History

A neo-tropical bird in the cuckoo family, the Western yellow-billed cuckoo is identified as a distinct population segment by the USFWS for conservation purposes and has been listed as Threatened under the Endangered Species Act since 2001. Historically, breeding individuals occurred west of the Continental Divide, extending from British Columbia south into northern Mexico, wintering in South America.

They are a riparian species that breeds in low- to moderate-elevation native forests that line the rivers and streams of the western United States. They require large contiguous patches of multilayered riparian habitat for nesting, preferring cottonwood-willow forests, but also will utilize other riparian tree species including alder, box elder, and oak amongst other species. A multilayer canopy that produces shade and cooler temperatures with higher humidity is believed to be important for nesting success. Nesting occurs in mid to late June with fledging of the young occurring approximately 17 days after egg laying.

The species is known to be a stealth hunter, perching motionlessly on a tree branch to hunt caterpillars, cicadas, and other insects, or utilizing short flights to hunt flying insects. Opportunistically the birds will capture and eat frogs and lizards and will supplement with fruit and seeds, more frequently during the winter.

### Reasons for Listing/Threats

Threats to the Western yellow-billed cuckoo include the loss and degradation of native riparian habitat due to residential development, ground-water pumping, agriculture, flood control, and the spread of non-native invasive plants that outcompete and diminish the native habitats.

## Critical Habitat

Critical habitat has been designated with the nearest critical habitat occurring along the Hassayampa River, approximately 100m west of the parcel, but 500m west of the proposed disturbance.

## Status of the Species

Population numbers of the species have plummeted over the past several decades, owing to a loss of their breeding range. The species is no longer seen in the Pacific Northwest or British Columbia, with the species only found in isolated patches of riparian habitat in Arizona, California, and New Mexico.

# Effects Analysis

Western yellow-billed cuckoos have the potential to be present within the project area for foraging or as part of their migration.

# Direct effects

Mining activities proposed for this project area will remove almost all vegetation except for saguaros and 6-30 ft of topsoil throughout the proposed mining areas as identified in Figure 1. Potential roosts and hunting perches for foraging or migrating individuals will be lost from this action.

# Indirect effects

Indirect effects such as dust, vibration, noise, and lighting associated with clearing of the land and operation of the mine are not expected to result in any effects to the Western yellow-billed cuckoo outside of the area identified as being affected by the proposed action. A 4-lane highway (US-60) separates the parcel from critical habitat for the species, which produces more consistent dust, vibration, noise, and lighting than is anticipated from the operation of the mine.

# Determination of Effects

*Effects to the Species:* The proposed action may affect, is not likely to adversely affect, the Western yellow-billed cuckoo.

*Rationale:* During the field survey no riparian habitat was observed, and no Western yellow-billed cuckoos were identified. No critical habitat has been designated within the project area for this species; therefore, none will be affected.

# G. DETERMINATION OF EFFECTS

The purpose of this biological evaluation is to document the determination of effects of the proposed action on federally listed species and their designated/proposed critical habitat under the Endangered Species Act (ESA), as well as on AZGFD and BLM sensitive plant and animal species.

ESA species and habitats: Based on the effects analyses above,

I find that this project will have no effect to federally listed species and to designated or proposed critical habitat (see Table 3).

AZGFD Protected species: Based on the effects analyses above,

I find that this project will have no effect to any AZGFD Protected species (see Table 3)

BLM Sensitive species: Based on the effects analyses above,

I find that this project may affect, will not likely adversely affect three BLM Sensitive species, and will have no effect to the remaining BLM Sensitive species (see Table 3)

Bald and Golden Eagles: Based on the effects analyses above,

I find that this project will have no effect to any Bald and Golden Eagles (see Table 3)

Migratory Bird species: Based on the effects analyses above,

I find that this project will have no effect to any Migratory Bird species

# **H. REFERENCES**

- Brennan, T. C. and A. T. Holycross. 2006. A field guide to amphibians and reptiles in Arizona. Arizona Game and Fish Department, Phoenix. 150 pp. Brown 1982
- Brown, D.E. 1982. Biotic communities of the American Southwest-United States and Mexico. Desert Plants Special Issue 4(1-4):1-342.
- Campbell, S. P., R. J. Steidl, and E. R. Zylstra. 2014. Spatial variation in demography and population viability of Sonoran desert tortoises. Final report to Arizona Game and Fish Department.
   Prepared by the School of Natural Resources and the Environment, University of Arizona, Tucson, Arizona. 40 pp.Ernst and Lovich 2009
- Meyer, W. W., P. R. Ogden, K. E. Cline, E. Lamar Smith, G. B. Ruyle, F. K. Meyer, and J. A. Cordrey. 2010. An eighteen year study of population dynamics, diet and health of the Sonoran desert tortoise (*Gopherus agassizii*) in the San Pedro Valley of southern Arizona. Unpublished report submitted to the U.S. Fish and Wildlife Service. 54 pp. Oftedal 2007
- Ogden, P. R. 1993. Diets of desert tortoise (*Xerobates agassizii*) along the San Pedro watershed in Arizona. Symposium of Vegetation Management of Hot Desert Rangeland Ecosystems. July 28-30, 1993. Phoenix, Arizona. 8 pp. Sullivan *et al.* 2014
- Southwest Regional GAP Analysis (SWRGA). 2001. [Online] [Accessed September 1, 2021]. https://swregap.org/
- United States Fish and Wildlife Service (USFWS). 2015a. Species Status Assessment for the Sonoran Desert Tortoise. Version 1.0, September 2015. USFWS, Southwest Region, Albuquerque, N.M.
- United States Fish and Wildlife Service (USFWS). 2015b. Candidate Conservation Agreement for the Sonoran Desert Tortoise (*Gopherus morfkai*) in Arizona. May 27, 2015.
- United States Fish and Wildlife Service (USFWS). 2015c. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List Sonoran Desert Tortoise as an Endangered or Threatened Species. Federal Register Vol. 80, No. 193, Page 60321.
- Van Devender, T. R., R. C. Averill-Murray, T. C. Esque, P. A. Holm, V. M. Dickinson, C. R. Schwalbe, E. B. Wirt, and S. L. Barrett. 2002. Grasses, mallows, desert vine, and more. pp. 160-193 *in* Van Devender, T. R (ed.). 2002. The Sonoran Desert Tortoise: Natural History, Biology, and Conservation. The University of Arizona Press and the Arizona-Sonora Desert Museum. Tucson, Arizona.
- Zylstra, E. R., R. J. Steidl, C. A. Jones, and R. C. Averill-Murray. 2013. Spatial and temporal variation in survival of a rare reptile: a 22-year study of Sonoran desert tortoises. Oecologia 173:107–116.



Figure 1. Aerial photograph and general location of the project area.



Figure 2. Topographical map and general location of the project area.



Figure 3. Aerial photograph and general location of the project area.



Figure 4. Slope in proposed mining area.



**Figure 5**. Potential tortoise burrow below a paloverde.



Figure 6. Cavities in saguaro on ridgetop.



Figure 7. Overview photo looking south.



Figure 8. Overview photo looking southwest.



320 N. Leroux Street, Suite A Flagstaff, Arizona 86001 (928) 522-4148

June 19, 2023

Rob Graham Operations Manager Kilcullen Venture, LLC 340 W. Wickenburg Way, Ste A65 Wickenburg, AZ 85390 via email: grahamr91@gmail.com

## Re: Native Plant Report for Rattler Claim

"Nowhere in the United States are there more rare and unusual native plants than in Arizona. Most of them are many years old and cannot be replaced. Many people desire to use these "wonders of nature" in their landscaping. However, most of these plants are protected by law. Also, all land in the State of Arizona belongs to someone, whether it be a government agency or a private citizen. Plants cannot be removed from any lands without permission of the owner and a permit from the Department of Agriculture. Lessees of State or federal land must obtain specific authorization from the landlord agency to remove protected native plants" (From Arizona Department of Agriculture Native Plants website).

The Arizona Department of Agriculture (Department) identifies the procedures required to obtain a permit to remove protected native plants according to the following steps:

- 1. Download the application form you need.
  - a. For this project the 'Arizona Protected Native Plants and Wood Removal Application' and 'Notice of Intent to Clear Land' will be required.
- 2. The landowner or lessee must complete the application form with all required information included.
- 3. The completed application may be presented in person or sent by mail to the nearest Department office for verification of information.
- 4. Following approval of the information, the applicant will need to visit a Department office to obtain the permit, tags, and seals.



# CORNERSTONE environmental

- 5. Prior to land clearing, the law requires that the native plant tag and seal be affixed to each protected native plant before it is removed.
- 6. A notice period is required for the applicant to notify the Department that clearing will be conducted so that landowners/developers who are interested in salvaging protected native plants are provided with the opportunity to do so.
  - a. For this project, and all projects of 40 acres or more, a written notice 60 days prior to clearing is required. The written notice ('Notice of Intent to Clear Land' form) must be sent to:

Central Licensing 1802 W Jackson St, #78 Phoenix, Arizona 85007

7. Permit, Seal and Tag Fees according to the Department are as follows: Permit, Seal & Tag Fees

Туре	Cost
Permit (one-time use)	\$7
"Salvage Assessed" Permit (annual)	\$35
"Harvest Restricted" Permit (annual)	\$35
Seal Fee (for each plant)	\$0.15
Saguaro Tag	\$8
All Other Native Plant & Tree Tags (for plants on the Department's protected native plant list)	\$6
"Harvest Restricted" Trees (cut for firewood)	\$6 per cord of wood
Pincushion, Coryphantha & Mammillaria Tags	\$0.50
Certificate of Inspection Fee (for shipments of "harvest restricted" native plants that enter or leave the state)	\$15
Nolina or Yucca Parts (weighed on a state-certified bonded scale; weight certificate should be submitted with payment no later than the 10th day of the month following each harvest)	\$6 per ton

# CORNERSTONE environmental

Native Plant counts were conducted for protected native plants that occur within the proposed disturbance area of the Rattler Claim on BLM Land in Maricopa County, Arizona on May 14-15 and June 7, 2023 by the Cornerstone biologist. A systematic survey was conducted that covered all areas that fall within the proposed disturbance area with transects covering at a minimum a width of 20m (Figure 1). All plants that are identified in "Appendix A. Protected Native Plants by Category" of Title 3, Chapter 3, Article 11of the Arizona Administrative Code were identified and tabulated.

