NEVADA COUNTY PLANNING COMMISSION
STAFF REPORT

HEARING DATE: May 11, 2017

FILE NOs: Z15-004; U15-008; RP15-001;
MGT17-003; EIS15-014

APPLICANT/OWNER: Jeff Hansen, Hansen Brothers Enterprises

REPRESENTATIVE: Alicia Brenner, BT Consulting, Inc.

PROJECT: A Rezone (Z15-004) of APNs 38-370-17, 38-380-15 & -16 and 38-430-02 from Forest-40 (FR-40) to FR-40 with the Mineral Extraction combining district (FR-40-ME); a Use Permit (U15-008) to expand an existing in-stream aggregate mining operation to an additional 38 acres in and on the banks of Greenhorn Creek in the vicinity of the Red Dog Road creek crossing and for work within the 100-year floodplain; a Reclamation Plan (RP15-001) to reclaim and restore the site after mining activities are completed; and a Management Plan (MGT17-0003) for work within a waterway.

LOCATION: Within Greenhorn Creek from the northeast corner of Section 25, Township 16N, Range 9E, to Missouri Canyon at the south within Section 36, Township 16N, Range 9E. Red Dog-You Bet area of Grass Valley, CA, approximately 7 miles east of Grass Valley, 2.4 miles north of You Bet Road, and 3.3 miles north of Rollins Reservoir.

ASSESSOR PARCEL NOs.: 38-370-17; 38-380-15, -16; 38-430-02

PROJECT PLANNER: Tyler Barrington, Principal Planner

| General Plan: | Forest 40 (FOR-40) |
| Region/Center: | Rural Region |
| Zoning: | FR-40 |
| Flood Map: | FEMA Panel #0675 Zone A&X |
| ZDM No.: | 78 |
| Parcel Size: | 38-acre portion of larger parcels |
| Date Filed: | August 7, 2015 |
| Prev. File Nos.: | U93-063; U90-093; RP93-001; RP90-004; MIN05-002 |

| Water: | N/A |
| Sewage: | N/A |
| Fire: | CalFire |
| Schools: | Nevada City/NJUHSD |
| Recreation: | NC Benefit Zone |
| Sup. Dist.: | V |
| Receipt No.: | 61000028047 |

ATTACHMENTS:
1. Recommended Conditions of Approval
2. Draft Resolution- Mitigated Negative Declaration
3. Draft Ordinance- Rezone to add Mineral Extraction Combining District
6. Rezone Justification Statement
7. Vicinity, Zoning and Public Notice Map
8. Agency/Public Comments

* Includes the current Mine and Reclamation Plan, the entire document providing historical plans is over 500-pages and available for viewing at the County Planning Department Webpage along with other supporting documents for this project.

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**RECOMMENDATION:** Staff recommends the Planning Commission make the following actions:

I. **Environmental Action:** Adopt Mitigated Negative Declaration EIS15-004 *(Attachment I)*
II. **Project Actions:**
   1. Approve the Biological Management Plan (MGT17-003)
   2. Approve the Use Permit and Reclamation Plan (U15-008)
   3. Recommend the Board of Supervisors Approval of the Rezone (Z15-004)

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**BACKGROUND:**
Greenhorn Creek flows through a deep canyon with substantial gravel deposit resulting from numerous upstream hydraulic mining operations dating back to the 1860s. Hydraulic mining operations used high-pressure jets of water to dislodge and move the overburden and surface soils and rocks. The water-sediment slurry was directed through sluice boxes to capture gold, while natural and manmade processes moved the aggregate waste into the Greenhorn Creek streambed, where it covered the original streambed. These sand and gravel deposits still sit atop the natural streambed. More material moves downstream with every winter season, ultimately moving into Rollins Reservoir where it causes a loss of water storage capacity at the reservoir. The source of the gravel within Greenhorn Creek comes from Gas Canyon near Scotts Flat Reservoir, the Buckeye Diggings, portions of the Red Dog/You Bet Diggings, Little York Diggings, and Missouri Canyon. In the unmined areas, the historic creek channel is estimated as being 30 to 70 feet below the present surface of the creek.

In 1975 HBE first applied for a permit to mine sand and gravel from Greenhorn Creek, along with a permit to construct and operate a processing plant (U75-003). In 1978 a rock crusher and settling ponds were added to the operation (U78-013), and in 1982 an amendment was granted to the times and days of operation (U82-020). At that time the area of operation included an NID lease area from just upstream (north) of Rollins Reservoir to approximately three miles upstream. In 1994 the Planning Commission approved an expansion of the operation into Section 25, at the northern end of the extraction area (U93-063).

**PROJECT LOCATION AND SURROUNDING LAND USES:**
The project is located in the Red Dog-You Bet area, approximately 7 miles east of Grass Valley, 2.4 miles north of You Bet Road, and 3.3 miles north of Rollins Reservoir. Figure 1 below shows the general location of the project site. Access to the site is from State Route 174 to County-maintained You Bet Road, to privately maintained Hansen Gravel Road just past the Greenhorn Creek crossing. From the processing plant off the Hansen Gravel Road, access to the in-stream
mining areas is north up the Greenhorn Creek canyon, as shown in Figure 2 below. Proposed areas of expansion extend from approximately 1 mile north of the processing plant to the parcel just north of the Red Dog Narrows and the Red Dog Road creek crossing. Although the Hansen Bros. Enterprises (HBE) operation extends to Rollins Reservoir to the south, the project area for this project is defined as the new expansion areas within APNs 38-430-02, 38-380-15, 38-380-16, and 38-370-17 (see Figure 3).

Depending on site conditions, the operational areas may also be accessed from Red Dog Road, though it is not the current practice of the applicant to use Red Dog Road for operational purposes. The Red Dog Road crossing over Greenhorn Creek is a ford, and vehicles must wait until storm flows subside before crossing the stream.
The proposed sand and gravel extraction operation would operate within and on the banks of Greenhorn Creek, Missouri Canyon, and Arkansas Ravine. The width of the aggregate deposit varies from approximately 40 feet wide to approximately 600 feet wide throughout the length of the streambed in the operational area. The expansion area is located at elevations approximately 2,100 to 2,600 feet above mean sea level (msl). The streambed of Greenhorn Creek, which trends northeast to southwest, is mostly devoid of vegetation except for locations along the edge of the channel and in gravel bars where riparian vegetation grows. The canyon walls rise over 3,000 feet in elevation msl, and are heavily vegetated with upland species in the Douglas-fir forest alliance, and much of the area is characterized by disturbed or ruderal areas, including some areas of Scotch broom invasion. Other than the gravel processing plant and infrastructure improvements, there are no known manmade features on the subject properties.

Public lands are located to the north and east as shown in Figure 3. Unimproved private parcels are also located to the east, while many of the parcels to the west are improved private parcels.
Several buffers are in place given that HBE owns adjoining parcels (many of which are mined under existing use permits), one to the southeast of APN 38-370-17 and all adjoining lands to the north, west, and south of the remaining project area (see Figure 3).

**Figure 3: Surrounding Zoning and Ownership**

**PROJECT DESCRIPTION:**
The proposed project involves an expansion of extraction areas for the existing aggregate mining operation, with expanded areas including the bed and banks of Greenhorn Creek and Missouri Canyon, as shown in Figure 4. Although it appears from the site mapping that some expansion areas would occur within forested uplands, HBE would limit harvesting to the Placer diggings soil type, which occurs almost predominantly within the creek as shown in Figure 5. The new harvest areas are within four parcels immediately upstream and downstream of the Red Dog Road creek crossing, up to the northerly limit of USGS Section 25, and within both Sections 25 and 36 (see Figure 6). Figure 7 shows the cross sections (referenced in Figure 6) of the expansion areas before and after aggregate harvesting. The material collected from Greenhorn Creek consists of placer diggings, placer digging fragments, and other minor components, which can range from fine sand to gravel to large cobble materials. This aggregate material is the resultant deposit from historic upstream hydraulic mining activities.

The project includes a Rezone, Use Permit, Reclamation Plan, and Management Plan as discussed in more detail below. The proposed use permit and management plan would function
independently, while past and proposed reclamation plans would be incorporated under one Reclamation Plan (RP15-001) pursuant to Office of Mine Reclamation (OMR) requirements and to facilitate implementation and monitoring of reclamation plan measures.

Rezone
A Rezone (Z15-004) of APNs 38-370-17, 38-380-15 & -16 and 38-430-02 is proposed to add the Mineral Extraction (ME) combining district to these parcels. Zoning is currently Forest 40 (FR-40) and if approved would be changed to FR-40-ME. The ME zoning overlay is required for all mineral extraction projects.

Use Permit
The Use Permit would allow existing aggregate harvesting activities within Greenhorn Creek to be expanded into the areas shown in Figure 4, and would permit this mining activity within the 100-year floodplain. The lifespan of the existing mining operation and use of the processing facilities would therefore be increased. All other aspects of the existing operation would remain the same, including the number of employees, the operational hours, the amount of aggregate materials processed annually, the type of harvesting and processing equipment used, and the methods of mining and processing. Extraction would simply be moved from the existing permitted area to the expansion area. Mineral exploration is not required for this operation as the material to be harvested, processed, and sold is naturally deposited in the creek canyon by stream flows and is visible without further exploration. The existing processing plant located approximately one mile downstream of the southernmost portions of the new extraction areas would continue to be used to process the materials by screening, washing and/or crushing, and stockpiling. This plant is shown in Figure 8.

Harvesting Methods
Prior to commencement of extraction activities each year, the applicant installs gravel berms to divert braided channels of Greenhorn Creek into one main stream channel. Dry diversion channels are also constructed starting at the bottom of the new channel, then working upstream to channelize flows between meanders that would otherwise exchange flows from side to side in the floodplain. Once construction of the channel is complete, water is introduced into the channel. Temporary crossing culverts are installed for repeated crossings of large equipment. Sand and gravel is not harvested from within the flowing portion of Greenhorn Creek. As required under the terms of the California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement, a pre-extraction plan is required to be provided to the department prior to the onset of extraction activities each season. The plan specifies the locations of the extraction areas for that season, a map of the season’s access roads and stream crossings, and a delineation of the low flow channel for the upcoming year’s operation. Harvesting utilizes heavy equipment, typically paddle wheel scrapers, to remove sand and gravel from sandbars within the streambed.
Figure 4: Site Plan

EXISTING HBE HARVEST AREA
PROPOSED HARVEST EXPANSION AREA
NEARBY RESIDENCE
NOTE: BACKGROUND IMAGE SHOWN FOR GENERAL REFERENCE. LAND SURVEY NOT PERFORMED.
Figure 5: Placer Diggings Soil Type

Northern Extent (TOP) Southern Extent (BOTTOM) of Project Site
Figure 6: Expansion Areas – North and South
Figure 7: Cross Sections after Reclamation

Section A-A

Section B-B

Section C-C

Section D-D
Processing Facilities
After harvesting the material is transported to the material processing plant for screening, washing, and/or crushing. Raw and processed material is stockpiled at the plant. Crushed aggregate material that is mined from the facility’s operation is crushed onsite with a jaw and cone rock crusher. The operation mines negligible quantities of overburden or waste material and therefore does not require waste piles or dumps. There is no rock waste resulting from this operation. All crushed and uncrushed rock material is sold and hauled offsite.

An office, maintenance shop, fuel building, scale, scale house, caretaker’s residence, water tank, sheds, and other ancillary structures are located adjacent to the plant. Restrooms for the facility are located inside the office/maintenance shop and inside the scale house. The caretaker’s residence and shop are served by a private well and a private septic system. Unused and aged equipment is stored in a designated area near the plant for future use or to supply parts for actively used equipment. The plant is powered by electrical service.

Process Water Management
Water for material washing, processing activities, and dust control is pumped and diverted from Greenhorn Creek. The operation is permitted by the Central Valley Regional Water Quality Control Board under Waste Discharge Order No. 98-185 to draw a maximum of 528,000 gallons per day of water from Greenhorn Creek. As permitted by CDFW Streambed Alteration Agreement No. 1600-2007-0142-R2, the operation is prohibited from drafting more than 20
percent of the flow in Greenhorn Creek as measured immediately upstream of the diversion point. The diversion may not cause flows to go below 2 cubic feet per second (cfs) below the diversion point. Creek water is conveyed via pipe from Greenhorn Creek into a pond where it is then pumped to the appropriate location for plant processes.