		Co	st per					
Plant	Total	plant		Cost				
Mesquite	273	\$	6.00	\$	1,638.00			
Palo Verde	746	\$	6.00	\$	4,476.00			
Smoke Tree	88	\$	6.00	\$	528.00			
Buckthorn Cholla	1220	\$	6.00	\$	7,320.00			
Fishhook Barrel Cactus	124	\$	6.00	\$	744.00			
Engelman's Hedgehog Cactus	169	\$	6.00	\$	1,014.00			
Saguaro	112	\$	8.00	\$	896.00			
Pancake Prickly Pear	6	\$	6.00	\$	36.00			
Pencil Cholla	4	\$	6.00	\$	24.00			
Ocotillo	18	\$	6.00	\$	108.00			
Subtotal				\$	16,784.00			
Permit Fees				\$	77.00	Permit fees include:		
Seal Fee (\$0.15/plant)				\$	414.00	Permit (one-time use): \$7		
						"Salvage Assessed" Permit: \$35		
Total				\$	17,275.00	"Harvet Restricted" Permit: \$35		

Results for these surveys with associated costs are below:

The submission of both forms should be conducted following NEPA compliance with the BLM. In person permits are sold Monday-Friday, 8:00am - 4:30pm, by <u>appointment only</u>. The Phoenix office can be found at:

1010 West Washington Street Phoenix, Arizona 85007 Phone: (602) 542-3578



Rattler Native Plant Counts Native Plant Removal

NAD 1983 UTM Zone 12N

T 7N R 4W Sec.26, 27, 33, 34

USGS 7.5' Quadrangle Wickneburg





APPENDIX C Reclamation Cost Estimating Workbooks – Phase I and Phase II

	А	В	С	D	E	F	G	Н
1	RECLAMATION BOND CAL	CU	LATION SPREAD	SHEET	- USER INPU	T SHEET		
2								
2								
3	NOTE. USE THIS SPREADSHEET C		IF TOUR TOTAL DIS	IURBANC	E IS LESS I HAN	20 ACRES	AND AN AQUIFER	
4	PROTECTION PERMIT IS NO	<u> </u>	EQUIRED.					
5								
6	USER INPUT AND RECLAMATION C	COST	<u>I TOTAL</u>					
7	Please fill in the yellow cells relating to	the	areas to be disturbed o	luring the c	peration.			
8	Use the units indicated - feet (ft), squa	re fe	et (sf), inches (in), cubi	c yards (cι	ı yd), etc.			
9	Identify structure construction type by	placi	ng an X in the appropri	ate cell (lin	e 120-129).			
10	Leave cells that do not apply to your o	pera	tion blank.					
11	Hover on cells with red in upper right of	orne	r to see note to user.					
12	· · ·							
13	Roads	#1	Length (ft)	800	Width (ft)	20		
14	(average lengths and widths)	#2	Length (ft)		Width (ft)			
15		#3	Length (ft)		Width (ft)			
16		"0	Longin (it)		Width (It)			
10	Pood outo	#1	Longth (ft)		Width (ft)		Dopth of out (ft)	
17	Kodu cuis	#1	Length (It)		VVICUTI (TL)		Depth of cut (it)	
18	(ave. length, width and depth	#Z					Depth of cut (it)	
19	(Enter a dell'autorice Continuiti	#3	Length (It)		ννιαιή (π)		Depth of Cut (It)	
20	(Enter add ) cuts on Continuation page	<u>e)</u>		1				
21								
22	Cleared areas	#1	Length (ft)	955	Width (ft)	625		
23	(average lengths & widths)	#2	Length (ft)	450	Width (ft)	484		
24		#3	Length (ft)		Width (ft)			
25	(Enter add'l areas on Continuation pa	age)						
26								
27	Drill pads	#1	Length (ft)		Width (ft)		Depth of cut (ft)	
28	(average lengths, widths and	#2	Length (ft)		Width (ft)		Depth of cut (ft)	
29	depth of cut)	#3	Length (ft)		Width (ft)		Depth of cut (ft)	
30	(Enter add'I pads on Continuation pa	ne)	201.gti (11)					
30	<u>(Enter add i pads on Continuation pa</u>	<u>ge</u> j						
31	Culverte	#1	Longth (ft)		Diamotor (ft)		Ava. donth (ft)	
32	(average lengths, diameter	#1	Length (ft)		Diameter (It)		Ave. depth (it)	
33		#Z			Diameter (It)		Ave. depth (it)	
34	and depth of burial)	#3	Length (ft)		Diameter (11)		Ave. depth (ft)	
35								_
36	Waste dumps/spoil piles	#1	Length (ft)	100	Width (ft)	20	Face height (ft)	5
37	(average length, width and	#2	Length (ft)	100	Width (ft)	30	Face height (ft)	9
38	height of top surface of dump)	#3	Length (ft)		Width (ft)		Face height (ft)	
39		#4	Length (ft)		Width (ft)		Face height (ft)	
40		#5	Length (ft)		Width (ft)		Face height (ft)	
41		#6	Length (ft)		Width (ft)		Face height (ft)	
42		#7	Length (ft)		Width (ft)		Face height (ft)	
43		#8	Length (ft)		Width (ft)		Face height (ft)	
44		#9	Length (ft)		Width (ft)		Face height (ft)	
45		#10	Lenath (ft)		Width (ft)		Face height (ft)	
46			J ··· \··/					
47	Shafts	#1	Length (ft)		Width (ft)		Depth (ft)	
41	(lengths and widths of shafts		Depth of water(ft)		The second secon			
40	at collar water depth from bottom)	#2	Length (ft)		Width (ft)		Denth (ft)	
49		π∠	Depth of water(ft)					
50		#2			\N/idth /#\		Dopth (#)	
51		#3	Length (It)		ννιαιή (π)			
52		<b>л</b> 4					Denth (51)	
53		#4	Length (ft)		vvidth (ft)		Depth (ft)	
54			Depth of water(ft)					
55		#5	Length (ft)		Width (ft)		Depth (ft)	
56			Depth of water(ft)					
57								
58	Distance to source of HC fill		Miles		Entry required for	shafts with w	vater	
59		$\Box$						
60	Large Pits (Volume > 1000 cu. yd.)	#1	Length (ft)		Width (ft)		Depth (ft)	
61	(Average lengths and widths	#2	Length (ft)		Width (ft)		Depth (ft)	
62	at surface) Generally deep, with	#3	Length (ft)		Width (ft)		Depth (ft)	
63	much excavated material removed	#4	Length (ft)		Width (ft)		Depth (ft)	
64	for processing or sale	#5	l ength (ft)		Width (ft)		Denth (ft)	
	٨	Р	C		F	Г	C	Ц
------	---------------------------------------	------------	---------------------------	------	--------------------	-----	----------------------	----
	A	в	L L	U	E	F	G	П
65								
66	Small Pits (Volume <1000 cu. vd.)	#1	Lenath (ft)		Width (ft)		Depth (ft)	
67	Typically shallow, most excavated	#2	Length (ft)		Width (ft)		Depth (ft)	
07	Typically shallow, most excavated	#2	Length (It)				Deptil (it)	
68	material available to refill pit.	#3	Length (ft)		vvidth (ft)		Depth (ft)	
69		#4	Length (ft)		Width (ft)		Depth (ft)	
70		#5	Length (ft)		Width (ft)		Depth (ft)	
70		<i>π</i> υ	Lengar (it)		widdir (it)		Deptil (it)	
71	(Enter add small pits on Continuatio	n pa	<u>ge)</u>					
72								
73	Highwalls	#1	Length (ft)		Height (ft)		Blasting required?	
	(a) (are no longth and height)	#2	Longth (ft)		Lloight (ft)			
74	(average length and height)	#Z	Length (It)		Height (It)		(resorno)	
75		#3	Length (ft)		Height (ft)			
76		#4	Length (ft)		Height (ft)			
77								
11								
78	Irenches	#1	Length (ft)		Width (ft)		Depth (ft)	
79	(average lengths and widths	#2	Length (ft)		Width (ft)		Depth (ft)	
00	at surface)	#3	Length (ft)		Width (ft)		Depth (ft)	
00		#5						
81	Generally shallow excavations	#4	Length (ft)		vvidth (ft)		Depth (ft)	
82	with length much larger than	#5	Length (ft)		Width (ft)		Depth (ft)	
83	width Excavated material is	#6	Length (ft)		Width (ft)		Denth (ft)	
00	apporally available measter for	<u>ш</u> -					Denth (ft)	
84	generally available hearby for	#1	Length (ft)		ννιατη (π)		υερτη (π)	
85	refilling.	#8	Length (ft)		Width (ft)		Depth (ft)	
86		#9	Length (ft)		Width (ft)		Depth (ft)	
		#10			\\/: J+L /ft)		Denth (ft)	
87		#10	∟engtn (π)		ννίατη (π.)			
88	(Enter add'l trenches on Continuation	n pag	<u>e)</u>					
89								
00	Adito		How many?					
90	Aults		now many !					
91								
92	Water or silt ponds	#1	Length (ft)	275	Width (ft)	100	Depth (ft)	15
03	(average lengths and widths	#2	Length (ft)		Width (ft)		Denth (ft)	
35		112	Lengur (it)		widdir (it)		Deptil (it)	
94	at surface)							
95								
96	Tailings impoundment		Length (ft)		Width (ft)		Face height (ft)	
07	(average length width face ht.)		201.gui (11)				1 0.00 1.01g.11 (11)	
97	(average length, width, lace ht.)							
98								
99	Water wells		Total depth of					
400			all water wells (ft)	1000				
100				1000	1			
101	Drill holes *		I otal length of					
102			all drill holes (ft)					
103	Concrete slabs							
100		ща	1 and anthe ( <b>f</b> t)		\ \ /: -141- /£4 \		Thislesson (in)	
104	Unreinforced	#1	Length (ft)		vviatn (π)		I NICKNESS (IN)	
105		#2	Length (ft)		Width (ft)		Thickness (in)	
106		#3	Lenath (ft)		Width (ft)		Thickness (in)	
107	1	#1	Length (ft)		Width (ft)		Thickness (in)	
107	1	#**						
108	l	#5	Length (ft)		vvidth (ft)		I NICKNESS (IN)	
109								
110	Reinforced	#1	Length (ft)		Width (ft)		Thickness (in)	
		#2	Longth (ft)		Midth (ft)		Thickness (in)	
111		#2					Thickness (III)	
112		#3	Length (ft)		Width (ft)		Thickness (in)	
113		#4	Length (ft)		Width (ft)		Thickness (in)	
144	1	#5	Length (ft)		Width (ft)		Thickness (in)	
114	1	#3	Lengui (It)		vviduri (IL)		111011035 (111)	
115								
116	Concrete foundations		Total (cu. yd.)					
117			. ,					
1.17	Aanhalt		Total area (af)		Thickness (in)			
118	Ashiigir		i otal area (SI)		THICKNESS (IN)			
119								
120	Structures	#1	Lenath (ft)		Width (ft)		Eave height (ft)	
400	Construction	<u> </u>	Stool?		Plook?		Mood?	
121					DIUCK ?			
122		#2	Length (ft)		Width (ft)		Eave height (ft)	
123	Construction:		Steel?		Block?		Wood?	
124		#3	Length (ft)		Width (ft)		Eave height (ft)	
124	Ormet 1	<i>π</i> 5						
125	Construction:		Steel?		Block?		Wood?	
126	1	#4	Length (ft)		Width (ft)		Eave height (ft)	
127	Construction:		Steel?		Block?		Wood?	
121		#F	Longth (#)		\\/idth /#\		Eavo baight (#)	
128		#3	Length (II)				Eave height (It)	
129	Construction:		Steel?		Block?		Wood?	