Process water is only utilized at the plant. Process water is discharged onsite to unlined settling ponds adjacent to Greenhorn Creek. Discharge of waste to surface waters or surface water drainage courses is prohibited.

The settling pond levees are constructed and maintained to prevent scouring and failure from elevated flows in Greenhorn Creek. A 2-foot freeboard is maintained in the settling ponds at all times. The ponds are aerated to prevent the breeding of mosquitoes and to minimize weeds, algae, and vegetation. The ponds are also monitored for dissolved oxygen and pH. Process water that is removed from the ponds is transferred to an onsite unlined evaporation pond. Sludge or solids that are removed from the ponds are transferred to an on-site drying pond and used in road base and other product applications.

The operation has an onsite stormwater settling/infiltration pond which receives runoff from the southern portion of the plant area. The watershed that drains to the stormwater pond is used to store piles of processed material, load trucks for the off hauling of processed materials, and access roads. The pond provides for the settling of material that is suspended in the storm water runoff, and the outlet of the pond is stabilized with native aggregate material. The pond is maintained by removing settled material as needed, typically in the drier seasons of the year when the pond contains minimal stormwater. There are also several diversion swales at the plant which serve the purpose of conveying process water, stormwater, and run-on to designated locations. Given that the material at the site is mainly aggregate, maintenance of the swales is minimal.

**Anticipated Production**

The annual anticipated production of aggregate to be mined and processed is expected to range from 200,000 to 600,000 tons per year, which is the same amount as historically mined for the last 35 years. The quantity of aggregate material varies substantially based on the current market demand and the amount of materials available that wash downstream from the historic hydraulic placer diggings. Storms continue to bring additional sand and gravel downstream into the operational area, replenishing the materials which are then harvested. Mineral commodities to be removed are estimated at 30 to 50 million tons, and the maximum anticipated depth of aggregate material to be removed is approximately 70 feet. The estimated ratio of tons per cubic yard of material being mined is 1.4 to 1.8 tons per cubic yard.

**Mine Operation Schedule**

Plant operation, gravel harvest, material hauling, truck loading, and hauling is limited under existing Use Permits U82-020 and U93-063 to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except for plant repairs which may take place beyond that time under the current approved use permit. Exceptions to the time and day limitations for Saturday operation, also limited to the hours of 7:00 a.m. to 6:00 p.m., may be made with County approval. In no case is
Saturday or Sunday operation authorized in the area lying south of the You Bet Road Bridge over Greenhorn Creek.

The harvesting operation is limited to April 1 to December 31 and to periods of low stream flow and dry weather under the terms of the existing Streambed Alteration Agreement with CDFW. In stormy periods, the gravel bars are flooded and the harvesting of sand and gravel is suspended until the water table subsides enough to allow heavy equipment to operate. The processing plant, however, operates continuously throughout the year, and portable aggregate processing plants may be utilized on a seasonal basis outside of Section 25 under the existing Use Permit conditions. No portable processing plants are proposed with the new use permit application.

Lifespan of Use Permit
Previous Use Permits approved by Nevada County do not have expiration dates. However, in keeping with other mining operations in the County in more recent years, HBE is currently proposing a maximum 30-year lifespan on the new Use Permit. If the operation requires additional time due to additional materials becoming available or additional market demand, a new Use Permit approval would be required.

Floodplain
The project would occur within the 100-year floodplain and as such requires a Use Permit for work within a floodplain pursuant to Land Use and Development (LUDC) Sec. L-II 4.3.10. Floodplain impacts are evaluated in the October 7, 2016, Geotechnical and Hydrological Feasibility Assessment by Holdredge & Kull, and mitigation is required at the end of each extraction season to ensure that remaining slope configuration do not cause flooding impacts. The conditions of the CFDW Streambed Alteration Agreement and the Waste Discharge Requirements of the Central Valley Regional Water Quality Control Board also serve to manage the impact of activities within the floodplain.

Reclamation Plan
Annual reclamation activities are required under the terms of the Streambed Alteration Agreement. They include removing temporary stream crossing culverts prior to the winter and/or significant rain events unless the crossing devices have been designed to pass the expected flows without impounding water upstream of the crossing or impacting the integrity of the watercourse. Structures and associated materials not designed to withstand high seasonal flows must be moved to areas above the high water mark before such flows occur.

Although the project lowers the streambed gravels, each year the creek moves in more material. Depending on the weather, the amount moved may be less than, equal to, or greater than the amount of material in the streambed the prior year. Occasionally, large parts of the upstream deposit cover over or scour out reclaimed areas and the natural revegetation process begins again. The vegetative cover proposed for the end use is anticipated to be self-regenerating to a large extent without continued dependence on irrigation, soil amendments, or fertilizer. The operation at the facility has been active for over 40 years and, according to the project biologist, natural revegetation of the riparian zone along the slopes of the Greenhorn Creek canyon, which were previously covered with aggregate waste, has proven to be effective. The project biologist has
concluded that vegetation at a density that is substantially similar to native surrounding areas, with various native species, develops unassisted and will successfully stabilize the slopes.

The revegetation process therefore entails two phases. First, passive or natural revegetation and active revegetation methods within small areas (test plots) over at least two years would be assessed. The second phase, landscape level restoration, would then occur as needed, applying adaptive management recommendations that would result from the test plot study. Test plots would occur both in riparian and upland habitats. Test plot success is generally defined as 50 percent of baseline conditions two years post-construction, as vegetation once established at 50 percent cover will likely continue to revegetate. This criteria was approved by OMR on December 27, 2016, and no comment was received from OMR on the project’s Financial Assurance Cost Estimate (FACE) following the required 45-day review period which effectively automatically deems the FACE approved (Attachment 6). If at the end of two years, neither test plot type meet the success criteria, then adaptive management is recommended and additional testing of augmented replanting methods necessary. During this time, the passive plots should continue to be monitored to verify, if a longer study period facilitates meeting the success criteria in passive treatment plots.

The landscape level restoration would entail the application of the successful restoration techniques defined through the test plot study in riparian and upland habitats throughout the reclamation site. If passive revegetation was successful in the test plots they would be applied throughout the site. Passive revegetation methods have been successful in the past and may be viable at this site or in portions of the site. Passive landscape-level revegetation means the reclamation site would be left alone after the stream bed, bank, and upland areas are recontoured. The site is then expected to revegetate passively through natural propagation of riparian and upland species, much as it has in downstream areas previously mined by HBE. Active landscape-level revegetation would entail a directed revegetation planting palette based on the results of the test plots. The goal is to have the planting pallet recommendations primarily depend on locally sourced cuttings. The recommended duration and timing for the landscape-level restoration is five years to be implemented upon completion of mining activities and site re-contouring.

Mined lands are required to be reclaimed to a usable condition which is readily adaptable for alternate land uses and which creates no danger to public health or safety. After the end of the proposed aggregate mining activities, the ultimate condition of the creek would be something similar to the pre-hydraulic condition, with a layer of aggregate material 18 inches deep on average through the streambed and riparian plants along the edges of the stream and other species further outside the area of frequent flooding. The absence of the accumulation of sand and gravel will allow the natural propagation of alder, willow, and other riparian vegetation species.

After mining of each section is completed, the stream would be contoured into a “V” shaped channel shaped sufficiently to pass the 100-year peak flow, which conforms to the surrounding topography, with Greenhorn Creek flowing in the “V.” The stream profile would be cut to the proper angle of repose. Although the final slope of the streambed under the gravel is unknown because the bedrock contour has not been explored, the bedrock contour is assumed to follow the pattern of the streambed cross section and have a slope of less than 35 percent. If canyon walls
under the deposit are less than 35 percent, no adjustments to the slope are planned. Sand and gravel would be left against slopes that are steeper than 35 percent as well as to cover the stream banks and streambed. The blanket of aggregate material that remains on the banks of the channel provides a natural form of rip-rap which assists in protecting the banks from soil erosion. Any soil encountered under the gravel would be left in place.

When the operation is nearing completion, the crushers, screens, scales, buildings, drainage structures, and all other plant related equipment would be removed in order to remove the aggregate material in which they are sited on, and any excess materials, waste, or debris would be removed from the work area. All private access roads, haul roads, and other temporary traffic routes used for mining purposes would then be reclaimed by removing any road base material. The Hansen Gravel Road would be left in its operational condition, on a layer of sand and gravel.

The potential end use of the reclaimed streambed would be for recreational, watershed, and beneficial environmental uses of Greenhorn Creek such as continued habitat for foothill yellow-legged frog. The current zoning designations for operation area include forest and agricultural designations in combination with the mineral extraction designation. The reclamation plan for the site is consistent with current and surrounding zoning and land use designations.

Management Plan
For all disturbance within watercourses, wetlands, and riparian, Nevada County LUDC Sec. L-II 4.3.3 requires a Management Plan to reduce impacts to water quality, habitat, and special-status species that could occur in these areas. The project’s management plan (MGT17-0003) consists of the CDFW Streambed Alteration Agreement and the recommendations of the project Biological Inventory which includes numerous protections for water quality, habitat, and special-status within Greenhorn Creek that could be affected by the project’s harvesting operations (Attachment 5). For impacts to creek banks and slopes, the project’s Reclamation Plan would also serve as a “management plan” in the reclamation phase of the project.

STAFF COMMENT:

Use Permit/Rec Plan/FACE
As discussed in detail above, the applicant is requesting a 38-acre expansion to their existing aggregate mining activities in Greenhorn Creek. There is no change to the actual operations in terms of processing, off-hauling or the amount of material harvested in a given year. Pursuant to LUDC Section L-II 3.22, the applicant is seeking approval of a Use Permit (U15-008) to allow for this expansion. As with all mining projects their application includes approval of a Reclamation Plan (RP15-001) which also includes the approval of HBE’s Financial Assurance Cost Estimate. The operational plan (Use Permit), Reclamation Plan (REC Plan) and Financial Assurance Cost Estimate (FACE) have all been reviewed by the State Division of Mine Reclamation (DMR) (formerly OMR) for compliance with the California Surface Mining and Reclamation Act (SMARA) and have been found to be compliant with those regulations. HBE has a long history of working in this area and have been a responsible operator. In concert with DMR, the County finds that the proposed Use Permit is compliant with County regulations and the REC Plan/FACE to be adequate for this project. All potential environmental impacts have
been adequately analyzed in the project specific environmental document (EIS15-014), which are discussed further below, and are adequately mitigated to levels of less than significance. Subsequently, this project is compliant with local and state regulations for this type of land use.

**Hazards and Hazardous Materials**

Greenhorn Creek was the subject of a 2005 USGS report, *Scientific Investigations Report 2004-5251*, that analyzed water, sediment, and invertebrate samples in the Greenhorn Creek drainage system and identified specific levels of mercury and methylmercury contamination at various sites throughout the drainage. The results document several hot spots of mercury contamination that represent areas for ongoing and future remediation efforts at abandoned mine sites. Due to the proximity to the Starr Tunnel portal and the location of the aggregate deposit within Greenhorn Creek aggregate sampling and mercury analysis was performed in 2015 by consulting engineers Holdredge & Kull. At the request of the RWQCB, Holdredge & Kull performed additional surface water sampling and analysis on May 5, 2016. Locations of soil and water sampling two soil and two surface water samples in the vicinity of the Starr Tunnel, and one additional surface water sample downstream of the processing plant.

The Starr Tunnel portal and immediate downstream areas are already approved for mining under the existing Use Permit U93-063, so the nearest possible location currently required to be evaluated was sampled as a part of the Holdredge and Kull testing. A second testing location captured any mercury that may have been transported downstream from other mining sites upstream of this location, such as the Poore Mine, Buckeye Mine, and Boston Mine. The results of the analysis were compared to Human Health Screening Levels developed by the United States Environmental Protection Agency (US EPA) and the California Department of Toxic Substances Control (DTSC). The total mercury concentrations detected in all samples were all below human health screening levels, subsequently this project is not anticipated to result in the substantially adverse release of mercury into the waterway.