	А	В	С	D	E	F	G	Н
130								
131	Fences (add length of all together)		Length (ft)		Wire strands		Post spacing (ft)	
132	Metal gates (don't count wire gates)		How many?					
133			,					
134	Septic tanks		How many?					
135			<b>.</b>					
136	Trailers		How many?	1				
137				· ·				
138	Tanks empty	#1	Length/height (ft)	6	Diameter (ft)	4		
130	(Steel tanks not drums)	#2	Length/height (ft)	Ŭ	Diameter (ft)			
140		#3	Length/height (ft)		Diameter (ft)			
140		#3 #Λ	Length/height (ft)		Diameter (ft)			
141		#5	Length/height (ft)		Diameter (ft)			
142		#6	Length/height (ft)		Diameter (ft)			
143		#0						
144	Tanke with liquid		Contonto:					
145	(list number of each type)		Water or fuel		(Creater than EE a			
146	(list number of each type)		Chamicala		(Greater than 55 g	al.)		
147			Chemicais		Greater than 55 g	ai.)		
148	<b>T</b> !							
149	lires							
150	Off road		How many?					
151	Highway		How many?					
152								
153	Chemical drums		How many?					
154								
155	Fuel/oil/lube drums		How many?					
156								
157	Explosives		Lbs.					
158								
159	Non-metal trash and scrap		Cubic yards	2.0				
160								
161	Recylable metal scrap		Cubic yards	1.0	(Crushers, convey	ors,screens,	steel scrap, etc.)	
162								
163	Mobile equipment & vehicles		How many?	12	(Includes cars, tru	cks, dozers,	etc.)	
164								
165	Distance to landfill/recycler		Miles	10	(Entry required)			
166								
167	Distance to equipment rental		Miles	50	(Entry required)			
168								
169	HAZMAT site assessment, testing				(Place an "x" in thi	s box if testi	ng is required)	
170								
171	Your reclamation bond is:		\$73,758					
172	Disturbed Acreage		20.0	1	1			
170			_0.0					
174	* All drill holes are treated the same (w	let o	r dry). Costs are calcul	ated for p	eat cement arout tre	mied from h	ottom to top of hole t	n meet
175	ADWR worst case closure standards							
176								

	А	В	С	D	E	F	G	Н		J	K	L
1	RECLAMATION BOND CALCULATION S	PREADSHE	ET - CALCULATIONS	SHEET (NO	USER INPUT	)						
2	Seens of Work				1	<u></u>						
2	Scope of Work											
3	Facility/feature	Reclamat	ion Scope									
4	Roads:	Recontour a	and revegetate.									
5	Road Cuts:	Pull excavat	ted material back into c	ut. recontour	revegetate.							
6	Cleared areas	Revenetate										
7	Pads:	Push excav	ated material back on	to pad recon	tour reveneta	te						
8	Culverts:	Remove cu	verte slope sides of ex	cavation line	bottom and s	idee with rinra	o (concrete cu	vert assume	4)		-	
0	Waste dumps/speil pilos:	Eletton food	to 2:1 Pin ton ourfor	Cavation, line	to top and for	ndes with ripra		iven assume	<i></i>			
9	Waste dumps/spoil piles.	Flattell face	s to 5.1. Rip top surrat	e. Reveyer	ate top and rat				and the stall			
10	Snans.	Install timbe	T DUIKNEAUS AL HOHZOH	ai openings i	o snan. Fill si	all with hardco		static water in	evel. Install			
11		fliter layer.	Fill the remainder with	general purpo	ose fill and mo	und. Place thr	ee-strand bart	bed wire tenc	e			
12		and warning	signs 25' from shaft al	l around.								
13	Large Pits:	Pits >1000	cu. yd., construct 6' hi	gh berms alo	ng pit rim. Re	vegetate all bu	t steep pit wal	s.				
14	Small Pits:	Pits <1000	cu. yd., fill and revegeta	ate surface.								
15	Highwalls:	If rippable, r	ip and push highwall in	to pit to form	3:1 slope. If r	not rippable, dri	ill, blast and p	ush highwall i	nto pit to form 3:	1 slope.		
16	Trenches:	Refill with a	djacent spoil piles. Cov	er with avail/	able soil. Rev	egetate trench	and spoil pile	area.				
17	Adits:	Place 2' wid	e gabion 30' inside adi	t. Fill adit wit	h general -pur	pose fill to with	in 8' of openin	g. Fill last 8'	with rock.			
18	Water or silt ponds:	Cut liner (if	any) and fold into pond	. Fill, mound	and revegetat	te.						
19	Tailings impoundments:	Allow to dry	Flatten slopes to 2:1.	Cap with 12	" waste rock a	nd 8" fines or s	soil. Revegeta	ite.				
20	Water wells:	Closure per	ADWR regulations by	icensed drille	er.		Ŭ					
21	Drill holes:	Cement aro	ut tremied from bottom	of hole to co	llar by license	d driller.						
22	Concrete slabs & foundations:	Break/cut in	to manageable chunks	and haul to	an approved l	andfill						
23	Asphalt:	Break/cut in	to manageable chunk	and haul to	an approved l	andfill					-	
20	Structures steel large >4000 cu ft:	Dieaecombl	e cut into manageable	nieces load	and baul to re	anunn. cycler or landfi						
24	Structures, steel, large < 4000 cu it.	Disassembl	e, cut into manageable	pieces, ioau	and nadfill							
20	Orructures, steel, small \$4000CU II:		in ioauer, ioau and hau	In to recycler	or ianunni.	l					┼───┨	
20	Structures, wood and block:	Demoiisn W	in ioauer, ioad and hat		and hard to 1	ndfill or					╡────┨	
21		remove clip	os and ties, roll wire, pu	in posts, load	and naul to la	nutili or recycle	tı.				<u> </u>	
28	Septic tanks:	Pump out (b	y contractor), remove,	naul to appro	oved landfill, fil	i nole.					<u> </u>	
29	I railers:	Prepare and	naul to disposal site.		<u> </u>						<u> </u>	
30	I anks, empty steel:	Crush with	ozer, load, haul to rec	cier or landfi	II.	L	L				L	
31	Tanks, with liquid:	Drain (if wat	er) or pump out and ha	ul liquid to di	sposal/recycle	e, crush tank by	/ dozer, haul to	o landfill.			1	
32	Tires:	Load and ha	aul to disposal site.			L						
33	Chemical drums:	Site pick-up	, transportation and dis	posal by licer	nsed contracto	or.						
34	Fuel/oil/lube drums:	Load and ha	aul to recycler.									
35	Explosives:	Site pick-up	, transportation and dis	posal by licer	nsed contracto	or.						
36	Debris, trash, scrap:	Load and ha	aul to approved landfill.	•								
37	Vehicles and mobile equipment:	Load and ha	aul to recycler.									
38	Revegetation:	Disk and se	ed									
39	· · · · · · · · · · · · · · · · · · ·					1					-	
40	Equipment Bentel Beter				1	1			1	1		
40	Equipment Rental Rates											
41	Rental rates from Equipment Watch	<u>(2017),</u>										
42	Rates increased to include sales tax (9.3%)	and equipm	ent protection plan/insu	urance (14%)								
43	Note: Different models can be used for a pa	articular job.	The model selected for	inclusion in	this spreadshe	eet is adequate	for most jobs.	not necessa	rily			
44	optimum.											
45				Day	Week	Month	Rates incl. ta:	k & equip pro	tection			
46	Machine			8 hrs	40 hrs	160 hrs	Day	Week	Month			
47	Skid steer loader		Cat 246D	Includes tax	& equip prot'n		\$320.05	\$950.19	\$2,396.01	new		
48	Excavator (including std. bucket)		Cat 316E	Includes tax	& equip prot'n		\$1,086.61	\$3,032.34	\$7,990.62	new		
49	Backhoe loader		Cat 420F (16')	Includes tax	& equip prot'n		\$520.75	\$1,487.31	\$3,693.06	new		
50	Wheel loader		Cat 938K (3yd)	Includes tax	& equip prot'n		\$988.51	\$2,901.67	\$7,226.41	new		
51	Motor grader		Cat 12M (12')	Includes tax	& equip prot'n		\$1,105.38	\$3,401.60	\$10,128.85	new		
52	Track-type tractor (dozer/ripper)		Cat D6K2 SÚ	Includes tax	& equip prot'n		\$335.03	\$2,901.25	\$8,783.89	new		
53	Haul truck		Cat 740 (40t)	Includes tax	& equip prot'n		\$2,729,85	\$7,990.75	\$23,728,19	new		
54	Forklift		Cat TL642 (6500 lb)	Includes tax	& equip prot'n		\$562.88	\$1,428.02	\$3,233,37	new		
55	Farm tractor with 58" 3 point tiller		Kubota M108	\$407.89	\$1,107.26	\$3.144.78	\$502.84	\$1,365.26	\$3.877.51	new		
56	Water truck (Wlaker-Cat)		4000 gal	Includes tax	& equip prot'n		\$735.00	\$2,740.00	\$7.150.00	new	t	
57	Compressor, hammer & hose		I-R 185cfm	\$152 15	\$444 60	\$1.074.94	\$1.325.40	\$548.19	\$187.60	new	1 1	
58	Truck crane		Int'l 4200CR (18t)	\$878 63	\$3 075 20	\$8 786 28	\$1 083 35	\$3 701 63	\$10 833 /4	new		
59	Aerial work platform		Genie S45 (45')	Includes tex	& equip prot'p	<i>40,100.20</i>	\$506.81	\$1 221 73	\$2 600 82	new		
60			00110 070 (40)	oluuco idx		1	ψυυυ.01	ψ1,221.73	ψ2,000.00		<u>├</u> ───	
00	Faultament Ones il Os ta 10. t	and the state			. 40		<u> </u>				┥────┤	
61	Equipment Operating Costs (Cate	rpillar Pel	iormance Handbo	JOK, Editio	n 43, where	e applicable	2	<b>T</b> (1)	<b>-</b>			
62	Equipment		Model	⊢uel, gal/hr	⊢uel cost/gal	⊢uel cost/hr	Lube & filters	lire/track	<u>i otal</u>			
63	Skid steer loader		Cat 246C	2.4	\$1.97	\$4.73	\$0.47	\$0.78	\$5.98			
64	Excavator		Cat 316E (1yd)	2.6	\$1.97	\$5.12	\$0.51	\$0.85	\$6.48			
65	Backhoe loader		Cat 420E (16')	3.3	\$1.97	\$6.50	\$0.65	\$1.07	\$8.22			
66	Wheel loader		Cat 938K (3 yd)	2.0	\$1.97	\$3.94	\$0.39	\$0.65	\$4.98			
67	Motor grader		Cat 12M2 (12')	4.2	\$1.97	\$8.27	\$0.83	\$1.37	\$10.47			
68	Track-type tractor (dozer/ripper)		D6T SU	7.0	\$1.97	\$13.79	\$1.38	\$2.28	\$17.44			
69	Haul truck		Cat 770 (40t)	9.5	\$1.97	\$18.72	\$1.87	\$3.09	\$23.67			
70	Forklift		Cat TL 642E	2.6	\$1.97	\$5.12	\$0.51	\$0.85	\$6.48			
71	Farm tractor with HD tiller		John Deere 332D	2.0	\$1.97	\$3.94	\$0.39	\$0.65	\$4.98			
72	Water truck		Kenworth 4000 gal	6.0	\$1.97	\$11.82	\$1.18	\$1.95	\$14.95			
73	Compressor, hammer & hose		Sullair 375H	0.7	\$1.97	\$1.38	\$0.14	\$0.23	\$1.74			
74	Truck crane		Int'l 4200CR (18t)	2.0	\$1.97	\$3.94	\$0.39	\$0.65	\$4.98			
75	Aerial work platform		Genie S45 (45')	0.5	\$1.97	\$0.99	\$0.10	\$0.16	\$1.25			
76	I		. ( /	5.0	÷	÷		<i></i>			t	
77	NOTES:										J	
78	<ol> <li>Lube and filter cost assumed at 10% or</li> </ol>	f fuel cost			i		İ				וו	
70	2 Tire wear cost assumed at 16 5% of fu	el cost wher	e applicable Tire woo	for farm tree	tor included in	rental					<u>├</u>	
80	3 Other machine costs (undercarriago #	Tes wear po	rts) included in rental	.or iaini udu		. ontai.					<u>├</u>	
00 81	4 Off-road fuel cost from SUEPDA 44/47	\$2 /0/aal	ass 21% taxes Drive	aries daily de	livery cost ve	ries with distan	ce from distrib	utor			<u>├</u>	
01	Oli-Ivau luei cust liviil SHERPA 11/1/	, ψ∠.4∪/gai li	JUS ZI /U LAKES, MICE VA	anco uaily, de	mvery cost val	ngo with distan	oo nom uistrib				<b>├</b> ───┤	
02					+						$\vdash$	
83	Labor Rates (Sherpa 11/17)											
84			Rate	Fringes	Total	L						
85	Power equipment operator											
86	Backhoe loader		\$25.36	\$9.55	\$34.91					-		
87	Grader		\$26.44	\$9.55	\$35.99							
88	Loader <3.5 yd, farm tractor		\$22.09	\$9.55	\$31.64		İ					
89	Dozer		\$25.36	\$9.55	\$34.91							
90	Excavator		\$25.36	\$9.55	\$34.91		İ					
91	Dump truck		\$18.10	\$5.44	\$23.54		Ì					
92	Water truck		\$15.94	\$4.16	\$20.10		AZ180008 01	/05/2018 A7	8		t	
93	Crane		\$21.35	\$7.36	\$28.71		AZ180008 01	/05/2018 A7	8		t	
94	Ironworker		\$26.00	\$18.85	\$44.85		AZ180008 01	/05/2018 47	8		<u> </u>	
95	Laborer		\$17.61	\$4 35	\$21.00				-			
		•	φ	φυυ	φ=							