Holdredge & Kull also conducted surface water sampling for dissolved metals, the results of which show that the existing aggregate extraction and processing activities do not appear to threaten water quality with respect to mercury or other sampled constituents. The Regional Water Quality Control Board reviewed the results and concurred with the sampling methods and results. The project is subject to existing Waste Discharge Requirements and Permits which area already in place.

**Traffic and Circulation**

Access to the site is from State Route 174, to the County-maintained You Bet Road, to the privately maintained Hansen Gravel Road just past the Greenhorn Creek crossing. From the processing plant off the Hansen Gravel Road, access to the in-stream mining areas is north up the Greenhorn Creek canyon. Proposed areas of expansion extend from approximately one mile north of the processing plant two miles north up the Greenhorn Creek canyon to the boundary of the Tahoe National Forest. The expansion area includes the Red Dog Road crossing and the Red Dog Narrows. Red Dog Road in the vicinity of the stream crossing is public from the middle of the creek running west; and a public, non-County maintained road from the middle of the creek running east. HBE is conditioned under Use Permit U93-063 to maintain the Red Dog Road
crossing, while the County maintains the western portion of Red Dog Road within the public right-of-way. The eastern portion of Red Dog Road is not maintained by the County because the County does not have easements through this segment.

The proposed project is not anticipated to generate additional traffic on a day-to-day basis because the amount of aggregate being mined and processed would remain the same as under the existing Use Permit U93-063. Traffic from the existing and proposed operation are largely driven by market forces and can therefore fluctuate broadly in any given year depending on demand for aggregate materials. An estimated 4,000 tons of material is hauled to the plant daily and varies substantially based on the current market demand. However, the existing operation functions under the same principle, so the proposed project relative to that baseline would not contribute to additional traffic on a daily or yearly basis and the amount of trips would continue at the same rate as under existing conditions. The northerly portion of the proposed expansion area includes the Red Dog Road crossing, which is part of the emergency access route and circulation for the Red Dog-You Bet community. The existing Use Permit conditions of approval require maintenance of the crossing, but the new expansion area directly affects it and as such, Mitigation Measure 16A (Public Works Condition B.1) requires that Red Dog Road be maintained in a passable condition during all periods of the year when the stream is passable. Since the project will not increase the amount of offsite vehicle trips and the project specific mitigation measures/conditions of approval ensure emergency access is maintained potential impacts to traffic and circulation will not occur should this project be approved.

**Hydrology and Water Quality**

The proposed project operations are predominately within Greenhorn Creek, a major tributary to the Bear River in the Upper Bear Watershed, feeding Rollins Reservoir. The project also extends into Missouri Canyon and Arkansas Ravine. The Greenhorn Creek basin includes Greenhorn Creek, South Fork Greenhorn Creek and several unnamed tributaries. The existing beneficial uses of Rollins Reservoir and the Bear River downstream of the discharge are municipal and agricultural supply; industrial supply; water contact and noncontact recreation; aesthetic enjoyment; groundwater recharge; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources. The applicant currently performs mining operations within Greenhorn Creek, which includes in-stream sand and gravel harvesting and processing, which would be expanded into new areas under the proposed project. The proposed project however, does not include any new processing components or increase in aggregate materials to be mined. As such, current regulations and requirements of the County, Regional Water Quality Control Board, and California Department of Fish and Wildlife that ensure that surface and groundwater is protected from siltation and pollutants, are anticipated to remain the same or substantially similar for the expanded harvesting areas.

Water quality must be protected onsite and for downstream beneficial uses of water during all phases of the project which will ensure that this project does not contribute to the degradation of water quality in Greenhorn Creek or its tributaries. Because the project will result in disturbance within the non-disturbance buffer of Greenhorn Creek and its tributaries, Nevada County Land Use and Development Code Section L-II 4.3.3 and L-II 4.3.17 requires a project specific Management Plan to protect water and biological resources. The County determined that
implementation of the recommendations of the project biological inventory as well as adherence to the requirements of the project’s existing Streambed Alteration Agreement with California Department of Fish and Wildlife (as modified as required by the project mitigation measures) would suffice as the Management Plan for this project (Attachment 5). With regard to impacts to Waters of the U.S., the proposed expansion area is within the floodplain of Greenhorn Creek, and the site excavation areas are below the ordinary high water mark of the creek. Currently, the permitted areas of Greenhorn Creek (south of the project area) is covered under an Streambed Alteration Agreement, which would be extended to cover the proposed Project expansion as required by Mitigation Measure 4D (CDFW Condition F.4).

**Biology**

The proposed project region is ecologically distinguishable, as it is located within a transitional vegetation below where foothill Sierra species and montane species can be found in the same community associates. The upper reaches of Greenhorn Creek is a relatively steep, bedrock confined stream typical of the foothills; however in the proposed project area Greenhorn Creek is a meandering stream flowing from north to south, depositing sediments at the mouth of the channel at Rollins Reservoir. Riparian vegetation exists along the low flow channel and in the floodplain of Greenhorn Creek. For all disturbance within watercourses, wetlands, and riparian habitats, Nevada County LUDC Sec. L-II 4.3.3 requires a Management Plan to reduce impacts to water quality, habitat, and special-status species that could occur in these areas. As discussed above, the project’s Management Plan consists of the recommendations of the project Biological Inventory prepared by Stantec dated June 16, 2015 and the existing (to be modified) Streambed Alteration Agreement, which includes numerous protections for water quality, habitat, and special-status within Greenhorn Creek that could be affected by the project’s harvesting operations (Attachment 5). For impacts to creek banks and slopes, the project’s Reclamation Plan would serve as a “management plan” in the reclamation phase of the project.

As a result of the diverse ecology of the project site, the potential for sensitive plant and animal species is present. Subsequently Stantec’s biologists performed a data inventory and field review of the project site. The biological inventory concluded that no rare or unusual occurrences of sensitive plant species were identified during the early to mid-year bloom period survey nor were any of these species observed during the May 11, 2015 field survey. Regarding wildlife, only species that were typical and expected to be observed in the proposed project area were found during the May 11, 2015 field survey. The biological inventory identified the site as suitable habitat for nesting birds and raptors, and adequate standardized mitigation has been incorporated into the project specific environmental document. The biologist found that no occurrences were found or observations were made of the California Red Legged Frog (CRLF) (a federally threatened species) during their site visit nor were observations made of CFLF or their preferred habitat during background research or field surveys. The project biologist did however observe a breeding population of Foothill Yellow Legged Frog (FYLF) (a state species of special concern) in the project area and adequate standard mitigation has been applied to the project, as well as the implementation of the requirements of the Streambed Alteration Agreement, to ensure that the project does not result impacting this important wildlife species. All other sensitive plant or animal species found on the project site are adequately protected by the project specific mitigation measures and conditions of approval. The project, if approved, will continue to
perform the same activities in the streambed on the project site that have been conducted for over a period of 40-years, where the use and biological resources have co-existed overtime.

**Noise**
Existing noise in the project area is from the existing permitted Greenhorn Creek sand and gravel mining and processing operation which occurs adjacent to much of the proposed expansion area. Harvesting operations include belly-scrappers which harvest the aggregate material and transport it to the processing plant. The processing plant includes two cone crushers with screens and one jaw crusher with screens. Front-end loaders move the processed sand and gravel to stockpiles and load trucks, which transport the material. At any given time, up to three bellyscrapers, and three front-end loaders and load-out trucks are operating at the existing plant, along with the crushers and screens. The existing noise environment in the processing area and existing harvest areas is defined primarily by existing plant and harvesting operations. The proposed project will not increase overall operations and the volume of materials to be harvested will not increase as a result of this project. The primary sensitive noise receptor in the area are rural residential structures and residences approximately 1,000 to 1,200 feet from the proposed harvest expansion areas.

The project would expand the excavation area by approximately 38 acres, with the expansion area located to the north of the existing processing plant. The land uses adjacent to the proposed excavation areas are either existing quarry area or forested lands. The Tahoe National Forest boundary is located immediately adjacent to the northeast boundary of the proposed excavation area. The Blue Lead Mine, an approved but not yet operational project, is located approximately 500 feet east of the excavation area, and four residences are located between 1,200 feet and 2,400 feet from the proposed excavation areas. The harvesting plan includes running no more than two scrapers at any given time between the harvesting areas and the existing plant. The operations occur Monday through Friday between the hours of 7:00 AM and 6:00 PM. This plan is consistent with current operations. The project does not increase the production capacity or result in additional truck traffic on the roadway.

To quantify the existing ambient noise environment in the project vicinity, J.C. Brennan & Associates, Inc. conducted continuous hourly noise level measurements for a period of two days at two locations adjacent to the expansion areas. In addition, noise level measurements were conducted at the existing plant site and harvesting area to quantify the existing operations, as well as to acquire reference data for analysis of the existing and future operations. Based upon this data and the assumptions that existing conditions on the 1982 and 1993 use permits would continue for this project (for hours of operations, minimization of number of scrapers, use of mufflers, etc.), noise impacts from the proposed expansion areas would not result in an exceedance of the Nevada County 55 dBA Leq and 75 dBA Lmax noise level standards for Rural areas. All of the residences are located far enough away, and there is enough topographic relief and vegetation, to significantly reduce noise levels from the operation.

As noted above, the results of the noise analysis rely on the existing use permit conditions to reach the conclusion that noise impacts would not be substantially adverse. Therefore, these conditions should continue to apply to the current project to ensure these impacts remains less
than significant. These measures are therefore provided in Mitigation Measure 12A (Planning Condition A.11) to ensure that noise levels remain at current levels within both Sections 25 and 36 (proposed new harvesting areas). It should also be noted that existing Occupational Safety and Health Administration (OSHA) standards must also be met for the protection of employees from noise impacts in the work environment, and that these standards are enforced and monitored by OSHA.

**Land Use Compatibility (Rezone)**

The proposed expansion area is located within Greenhorn Creek and its tributaries from Missouri Canyon and Arkansas Ravine, where the project applicant currently operates an existing permitted aggregate extraction and processing mine operation. With the exception of occasional off-highway vehicle use by trespassers, the project lands are currently unoccupied and unused for human purposes. Surrounding land uses include timber/forest land, low-density single family homes and recreational uses at Rollins Reservoir and Greenhorn Creek. The Tahoe National Forest is located immediately north of the operation area. Several active and/or historic mine sites are also located within the vicinity of the operation. The land in which the proposed expansion area is located is zoned Forest and Forest with Mineral Extraction combining zoning designation with 40-acre maximum density (FR-40 and FR-40-ME). All land surrounding the operation property is zoned Agricultural, Forest, or Timber Production Zone, with densities ranging from 20 acres in the southerly area to 160-acres on the Tahoe National Forest land to the northeast. The Blue Lead Mine site to the east also has the Mineral Extraction combining district.

A portion of the project in the northern area is currently zoned Forest and requires a rezone to add the Mineral Extraction combining district in order to comply with the Zoning Ordinance Section L-II 3.22. In addition, the applicant is proposing to add the ME overlay district to three other parcels because the slopes of the existing approved harvest area extend into this parcel. Properties proposed for mining are required to have a Mineral Extraction zoning district overlay. The applicant has provided a “rezone justification statement” which is included as Attachment 6. With the approval of this rezone by the Board of Supervisors, the project would be consistent with the zoning districts established for the project area. The proposed project would not disrupt or divide the physical arrangement of any established community as it would occur within Greenhorn Creek and aggregate mining within the creek bed has been occurring for over 40-years and therefore is not a new land use for this area. Should the Planning Commission approve the project specific Use Permit, Reclamation Plan/FACE, and Management Plan, this approval would be contingent upon the Board of Supervisor’s approval of the propose Rezone, based on the Planning Commission’s recommendation.