	٨	D	0	D	Е	E	C	U	1		K	1
06	A	Б	U	D	E	F	9	п	1	J	K	L
30												
97	MISC. Input Factors											
98	PPI update 12/15-12/17	Cost	Unit									
aa	Drilling & blasting (contract cost)*	\$5.57	cu vd									
100	Commercial hauling by legal load	\$4.05	mile									
101	by top	¢0.17	ton mile									
100	by our vel	φ0.17 ¢0.20	ou vd milo									
102	by cu ya	\$0.26	cu ya mile									
103	Heavy equipment hauling	\$126.00	hr									
104	Hardcore (HC) fill for wet shafts	\$12.87	per cu yd									
105	Landfill fees, common trash	\$36.64	ton									
106	heavy equipment tires	\$34.34	tire									
107	highway tires	\$2.00	tire									
108	Water well abandonment	\$4,797.00	flat fee									
109	plus footage cost	\$29.40	per foot									
110	Drillhole abandonment	\$2.525.00	flat fee									
111	plus footage cost	\$8.00	per foot									
112	Fuel oil lube drum disposal	\$136.00	drum									
113	Chemical drum disposal	\$555.00	drum									
114	Trailer diapagal	\$262.00	troilor									
114	Mater/fuel tenk dianagel	\$203.00	tank									
115	vvater/luer tarik disposal	\$100.00	Larik									
116	Chemical tank disposal	\$1,010.00	tank									
117	Explosives disposal (Clean Harbors rates)	\$8,367.00	tiat fee									
118	venicie & mobile equipment disposal	\$0.00	(value as scrap)									
119	Seed mix, 20#/acre (SW Desert Erosion Co	\$80.00	acre									
120	*Minimum charge \$1000 for drill and blast c	rew mobilizat	tion									
121												
122	Operating Hours, Costs and Foos				l							
122	Calify/Cashing	_				o		<b>T</b> ( )				
123	racility/reature	Reveg.	Production factor	Units		Quantities		Iotals	Units			
124	Roads	Area				linear ft.						
125	Recontour (Cat D6 SU)	0.37	2,000	linear ft/hr	Road 1	1333		0.67	Op. Hrs			
126		0.00			Road 2	0		0.00	Op. Hrs			
127		0.00			Road 3	0		0.00	Op. Hrs			
128					Total			0.67	D6 total			
129												
130	Removing culverts			-		cu, vd,		-				
131	Excavation (Cat 420)		130	cu vd/hr	Culvert 1			0.00	Op. Hrs			
132			150		Culvert 2	0		0.00	On Hrs			
122					Culvert 2	0		0.00	Op. Hrs			
103					Guiverto	0		0.00	ор. піз			
134	Declamada (Oct. 400)			<b>A</b> /l-	Output 1	sq. π.			On Har			
135	ROCKWORK (Cat 420)		1458	sq tt/nr	Cuivert 1	0		0.00	Op. Hrs			
136					Culvert 2	0		0.00	Op. Hrs			
137					Culvert 3	0		0.00	Op. Hrs			
138					Total			0.00	436 Total			
139	Load (Cat TL642)		200	lf/hr		linear ft.		-				
140	· ·					0		0.00	Forklift Total			
141	Haul (Commercial hauler)		\$0.17	\$/t mi		tons		0.00	\$			
142	(		ψ0.11					0.00	*			
143	Landfill fee		\$36.64	\$/t		0		0.00	s			
1/1/			φ00.0 <del>4</del>	<b>*· `</b>				0.00	*			
1/5	Road cuts (combined total)	0.00										
140	Poplage executed metiling and (Cat 210)	0.00	400	ou vd/br			au vd	0.00	On Hra			
140	Replace excavaled matrin cut (Cat 316)		180	cu yu/nr		0	cu. yu.	0.00	Op. His			
147	Recontour (Cat 316)		14700	sq tt/nr		0	sq.n.	0.00	Up. Hrs			
148								0.00	315 Iotal			
149	Cleared areas (combined total)	18.70										
150												
151	Drill pads (combined total)											
152	Push and recontour (Cat D6 SU)	0.00	311	cu yd/hr		0	cu. yd.	0.00	D6 Total			
153	<b>.</b>							-				
154	Waste dumps/spoils piles					cu. yd.						
155	Flatten slopes to 3:1 (Cat D6 SU)	0.08	355	cu yd/hr	Dump 1	27		0.08	Op. Hrs			
156		0.13			Dump 2	101		0.28	Op. Hrs			
157		0.00			Dump 3			0.00	Op. Hrs			
158		0.00			Dump 4	0		0.00	Op Hrs			
150		0.00			Dump 5	0		0.00	On Hre			
160		0.00			Dump 6	0		0.00	Op. Hrs			
100		0.00			Dump 7	0		0.00	Op. His			
101		0.00			Dump /	0		0.00	Op. Hrs			
162		0.00			Dump 8	0		0.00	Op. Hrs			
163		0.00			Dump 9	0		0.00	Up. Hrs			
164		0.00			Dump 10	0		0.00	Op. Hrs			
165					Total	128		0.36	D6 Total			
166												
167	Rip dump top (Cat D6 SU)					sq. ft.						
168		0.05	19296	sq ft/hr	Dump 1	2000		0.10	Op. Hrs			
169		0.07			Dump 2	3000		0.16	Op. Hrs			
170		0.07			Dump 3	0000		0.10	Op. Hrs			
171		0.00			Dump 4	0		0.00	On Hrs			
170		0.00			Dump 5	0		0.00	On Hre			
172		0.00			Dump 6	0		0.00	Op. His			
1/3		0.00			Dump 7	0		0.00	Op. His			
1/4		0.00			Dump /	0		0.00	Op. Hrs			
175		0.00			Dump 8	0		0.00	Op. Hrs			
176		0.00			Dump 9	0		0.00	Up. Hrs			
177		0.00			Dump 10	0		0.00	Op. Hrs			
178					Total			0.26	D6 Total			
179		-										-