**PUBLIC/AGENCY COMMENT:**

At the date of the completion of this staff report, a number of agency and public comment letters have been received regarding this project that were not in direct response to the comment period of the draft Initial Study and proposed Mitigated Negative Declaration. Initial Study comments are discussed below under the Environmental Review header, and the letters that were received outside of this comment period are summarized below and are provided in Attachment 8.
Agency Comments
As a result of this project, the County received letters from local and state agencies documenting whether the application complied with that agencies regulations and outlining any recommended conditions of approval, mitigation measures and recommendations. These letters were provided as a part of the initial distribution and project review process and include letters from the Central Valley Regional Water Quality Control Board (RWQCB), The Office (now Division) of Mine Reclamation (DMR), California Department of Forestry and Fire Protection (CALFire), Nevada County Environmental Health-Hazardous Materials Division, Nevada County Department of Public Works, Northern Sierra Air Quality Management District, Nevada Irrigation District, and the Army Corps of Engineers. Where necessary the comments received were incorporated into the project specific mitigation measures and conditions of approval or used to guide the project analysis in the CEQA document. Final agency letters are provided in Attachment 8.

Public Comments
Two letters were received from employees who work the existing HBE Greenhorn Creek aggregate mine in support of this project outlining the value the project has to their prosperity and the County’s economy. A letter dated April 19, 2017 was received from Mr. Bruce Ivy, a 44-year neighbor to the property, who outlined that in 1972 Rollins Lake was below their home and now it is approximate ½ mile away. Mr. Ivy expressed that he believed HBE was doing a good job harvesting this area and the work they do is necessary for the long term sustainability of Rollins Reservoir. An email was received on April 19, 2017 from Mr. Jason Corrie who stated that he was not against the expansion but had concern over the “narrow” on Greenhorn Creek near Red Dog Road, asking whether or not the narrow was going to be destroyed. The project proposes to harvest sand and gravels that have been deposited overtime from historical hydraulic mining surrounding the narrow, the narrow is a rock formation consisting of bedrock which is not a material harvested by this operation.

There were also letters/emails provided early on in the project processing that expressed concerns over: 1) sedimentation in Rollins Reservoir (Ms. Sue Ralston), 2) potential legacy mining activities including mercury contamination, and impacts to flora and fauna, water quality, noise, aesthetics, air quality, local economy, county roads and other impacts requesting an EIR be prepared (Mr. Ralph Silverstein/Mr. Jonathan Keene) and 3) concerns over mercury contamination from historic mining in this area (Mr. Ray Byars/Ms. Sandy Jansen/Mr. Johnathan Keene/Mr. Ralph Silverstein). Regarding the erosion comment, one of the beneficial impacts of this project is it removes sands and gravels from the waterway before it can enter Rollins Reservoir. Regarding the request for an EIR, the County completed a CEQA Checklist (Initial Study) and this study made a good faith effort to analyze the potential impacts of this project on those criteria outlined by Mr. Silverstein. The results of study determined that all potential significant impacts could be mitigated and therefore a Mitigated Negative Declaration is recommended for this project. Finally, to determine the extent of mercury in the area, Holdrege and Kull Geological Engineers performed sampling as discussed in the Hazards and Hazardous Materials section above and in more detail in the project specific Initial Study. All comment letters and emails received are provided in chronological order in Attachment 8 for the Planning Commission’s consideration and review. Any future letters received after the publish date of this
staff report, will be provided to the Planning Commission for inclusion in the public record prior to the May 11, 2017 Planning Commission date.

ENVIRONMENTAL REVIEW:
On March 14, 2017, the County as lead agency released a public review draft of the project specific draft Initial Study and proposed Mitigated Negative Declaration (MND) (EIS15-014/SCH20170302040). The Initial Study was routed to several local, state and federal agencies in addition to residents and special interest groups who have previously requested notification of this project. The Draft MND was available for public review from March 14, 2017 to April 12, 2017. All project impacts have been mitigated to less than significant levels as outlined in Attachment 1.

Six comment letters were received regarding the project initial study. The State Clearinghouse provided a letter outlining that the County has completed with their CEQA review requirements. The United Auburn Indian Community (UAIC) provide their standard letter requesting a copy of the initial study and any cultural documents and requesting that they have an opportunity to consult on the project. Staff sent UAIC a copy of initial study and requested that the applicant facilitate the request to confer on the project. The United States Fish and Wildlife Service provide a letter outlining that both the yellow and red legged frogs are known to have habitat within 5-miles of the project site, suggesting that a biological analysis is conducted for the area. Stantec prepared a biological inventory dated June 2015 for the project and Mitigation Measure 4B (CDFW Condition F.2) is included to minimize impacts to yellow legged frogs; no red legged frogs or habitat was found on the site. The Federal Emergency Management Agency (FEMA) provided a form letter providing a summary of National Flood Insurance Program building requirements.

A neighboring property owner, Jo Garst has provided a letter outlining concerns regarding the project and the potential for erosion as a result of the existing project. It is the County’s practice pursuant to OMR regulations to perform annual inspections of this facility which include review of potential erosion issues. In addition Mitigation Measure 6A requires annual inspections of this newly proposed mining area for creek bank slope and stability to ensure soil and rock conditions and slopes exposed for aggregate removal along the creek and within the Red Dog Narrows are not left in a state vulnerable to erosion or an increased risk of localized flooding. The last letter was an email from the Northern Sierra Air Quality Management District stating they have no comments. All letters received are provided in Attachment 8.

ZONING AND GENERAL PLAN CONSISTENCY:
The proposed aggregate mining project use is consistent with the Forest-40 land use designation of the Nevada County General Plan Land Use Maps. Further, the project is consistent with Land Use Element Policy 1.5.o in that it is situated within the Forest designation that provides for the protection of both timber and natural resources including minerals. With the implementation of the post-aggregate mining reclamation plan, the project will allow for the continued recreational, watershed, and beneficial environmental uses on site. The proposed project, would not result in the generation of substantial noise above what is already occurring as the project will not intensify the mining activities on the creek and will not relocate the processing component of the
operation from its existing location. The proposed project will only relocate the harvesting activities to new unharvested locations and to ensure this relocation does not result in noise impacts to surrounding sensitive noise receptors (residences) Mitigation Measures 12A (Planning Conditions A.11) is included that requires methods to reduce noise generation below County thresholds.