30 S	~	D	C	D	E	F	G	н		J	n	L
1	Shafts					dry cu. yd.	wet cu. yd					
2	GP fill (Cat 938)		237	cu yd/hr	Shaft 1		0 0	0.00	Op. Hrs			
<u> </u>	HC fill (Cat 938)		237	cu vd/hr	Shaft 2		0	0.00	Op. Hrs			
3					Shaft 3		0 0	0.00	Op. Hrs			
14					Shaft 4		0	0 0.00	Op. Hre			
5					Shoft 5		0	0.00	Op. Hrs			
50					Snan J		0	0.00	OD. HIS			
00	LIQ fill as makes as		¢40.07	¢/	TUtai			0.00	930 TUtal			
57	HC fill purchase		\$12.87	\$/cu ya				0.00	<b>\$</b>			
38	HC fill hauling		\$0.26	\$/cu ya mi					Incl. above			
39	Bulkheads (two per shaft assumed)					number						
90	Timber		\$325.00	\$/bulkhead			0	0.00	\$			
91	Installation labor		6	mh/bulkhead				0.00	\$			
92	Fencing & signs					number						
93	Materials		\$140.00	\$total			0	0.00	\$			
14	Installation labor		6	mh/shaft				0.00	\$			
15	in otaliation rabor			in vonan		cu vd		0.00	Ŷ			
61	arge Bite >1000 ev ud (each)	0.00	211	ou vd/br	Lorgo pit #1	cu. yu.	0	0.00				
	arge Pils >1000 cy. yd. (each)	0.00	311	cu yu/ni	Large pit #1		0	0.00				
7 6	Suild 6' high berm around pit perimeter	0.00			Large pit #2		0	0.00				
18 (1	Cat D6)	0.00			Large pit #3		0	0.00				
9		0.00			Large pit #4		0	0.00				
0		0.00			Large pit #5		0	0.00				
1								0.00	D6 Total			
2												
38	Small Pits <1000 cu. yd. (combined total)	0.00	237	cu yd/hr	All		0	0.00	Op. Hrs			
4 F	Fill (Cat 938)								-			
5				1		cu vd	1	1		1		
ĕ.	Highwalls	0.00	000	cu vd/br	HW 1	ou. yu.	0	0.00		1		
7	latton clone to 2:1/Cat DC with blacting if	0.00	232	ou yu/III			0	0.00		l		
	nation slope to 3:1(Cat D6 with blasting if	0.00		l			0	0.00		I		
ď٢	equired)	0.00		l	HVV 3		U	0.00		I		
9		0.00		I	HW 4	I	U	0.00		I		
D				L			0	0.00	D6 Total			
1			-	1		1				1		
2 <b>T</b>	Frenches (combined total)	0.00	237	cu yd /hr	All		0	0.00	938 Total			
3				1		1				1		
4 4	Adits			1		1	1	1		1	1	
5ľ	Gabion labor		16	hrs/adit		1	1	0.00	\$	1		
6	Gabion materials		01 00 010 00	s/adit		cu vd/adit	+	0.00	¢			
7	Fill (Cot 246)		¢∠40.00	ψ/ault ou val /⊨-		ou yu/auli	6	0.00	Ф Ор Ц	1		
(	rm (Gal 240)		12	cu ya /nr		1 7	v	0.00	op. Hrs	I		
Ø				l		I	+			I		
ЭF	Ponds					no/cu. yd.	+	1		1		
0	Cut and fold liner labor		4	man hours			1	88.00	\$			
I	Fill (Cat 938)	0.63	237	cu yd/hr	Pond 1	1527	8	64.46	Op. Hrs			
2		0.00			Pond 2		0	0.00	Op. Hrs			
3												
<u>4</u> T	Cailings impoundment	0.00				cu vd						
5	Elatten slones to 2:1 (Cat D6 SU)	0.00	28/	cu vd/br		ou. yu.	0	0.00	On Hre			
6	Lood cover material (Cat 00 30)		152	cu yd/hr			0	0.00	Op. Hrs			
.0	Load cover material (Cat 938)		100	cu yu/m			0	0.00	Op. His			
1	Haul cover material (Cat 770)		153	cu yd/hr			0	0.00	Op. Hrs			
В	Spread (Cat D6 SU)		237	cu yd/hr			0	0.00	Op. Hrs			
9												
0 V	Nater well abandonment					ft.						
1	Fixed costs		\$4,797.00									
2	Cost per foot		\$29.40			100	0	34197.00	s			
3												
1Г	Drill hole abandonment					ft						
	Fixed costs		\$2 525 00	Eived cost								
5	Tixed costs		ψ2,020.00 ¢0.00	¢/#			0	0.00	¢			
5	Cost por foot		20110	φ/π			0		ዋ			
5 6	Cost per foot		\$0.00					0.00				
5	Cost per foot		¢0.00					0.00				
5 7 3 <b>C</b>	Cost per foot Concrete		¢0.00			cu. yd.	-	0.00				
5 6 7 8 <b>C</b> 9	Cost per foot Concrete Break unreinforced slab (Cat 938,	0.00	30	cu yd/hr		cu. yd.	0	0.00	Op. Hrs			
5 6 7 8 0	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer)	0.00	30	cu yd/hr		cu. yd.	0	0.00	Op. Hrs			
5 7 8 0	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938,	0.00	30	cu yd/hr cu yd/hr		cu. yd.	0	0.00	Op. Hrs Op. Hrs			
5 6 7 8 0 1	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer)	0.00	30 20	cu yd/hr cu yd/hr		cu. yd.	0	0.00	Op. Hrs Op. Hrs			
5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938.	0.00	30 20	cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0	0.00	Op. Hrs Op. Hrs Op. Hrs			
5 6 7 8 0 9 0	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer)	0.00	30 20 15	cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0	0.00	Op. Hrs Op. Hrs Op. Hrs			
5 6 7 8 0 1 2 3 4 5	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Ble harken concrete (70 929)	0.00	30 20 15	cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0	0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs			
5 6 7 8 9 0 1 2 3 4 5 6	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on tweek (Cat 929)	0.00	30 30 15 10	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0	0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs			
56767 5901234567	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938)	0.00	30 20 15 100 150	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. Op. Hrs.			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor & air hammer	0.00	30 20 15 100 150	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0 0 0 0 0	0.00 0.	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total			
5 6 7 8 9 0 1 2 3 4 5 6 7 8 0	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Compressor, air dations, for the former of the	0.00	30 20 15 100 150	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr		cu. yd.	0	0.00 0.	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor	0.00	30 20 15 100 150 \$20.00	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd		cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$			
567 7 8 9 0 1 2 3 4 567 7 8 9 0 0 1 2 3 4 567 7 8 9 0 0 0 0 0 0 0 0 0 0 0 0 0	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor	0.00	30 20 15 100 150 \$20.00	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd		cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$			
56789012345678901	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor	0.00	30 20 15 100 150 \$20.00	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd		cu. yd.	0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler)	0.00	30 20 15 100 150 \$20.00 0.17	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr s/cu yd/hr \$/cu yd		cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total S \$ \$ \$			
5678901234567890123	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee	0.00	\$20.00 \$20.00 \$20.00 \$20.00 \$20.00	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton		cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$			
56789012345678901234	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee	0.00	\$20.00 \$20 15 100 150 \$20.00 \$20.00 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd/hr \$/cu yd \$/ton mi		cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Saphalt	0.00	\$20.00 \$20 15 100 150 \$20.00 \$20.00 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr s/cu yd \$/cu yd \$/ton mi \$/ton		cu. yd.	0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rin (D6 SU)	0.00	30 30 20 15 100 150 \$20.00 0.17 \$36.64 280	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton mi cu cv/hr		cu. yd.		0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ 0p. Hrs. 0p. Hrs			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 838)	0.00	\$20.00 30 20 15 100 150 \$20.00 0.17 \$36.64 2800 20	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/con mi \$/ton cu cy/hr cu yd/br		cu. yd.		0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs           Op. Hrs           Op. Hrs           Op. Hrs.           Op. Hrs.           938 Total           Comp. Total           \$           \$           \$           \$           Op. Hrs.           Op. Total           \$           \$           Op. Hrs.           Op. Hrs.			
56789012345678901234567	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Pleak foundations (Cat 938, compressor & air hammer) Plie broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938)	0.00	30 30 20 15 100 150 \$20.00 0.17 \$36.64 280 200 200	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd/hr \$/ton mi \$/ton mi cu cy/hr cu yd/hr		cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938)	0.00	30 30 20 15 100 150 \$20.00 0.17 \$36.64 280 200	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/cu yd \$/ton mi \$/ton cu cy/hr cu yd/hr		cu. yd. Cu. yd. Total tons cu yd tons		0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Load (Cat 938) Haul (Commercial hauler)	0.00	\$20.00 \$20 \$20.00 \$20.00 \$20.00 \$20.00 \$20.00 \$20.00 \$0.17	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/ton mi \$/ton mi \$/ton mi		cu. yd.		0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ 0p. Hrs Op. Hrs Op. Hrs Op. Hrs \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Saphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Landfill fee Landfill fee	0.00	30 30 20 15 100 150 \$20.00 \$20.00 0.17 \$36.64 200 200 \$0.17 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu cy/hr \$/ton mi \$/ton mi		cu. yd.		0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs Op. Hrs \$ \$			
567890123456789012345678901	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Haul (Commercial hauler) Landfill fee	0.00	\$20.00 \$20.00	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi		cu. yd.		0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs Op. Hrs S \$ \$			
5678901234567890123456789012	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Structures	0.00	30 30 20 15 100 150 \$20.00 \$20.00 0.17 \$36.64 260 200 \$0.17 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr s/cu yd/hr \$/ton mi \$/ton mi \$/ton mi \$/ton mi	cu ft 1	cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs \$ \$			
56789012345678901234567890123	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Hauf (Commercial hauler) Load file fee Structures Demo larce steel bldo (disassemble)	0.00	\$20.00 30 20 15 100 150 \$20.00 \$20.00 \$20.00 280 280 200 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu yd/hr \$/ton mi \$/ton	cu ft 1	cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs Op. Hrs \$ \$ \$ \$			
567890123456789012345678901234	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break roundations (Cat 938, compressor & air hammer) Pleak foundations (Cat 938, compressor & air hammer) Plib broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble)	0.00	30 30 20 15 100 150 \$20.00 0.17 \$36.64 280 200 \$0.17 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr s/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi	cu ft 1 o cu ft 1	cu. yd. Total tons cu yd tons cu ft 2 cu ft 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs \$ \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Haul (commercial hauler) Landfill fee Bructures Demo large steel bldg (disassemble)	0.00	30 30 20 15 100 150 \$20.00 \$20.00 \$36.64 280 200 \$0.17 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi	cu ft 1 0 cu ft 4	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Op. Hrs Op. Hrs Op. Hrs Op. Hrs. Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Pleak foundations (Cat 938, compressor & air hammer) Plie broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble)	0.00	30 30 20 15 100 150 \$20.00 \$20.00 0.17 \$36.64 280 200 \$0.17 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi	cu ft 1 0 cu ft 4 0	cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs S \$ \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Bructures Demo large steel bldg (disassemble) Disassemble (Crane)	0.00	30 30 20 15 100 150 \$20.00 \$20.00 0.17 \$36.64 280 200 200 \$336.64 200 0.17 \$36.64	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi	cu ft 1 0 cu ft 4 0	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs \$ \$ Op. Hrs Op. Hrs			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Bructures Demo large steel bldg (disassemble) Disassemble (Crane) Disassemble (Crane)	0.00	\$20.00 \$20.00 15 100 150 \$20.00 \$20.00 0.17 \$36.64 280 200 \$0.17 \$36.64 0.4 0.4 0.4	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu cy/hr cu yd/hr \$/ton mi \$/ton mi	cu ft 1 0 cu ft 4 0	cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs			
56789012345678901234567890123456789012345678	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble) Disassemble (Crane) Disassemble (Manilft) Disassemble (Manilft)	0.00	30 30 20 15 100 150 \$20.00 \$20.00 \$20.00 \$36.64 200 200 \$336.64 200 200 \$336.64 200 200 200 200 200 200 200 200 200 20	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr s/cu yd \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton of hrs/1000 of hrs/1000 of	cu ft 1 0 cu ft 4 0	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ Op. Hrs Op. Hrs \$ \$ \$ Op. Hrs Op. Hrs \$ \$ \$			
567890123456789012345678901234567890123456789	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Bructures Demo large steel bldg (disassemble) Disassemble (Crane) Disassemble (Crane) Disassemble (Crane) Disassemble (Inoworker) Demo small steel bldg (Cat 938)	0.00	0.40 30 20 15 100 150 \$20.00 \$0.17 \$36.64 \$20.00 \$0.17 \$36.64 \$20.00 \$0.17 \$36.64 \$20.00 \$0.17 \$36.64 \$20.00 \$0.17 \$30.04 \$20.00 \$0.17 \$30.04 \$20.00 \$0.17 \$30.04 \$20.00 \$0.17 \$30.04 \$20.00 \$0.17 \$30.04 \$0.17 \$30.04 \$0.17 \$30.04 \$0.00 \$0.17 \$30.04 \$0.00 \$0.17 \$30.04 \$0.00 \$0.00 \$0.17 \$30.04 \$0.00 \$0.0	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu cy/hr \$/ton mi \$/ton fhrs/1000 cf hrs/1000 cf hrs/1000 cf	cu ft 1 0 cu ft 4 0	cu. yd.	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ Op. Hrs Op. Hrs \$ \$ \$ \$ Op. Hrs Op. Hrs \$ \$ \$			
56789012345678901234567890	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble) Disassemble (Manift) Disassemble (Manift) Disassemble (Irane) Demo small steel bldg (Cat 938)	0.00	0.43 30 20 15 100 150 \$20.00 \$20.00 0.17 \$36.64 280 200 \$0.17 \$36.64 0.4 0.4 0.4 0.8 0.2	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi	cu ft 1 0 cu ft 4 0 cu ft 4	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 2 cu ft 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			
567890123456789012345678901	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Bitructures Demo large steel bldg (disassemble) Disassemble (Manilft) Disassemble (Manilft) Disassemble (Ironworker) Demo small steel bldg (Cat 938)	0.00	30 30 20 15 100 150 \$20.00 \$20.00 \$0.17 \$36.64 280 200 \$0.17 \$36.64 0.4 0.4 0.4 0.4 0.4 0.4 0.2	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu yd/hr \$/ton mi \$/ton mi \$/ton of hrs/1000 cf hrs/1000 cf	cu ft 1 cu ft 1 cu ft 4 cu ft 4 cu ft 1	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 5 cu ft 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			
567789901123345667789900112334566778890011233455677889001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890001123344556778890000000000000000000000000000000000	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break roundations (Cat 938, compressor & air hammer) Break roundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble) Disassemble (Irane) Disassemble (Irane) Disassemble (Irane) Demo small steel bldg (Cat 938)	0.00	30 20 15 100 150 \$20.00 \$20.00 0.17 \$36.64 280 200 \$0.17 \$36.64 0.4 0.4 0.4 0.8 0.2	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu cy/hr cu yd/hr \$/ton mi \$/ton mi \$/ton mi \$/ton fi hrs/1000 cf hrs/1000 cf	cu ft 1 0 cu ft 4 0 cu ft 1 0 cu ft 4 0 cu ft 1 0 cu ft 1 0	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs Op. Hrs \$ \$ Op. Hrs \$ \$			
5 6 7 8 9 0 1 1 2 3 4 5 5 5 7 8 9 0 1 1 2 3 4 5 5 5 7 7 8 9 0 0 1 1 2 3 4 4 5 5 5 5 7 7 8 9 0 0 0 1 1 2 2 3 4 4 5 5 5 5 5 7 7 8 9 0 0 0 0 1 1 2 2 3 3 4 4 5 5 5 5 5 7 7 8 9 0 0 0 0 1 1 1 2 2 3 1 4 1 5 5 5 5 7 7 8 9 0 0 0 0 1 1 1 2 2 3 1 4 1 2 2 3 1 1 1 2 2 3 1 1 1 2 2 3 1 1 1 2 2 3 1 1 1 2 2 3 1 1 2 2 2 3 1 2 2 2 2 2 2 2 2 2 2 2 2 2	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Structures Demo large steel bidg (disassemble) Disassemble ((Cane) Disassemble ((Cane) Disassemble ((Cat 938)) Demo small steel bidg (Cat 938)	0.00	30 30 20 15 100 150 \$20.00 \$20.00 \$36.64 280 200 \$336.64 \$336.64 \$336.64 \$336.64 \$36.6	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu yd/hr \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton of hrs/1000 cf hrs/1000 cf	cu ft 1 0 cu ft 4 0 cu ft 1 0 cu ft 4 0 cu ft 4 0 cu ft 4 0	cu. yd. cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs           Op. Hrs           Op. Hrs           Op. Hrs.           Op. Hrs.           Op. Total           \$           \$           Op. Hrs           Op. Hrs           Op. Hrs           \$           \$           Op. Hrs           \$           Op. Hrs           \$           Op. Hrs           \$           Op. Hrs           \$			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Load on trucks (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Haul (commercial hauler) Landfill fee Asphalt Rip (D6 SU) Load (Cat 938) Haul (Commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble) Disassemble (Ironworker) Disassemble (Ironworker) Demo small steel bldg (Cat 938)	0.00	\$20.00 \$20.00 15 100 150 \$20.00 \$0.17 \$36.64 \$20.00 \$0.17 \$36.64 \$0.12 \$20.00 \$0.17 \$36.64 \$0.12 \$20.00 \$0.17 \$36.64 \$0.12 \$0.17 \$36.64 \$0.12 \$0.17 \$36.64 \$0.17 \$36.64 \$0.17 \$36.64 \$0.17 \$30.00 \$0.17 \$36.64 \$0.17 \$30.00 \$0.17 \$36.64 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$30.00 \$0.17 \$0.17 \$30.00 \$0.17 \$0.17 \$30.00 \$0.17	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton cu cy/hr cu cy/hr cu yd/hr \$/ton mi \$/ton s/1000 cf hrs/1000 cf hrs/1000 cf	cu ft 1 0 cu ft 4 0 cu ft 1 0 cu ft 4 0 cu ft 1 0 cu ft 1 0 cu ft 4 0	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 5 cu ft 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs. 938 Total Comp. Total \$ \$ \$ Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs Op. Hrs			
	Cost per foot Concrete Break unreinforced slab (Cat 938, compressor & air hammer) Break reinforced slab (Cat 938, compressor & air hammer) Break foundations (Cat 938, compressor & air hammer) Pile broken concrete (Cat 938) Compressor, air hammer, hose Cut reinforcement labor Air hammer labor Haul (commercial hauler) Landfill fee Structures Demo large steel bldg (disassemble) Disassemble (Crane) Disassemble (Manilft) Disassemble (Icane) Dicane Disassemble (Icane) Disassemble (Icane) Dicane (Icane) Disa	0.00	0.43 30 20 15 100 150 \$20.00 \$20.00 \$20.00 \$20.00 \$36.64 280 200 \$36.64 0.4 0.4 0.4 0.4 0.4 0.2 0.25	cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr cu yd/hr \$/cu yd \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton mi \$/ton of hrs/1000 of hrs/1000 of hrs/1000 of hrs/1000 of	cu ft 1 0 cu ft 4 0 cu ft 1 0 cu ft 1 0 cu ft 4 0	cu. yd. Total Total tons cu yd tons cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 2 cu ft 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 0.00	Op. Hrs Op. Hrs Op. Hrs Op. Hrs 938 Total Comp. Total \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$			

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	A	D	C	D	E	F	G	п		J	n	L
211					cu π 4	cu ft 5	Total 1-5					
278					0	0	0	0.00	Op. Hrs			
279	Demo wood (Cat 938)		0.2	hrs/1000 cf								
280					cu ft 1	cu ft 2	cu ft 3					
281					0	0	0					
282					cu ft 4	cu ft 5	Total 1-5					
202							TOLAL 1-5	0.00	On Ure			
283					0	0	0	0.00	Op. Hrs			
284	Load block and wood (Cat 938)		0.1	hrs/1000 cf				0.00	Op. Hrs			
285						Total		0.00	938 Total			
286	Load steel (Cat TL642)		0.08	hrs/1000 cf				0.00	Op. Hrs			
287					steel tons	block tons	wood tons					
288	Haul (Commercial, bauler)		\$0.17	\$/ton mi	0.0	0.0	0.0	0.00	\$			
200			30.17	\$/t011111	0.0	0.0	0.0	0.00	<u> </u>			
289	Landfill fee (recycle steel at no cost)		\$36.64	\$/t				0.00	\$			
290												
291	Fence & Gates				posts	wire length						
292	Remove clips and wire ties		2	min/post	0			0.00	Man hrs.			
293	Roll wire		5	min/100 ft		0		0.00	Man hrs			
200	Dull neete			min/neet	0			0.00	Man hre			
294	Puli posts		2	min/post	0			0.00	Man nrs.			
295	Load wire and posts		20	min/1000 ft				0.00	Man hrs.			
296	Disassemble gates, pull posts, load		2	hrs/gate				0.00				
297							Total labor	0.00	\$			
298	Haul materials to recycler		\$4.00	\$/mi				0.00	\$			
200	ridar materialo to rooyolor		\$1.00	<i>\(\)</i>				0.00	Ŷ			
299		0.00										
300	Septic tanks	0.00				no/tons						
301	Excavate, fill (Cat 420)		1.24	hrs/tank		0	tanks	0.00	Op. Hrs			
302	Pump and dispose of sludge (flat fee)		\$500.00	\$/tank		0	-	0.00	\$			
303	Load (Crane)		0.5	hrs/tank		0		0.00	Op. Hrs			
304	l abor		5.0	hrs/tank	1	0		0.00	\$	1		
204	Labul (Commercial haules)		A4 05	¢/mi		0		0.00	Ψ ¢			
305	naur (Commerciar nauler)		\$4.05	φ/III		0		0.00	э О			
306	Landtill tee		\$36.64	\$/ton		0	tons	0.00	\$	I		
307							-		-			
308	Trailers				l	number						
300	Pren materials		¢100.00	\$/trailer	1	4		100.00	\$			
309	n rep Illaterials		\$100.00	ψ/lidiiel bs/tsoil		1		100.00	ф Ф			
310	Prep labor		3	nr/trailer		1		65.88	\$			
311	Haul (Commercial hauler)		\$4.05	\$/mi		1		40.50	\$			
312	Disposal fee		\$263.00	\$/trailer		1		263.00	\$			
313				1.					,			
214	Tanka, amptivataal											
314	ranks, empty steel											
315	Number					1	tanks					
316	Tank 1					0.19	tons					
317	Tank 2					0.00						
318	Tank 3					0.00						
210	Tank 0					0.00						
319	Tank 4					0.00						
320	Lank 5					0.00						
321	Tank 6					0.00						
322	Total tons					0.19						
323	Crush and load (flat fee)		100	\$/tank				100.00	S			
224	Haul (Commercial houler)		\$4.05	¢/tannt				40.50	¢			
324	Haur (Commercial nauler)		\$4.05	\$/ton mile				40.50	\$			
325	Recycle (no fee for recycling)		\$0.00	\$/ton				0.00	\$			
326												
327	Tanks (not 55 gal drums), with liquid					water/fuel	chemical					
328	Number					0	0					
020			1	h		0	0	0.00	¢			
329	Pump out of drain		1	ni/tank				0.00	\$			
330	Load (Crane)		1	nr/tank				0.00	Op. Hrs			
331	Labor		1	hr/tank				0.00	\$			
332	Haul (Commercial hauler)		\$4.05	\$/mi				0.00	\$			
333	Disposal fee fuel		\$100.00	\$/tank				0.00	S			
224	Dispesal fee shemical		¢100.00	¢/tank				0.00	¢			
334	Disposal lee, chemical		\$1,010.00	φ/talik				0.00	Ŷ			
335												
336	Tires, heavy equipment					number						
337	Load (Flat fee)	-	\$30.00	\$/tire		0		0.00	\$			
338	Haul (Commercial hauler)		\$4.05	/mi/15 tires				0.00	\$			
330	Disposal fee		¢2/ 2/	\$/tire	1	1		0.00	\$	1		
240	Sisposul loo		φ <b>0</b> 4.34	ψ/ til O				0.00	¥			
J4U	<b>W</b>					l						
341	rires, nignway					number						
342	Load (Flat fee)		\$0.50	\$/tire		0	L	0.00	\$	I		
343	Haul (Commercial hauler)		\$4.05	\$/mi/60 tires	1	1		0.00	\$			
344	Disposal fee		\$2.00	\$/tire				0.00	\$			
345					i	i						
346	Chemicals in drums/bage (Contract)				1	number						
040	Dianagal fag		AFFF 00	¢/daum-				0.00	¢			
347	Uisposai tee		\$555.00	⊅/arum		0		0.00	۵			
348										I		
349	Fuel/oil/lube drums					number						
350	Load (Flat fee)		\$15.00	\$/drum		0		0.00	\$			
351	Haul (Commercial, hauler)		\$1.00	\$/mi/20 drum	is.	, j		0.00	\$	1	İ	
250	Disposal foo		¢400.00	¢/drum	-			0.00	÷			
352	Dispusal lee		\$130.00	φ/uruIII				0.00	ę			
353												
354	Explosives (Contract)					lbs.				L		
355	Disposal fee		\$8,367.00	flat fee	1	0		0.00	\$			
356					i	-						
357	Non-motal trach and coron					cu vd						
33/	Non-metal trasm and scrap			······		cu. yu.			0			
358	Load (Cat 938)		90	cu yd/hr		2		0.02	Op. Hrs.			
359	Haul (Commercial hauler)		\$4.05	/mile/load				40.50	\$			
360	Landfill fee		\$36.64	\$/t				73.28	\$			
361			÷:5.01	1		1						
200	Pagyalable motal cores					ou vd	tono					
302	Lead (Cat 020)			au 11/1 //		cu. yū.	- 6110		0			
363	LUAD (CAT 938)		45	cu ya/nr		1	5	0.11	Up. Hrs.			
364	Haul (Commercial hauler)		\$4.05	/ton mile			<u> </u>	20.25	\$			
365	Recycle (no fee for recycling)	-	\$0.00	\$/t				0.00	\$			
366	. , , , ,				l	l						
367	Mobile equipment and vehicles					number						
30/	Mobile equipment and vehicles			hard and had				000 55	<u>^</u>			
368	Prep vehicle (battery, tires, fuel tank)		1	nr/venicle		12		263.52	\$			
369	Load (Flat fee)		\$200	\$/vehicle				2400.00	\$			
370	Haul (Commercial hauler)		\$4.05	/mi/load	1	1		121.50	\$			
371	Recycle (no fee for recycling)		\$0.00	\$/vehicle	i	i		0.00	\$			
211			ψ5.00	+				0.00	-			

	Δ	B	C	D	F	F	G	н			ĸ	
373	Reverentation	5	ÿ	0	<u> </u>	acres	, ,					-
374	Grading (Cat 120)		3.5	acre/hr		20.0		6.00	On Hrs			
375	Disking (tractor and disk)		2.5	acre/hr		20.0		9.00	Op. Hrs			
376	Seeding (hand broadcasting)		1	acre/hr		20.0		439.83	\$			
377	Seed		\$80.00	acre		20.0		1602.30	s			
378	0000		\$00.00	40.0		20.0		1002.00	Ŷ			
379	Miscellaneous											
380	Water truck							15.00	On Hrs			
381	Hiddor Hador							10.00	00.1110			
382												
383												
384	Total Cost Calculations											
385	Equipment rental operating and other direct	t costs										
386	Equipment remai, operating and other direc	On Hre	Mob Hrs	Total Hre	>1 day	Daily	Weekly	Monthly	Pental	Fuel etc	Operator	Total
387	Cat 246 skid-steer loader	000.1113	<u>INIOD. 1113</u>	<u>10tai 1113</u>	<u>\$0 \$1 4</u>	<u>Daily</u> \$0	02	<u>100110119</u> \$0	\$0	<u>1 del, etc.</u> \$0	0 <u>perator</u> \$0	<u>10tai</u> \$0
388	Cat 315 excavator	0	0	0	0¢ 0\$	0¢ 0\$	0¢ 02	0¢ 02	90 \$0	00	0¢ 02	0¢ 02
389	Cat 420 backhoe loader	0	0	0	0¢ 0\$	\$0 \$0	00 08	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	00 02
390	Cat 938 wheel loader	65	3	68	00 \$0	\$0 \$0	\$4 933	00 \$0	\$4 933	\$324	\$2.057	\$7 313
301	Cat 12 motor grader	6	3	00	02	¢0 \$1.244	φ4,000 \$0	00	\$1 244	\$63	\$216	\$1,510
392	Cat D6 dozer	2	3	5	\$335	ψ1,244 \$0	00 02	40 \$0	\$335	\$35	\$70	\$440
303	Cat 770 baul truck	0	0	0	0000	\$0 \$0	00 08	00 \$0	0000	000	010	0++0 02
304	Cat TI 642 forklift	0	0	0	0¢ 0\$	\$0 \$0	00 08	\$0 \$0	\$0 \$0	\$0 \$0	\$0	00 02
395	John Deere 332 w/HD tiller	9	3	12	00 \$0	\$754	00 02	00 \$0	\$754	\$45	\$285	\$1.084
306	Kenworth 4000 gal water truck	15	3	12	02	¢764 \$1.654	00 ()	00	¢1 654	\$224	\$302	\$2,180
397	Sullair 375 compressor, hose and hammer	10	0	10	<del>پر</del> ۵۵	\$1,034 \$0	00 02	40 \$0	\$1,054 \$0	φ <u>22</u> φ 0\$	\$002	φ2,100 \$0
398	International 4200 truck crane	0	0	0	00 \$0	φ0 \$0	00 02	00 \$0	\$0 \$0	00 \$0	00 \$0	00 02
300	Genie S45 Manlift	0	0	0	0¢ 0\$	\$0 \$0	00 08	\$0 \$0	0 \$0	\$0 \$0	\$0 \$0	00 02
400	Labor cost (except equip opp and flat fees)	\$857	0	v	ψυ	ψυ	ψŪ	ψυ	ψŪ	φυ	ψŪ	\$857
400	Total direct costs	\$001										\$13 306
402												ψ10,000
403	Subcontract & materials											
404	Equip mob/demob bauling			\$1 890								
405	Drilling and blasting			\$0								
406	Loading etc. (flat fee)			\$2 500								
407	Misc hauling			\$243								
408	Landfill fees			\$73								
409	Materials			\$1,702								
410	Disposal fees (contract)			\$263								
411	HAZMAT site assessment testing remo	oval etc		\$0								
412	Water well closure			\$34,197								
413	Drill hole closure			\$0								
414	Subcontract & materials total			¢0								\$40,869
415	Contractor admin costs . % of direct costs			10%								\$1,340
416	Contractor admin costs % of subcontract 8	anaterials co	nsts	10%								\$4 087
417	Contractor profit, % of direct costs		5010	10%								\$1,340
418	Performance and Payment Bond (for contra	acts >\$100.0	00)	3%								\$0
419	Liability. % of labor	4010 - \$100,0	,	1.5%								\$13
420	Contract total											\$61.044
421	Contingency, % of contract total for projects	> \$100.000		10%								\$0
422	BLM contract management fee, % of contra	ct total		17.1%								\$10,438
423	BLM indirect costs. % of BLM contract man	agement fee		21.8%								\$2,276
424	TOTAL RECLAMATION COST	3										\$73,758
·		1				1						÷. •,. ••

## RECLAMATION BOND CALCULATION SPREADSHEET - CONTINUATION SHEET (USER INPUT ALLOWED) Additional User Input Note: Dimensions can be added to yellow cells only. White cells are dimensions from Input page.

## Road Cuts

**Cleared Areas** 

Drill Pads

#1	Longth (ft)	0	Width (ft)	0	Depth of out (ft)	0	(#1.3 from	Volume (cu ft)	Area (sq ft)
#1 #2	Length (ft)	0	Width (ft)	0	Depth of cut (It)	0	(#1-5 ITOIII	0	0
#2 #3	Length (It)	0	Width (ft)	0	Depth of cut (ft)	0	input Fage)	0	0
#3 #4	Length (ft)	0	Width (ft)	0	Depth of cut (It)	0	Add'l road	0	0
#4 #5	Length (ft)		Width (ft)		Depth of cut (It)		cute	0	0
#5 #6	Longth (ft)		Width (ft)		Depth of cut (ft)		Cuts	0	0
#0 #7	Length (ft)		Width (ft)		Depth of cut (ft)			0	0
#1 #8	Length (ft)		Width (ft)		Depth of cut (ft)			0	0
#0 #9	Length (ft)		Width (ft)		Depth of cut (ft)			0	0
#3 #10	Length (ft)		Width (ft)		Depth of cut (ft)			Ő	0
#11	Length (ft)		Width (ft)		Depth of cut (ft)			õ	Ő
#12	Length (ft)		Width (ft)		Depth of cut (ft)			õ	Ő
#13	Length (ft)		Width (ft)		Depth of cut (ft)			0	Ő
#14	Length (ft)		Width (ft)		Depth of cut (ft)			0	0
#15	Length (ft)		Width (ft)		Depth of cut (ft)			0	Ő
							Totals	0	0
#1 #2	Length (ft) Length (ft)	955 450	Width (ft) Width (ft)	625 484	(#1-3 from Input Page)			Area (sq ft) 596875 217800	
#3	Length (ft)	0	Width (ft)	0				0	
#4	Length (ft)		Width (ft)		Add'l cleared			0	
#5	Length (ft)		Width (ft)		areas			0	
#6	Length (ft)		Width (ft)					0	
#7	Length (ft)		Width (ft)					0	
#8	Length (ft)		Width (ft)					0	
#9	Length (ft)		Width (ft)					0	
#10	Length (ft)		Width (ft)					0	
								Volume (cu ft)	Area (sq ft)
#1	Length (ft)	0	Width (ft)	0	Depth of cut (ft)	0	(#1-3 from	Volume (cu ft) 0	Area (sq ft) 0
#1 #2	Length (ft) Length (ft)	0	Width (ft) Width (ft)	0	Depth of cut (ft) Depth of cut (ft)	0	(#1-3 from Input Page)	Volume (cu ft) 0 0	Area (sq ft) 0 0
#1 #2 #3	Length (ft) Length (ft) Length (ft)	0 0 0	Width (ft) Width (ft) Width (ft)	0 0 0	Depth of cut (ft) Depth of cut (ft) Depth of cut (ft)	0 0 0	(#1-3 from Input Page)	Volume (cu ft) 0 0 0	Area (sq ft) 0 0 0
#1 #2 #3 #4	Length (ft) Length (ft) Length (ft) Length (ft)	0 0 0	Width (ft) Width (ft) Width (ft) Width (ft)	0 0 0	Depth of cut (ft) Depth of cut (ft) Depth of cut (ft) Depth of cut (ft)	0 0 0	(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0	Area (sq ft) 0 0 0 0
#1 #2 #3 #4 #5	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)	0 0 0	Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)	0 0 0	Depth of cut (ft) Depth of cut (ft) Depth of cut (ft) Depth of cut (ft) Depth of cut (ft)	0 0 0	(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0	Area (sq ft) 0 0 0 0 0
#1 #2 #3 #4 #5 #6	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)	0 0 0	Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)	0 0 0	Depth of cut (ft) Depth of cut (ft)	0 0 0	(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)	0 0 0	Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)	0 0 0	Depth of cut (ft) Depth of cut (ft)	0 0 0	(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)		Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)	0 0 0	Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8 #9	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)		Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)		Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11	Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft) Length (ft)		Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #3 #4 #5 #6 #7 #8 #9 #10 #11 #12 #13 #14	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #4 #5 #6 #7 #8 #10 #11 #12 #13 #14 #15	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #4 #5 #6 #7 #8 #10 #11 #12 #13 #14 #15 6 7	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #4 #5 #6 #7 #9 #11 #12 #13 #14 #15 #16 #17	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #3 #4 #5 #6 #7 #8 #10 #11 #12 #14 #15 #16 #19 #19	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#12 #3 #45 #67 #89 #101 #112 #115 #167 #100 #115 #115 #115 #115 #115 #115 #115	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #3 #4 #5 #7 #8 #10 #11 #12 #14 5 #16 #17 #18 #19 #10 #11 #17 #19 #11 #12	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #3 #4 #5 #7 #8 #10 #11 #12 #14 5 #16 #17 #18 #19 #10 #11 #17 #18 #19 #10 #11 #12 #13 #14 #15 #14 #15 #14 #15 #16 #17 #18 #11 #12 #13 #14 #15 #16 #17 #11 #11 #11 #11 #11 #11 #11 #11 #11	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #3 #4 #5 #7 #8 #10 #11 #13 #15 #16 #18 #10 #11 #118 #119 #120 #120 #120 #120 #120 #120 #120 #120	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #2 #4 #5 #6 #10 #112 #13 #15 #16 #18 #10 #123 #15 #16 #18 #10 #123 #15 #10 #123 #1123 #15 #1123 #14 #15 #112 #13 #14 #15 #16 #17 #112 #13 #14 #15 #16 #17 #112 #13 #14 #15 #16 #112 #112 #112 #112 #112 #112 #112	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#12 #45 #56 #112 #112 #114 #115 #118 #119 #120 #223 #25	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#12 #3 #45 #67 #89 #101 #1123 #1156 #189 #101 #1123 #1156 #1100 #1223 #1226 #1201 #1223 #1226	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'I pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#12 #3 #45 #78 #90 #1112 #115 #167 #190 #22122 #234 #2667 #22667	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#12 #34 #56 #78 #90 #112 3 #156 #78 #90 #112 3 #156 #167 #190 #221 2 2 3 4 256 7 8 #226 7 8 #226 7 8 #228 #228 #228 #228 #228 #228 #228	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #3 #4 #5 #7 #8 #10 #11 #112 #113 #116 #117 #120 #221 #234 #267 #28 #29	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#12 #33 #45 #67 #89 #111 #123 #45 #67 #89 #101 #112 #113 #116 #117 #118 #120 #221 #225 #227 #229 #30	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
#1 #3 #4 #5 #6 #11 #12 #11 #11 #11 #11 #11 #11 #11 #11	Length (ft) Length (ft)		Width (ft) Width (ft)		Depth of cut (ft) Depth of cut (ft)		(#1-3 from Input Page) Add'l pads	Volume (cu ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Area (sq ft) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

#32	Length (ft)	Width (ft)	Depth of cut (ft)	
#33	Length (ft)	Width (ft)	Depth of cut (ft)	
#34	Length (ft)	Width (ft)	Depth of cut (ft)	
#35	Length (ft)	Width (ft)	Depth of cut (ft)	
#36	Length (ft)	Width (ft)	Depth of cut (ft)	
#37	Length (ft)	Width (ft)	Depth of cut (ft)	
#38	Length (ft)	Width (ft)	Depth of cut (ft)	
#39	Length (ft)	Width (ft)	Depth of cut (ft)	
#40	Length (ft)	Width (ft)	Depth of cut (ft)	
#41	Length (ft)	Width (ft)	Depth of cut (ft)	
#42	Length (ft)	Width (ft)	Depth of cut (ft)	
#43	Length (ft)	Width (ft)	Depth of cut (ft)	
#44	Length (ft)	Width (ft)	Depth of cut (ft)	
#45	Length (ft)	Width (ft)	Depth of cut (ft)	
#46	Length (ft)	Width (ft)	Depth of cut (ft)	
#47	Length (ft)	Width (ft)	Depth of cut (ft)	
#48	Length (ft)	Width (ft)	Depth of cut (ft)	
#49	Length (ft)	Width (ft)	Depth of cut (ft)	
#50	Length (ft)	Width (ft)	Depth of cut (ft)	

Small Pits

Totals

Volume

Area

								(cu ft)	(sq ft)
#1	Length (ft)	0	Width (ft)	0	Depth (ft)	0	(#1-5 from	0	0
#2	Length (ft)	0	Width (ft)	0	Depth (ft)	0	Input Page)	0	0
#3	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#4	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#5	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#6	Length (ft)		Width (ft)		Depth (ft)		Add'l small	0	0
#7	Length (ft)		Width (ft)		Depth (ft)		pits	0	0
#8	Length (ft)		Width (ft)		Depth (ft)			0	0
#9	Length (ft)		Width (ft)		Depth (ft)			0	0
#10	Length (ft)		Width (ft)		Depth (ft)			0	0
#11	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#12	Length (ft)		Width (ft)		Depth (ft)			0	0
#13	Length (ft)		Width (ft)		Depth (ft)			0	0
#14	Length (ft)		Width (ft)		Depth (ft)			0	0
#15	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#16	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#17	Length (ft)		Width (ft)		Depth (ft)			0	0
#18	Length (ft)		Width (ft)		Depth (ft)			0	0
#19	Length (ft)		Width (ft)		Depth (ft)			0	0
#20	Length (ft)		Width (ft)		Depth (ft)			0	0
							Totals	0	0
								Volume	Area
								(cu ft)	(sq ft)
#1	Lenath (ft)	0	Width (ft)	0	Depth (ft)	0	(#1-10 from	Ò Ó	Ì O Í
#2	Length (ft)	0	Width (ft)	0	Depth (ft)	0	Input Page)	0	0
#3	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#4	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#5	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#6	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#7	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#8	Length (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#9	Lenath (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#10	Lenath (ft)	0	Width (ft)	0	Depth (ft)	0		0	0
#11	Length (ft)		Width (ft)		Depth (ft)		Add'l	0	0
#12	Lenath (ft)		Width (ft)		Depth (ft)		trenches	0	0
#13	Length (ft)		Width (ft)		Depth (ft)			0	0
#14	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#15	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#16	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#17	Length (ft)		Width (ft)		Depth (ft)			0	0
#18	Lenath (ft)		Width (ft)		Depth (ft)			0	0
#19	Length (ft)		Width (ft)		Depth (ft)			Ō	0
#20	Length (ft)		Width (ft)		Depth (ft)		1	0	0
#21	Length (ft)		Width (ft)		Depth (ft)		1	Ō	Ō
#22	Length (ft)		Width (ft)		Depth (ft)		1	0	0
#23	Length (ft)		Width (ft)		Depth (ft)		1	0	0
#24	Length (ft)		Width (ft)		Depth (ft)		1	Ō	Ō
#25	Length (ft)		Width (ft)		Depth (ft)		1	0	0
	5 ()		. /		,		Totals	0	0

## Trenches