Through the recommended Mitigation Measures 3A (NSAQMD Condition E.1), the project will require alternatives to open burning and minimize air pollution consistent with Safety Element Policy FP-10.8.2.1. Additionally, through the recommended Mitigation Measures 4D and 6A (CDFW Condition F.4 and Planning Condition A.10), the project will minimize the discharge of pollutants into surface waters of Nevada County which will help in reducing the potential health risks associated with any potential residual mercury on site from the historic mining era consistent with Water Element Policy 11.4. The proposed project will be consistent with the Mineral Element Policies 17.4, in its compliance with noise standards; Policy 17.6, that it’s providing for mining in compatible areas prior to their intensified urbanization; Policy 17.7 as it has specific time limits for the Use Permit; and Policy 17.8 ensuring its compliance with an approved reclamation plan found to be consistent with state law. Finally, should the Board of Supervisors approves the addition of the Mineral Extraction combining district, the project will be compatible with Policy 17.15, which conditionally allows surface mining on parcels zoned with the “ME” combining district following CEQA review, which has occurred for this project.

As conditioned, the proposed mining operation will conform to the applicable provisions of the Nevada County Land Use and Development Code, and specifically including the Surface Mining and Reclamation Standards set forth in Section L-II 3.22.G applicable to the requirements of surface mining operation and the minimum standards of an acceptable reclamation plan.

**SUMMARY:**
This portion of Greenhorn Creek has been mined for aggregate materials for over 40 years. HBE is requesting an expansion to their current operation, related only to those areas that are eligible for harvesting. The project will not result in an increased amount of materials mined, any changes to historic approved mining practices or techniques, nor will it increase the number of onsite employees or offsite vehicle trips. The project Use Permit (U15-008) applies to both the mining activity and work within the 100-year floodplain for this 38-acre expansion area only. Per OMR regulations, the project (if approved) would place all existing HBE use permits for aggregate mining in Greenhorn Creek under one Reclamation Plan (RP15-001). The Management Plan (MGT17-003) (Biological Inventory and Streambed Alternation Agreements) has been reviewed for compliance with LUDC Sections L-II 4.3.3 and 4.317 and found to be compliant with those sections of the code. Recommended mitigation for project impacts to the watercourse have been appropriately carried over from the Management Plan to the project specific Initial Study and recommended Mitigated Negative Declaration (EIS15-014). All other project impacts have been mitigated to levels of less than significance (Attachment 1). Should the Planning Commission elect to approve this project, this approval will be contingent upon the Board of Supervisors approval of the proposed Rezone (Z15-004) to add the ME combining district to the project specific parcels as provided for in Planning Conditions A.2. No issues have been identified that are not otherwise addressed by the project’s conditions of
approval/mitigation measures and subsequently staff recommends that the Planning Commission
take the actions provided below.

RECOMMENDATION:

Staff recommends the Planning Commission take the following actions:

I. After reviewing and considering the proposed Mitigated Negative Declaration (EIS15-015, adopt the proposed Mitigated Negative Declaration pursuant to Section 15074 of the California Environmental Quality Act, and make Findings A through C:

A. That there is no substantial evidence in the record supporting a fair argument that the proposed project, as mitigated and conditioned, might have any significant adverse impact on the environment;

B. That the proposed Mitigated Negative Declaration reflects the independent judgment of the Planning Commission; and that the mitigation measures, as agreed to by the applicant, will reduce potentially significant impacts to less than significant levels; and

C. That the location and custodian of the documents which constitute the record of these proceedings is the Nevada County Planning Department, 950 Maidu Avenue, Nevada City, California.

II. Approve Management Plan (MGT17-003), to address impacts as a result of work within 100-feet of a perennial stream as described and mitigated in the project Management Plan (Attachment 5), which have been incorporated into the project specific environmental document, making the following Findings A-B pursuant to LUDC Section L-II 4.3.3.C and Section L-II 4.3.17:

A. That the issuance of this Management Plan is consistent with the provisions of Section L-II 4.3. Resource Standards of the Nevada County Land Use and Development Code; and

B. That potentially significant impacts to water courses, riparian areas and habitats located on the project site have been minimized through the incorporation of mitigation measures, primarily requiring adherence to the requirements of the project Streambed Alteration Agreement (No. 1600-2007-0142-R2), as modified per this project, and the biological inventory prepared by Stantec, dated June 16, 2015.

III. Approve the Use Permit (U15-008) and Reclamation Plan (RP15-001), subject to the attached Mitigation Measures and Conditions of Approval, and make Findings A through M pursuant to LUDC L-II Section 5.9:
A. That the approximately 38-acre area is adequate in size and shape to accommodate the proposed surface mining harvest expansion project utilizing existing processing infrastructure as required by the Section L-II 3.22.G surface mining site development standards as required by Chapter II of the Nevada County Land Use and Development Code;

B. That the proposed haul roads are established and adequate for the project. You-Bet Road and Red Dog Road is a County-maintained rural road and is adequate in size, width, and surfacing to carry the quantity and kinds of traffic generated by this project;

C. That because of its remote location, the existing ongoing aggregate mining activities, the relatively rural area and existing parcel sizes buffering the adjacent properties closest to the project site, the mining operation will not have an adverse effect on abutting property or the permitted uses thereof;

D. That this project, both the mining operation and the proposed reclamation plan, is consistent with the Goals and Policies of the Nevada County General Plan, specifically including Policy 1.5.0 of the Land Use Chapter, Policy FP-10.8.2.1 of the Safety Chapter, Policy 11.4 of the Water Chapter, and with Policies 17.4, 17.6, 17.7, and 17.8 of the Mineral Management Chapter; and with the approval of the proposed rezone to add the Mineral Extraction “ME” combining district, the project will be consistent with Policy 17.15 of the General Plan;

E. Based on the comments received and conditions applied from the Nevada County Departments of Public Works, Planning, Environmental Health, and the California Department of Forestry and Fire Protection (Calfire), adequate public services exist in the immediate area to support the project. These services include adequate sewage disposal, adequate domestic water service, and safe and adequate roads;

F. That the payment of their fair share towards public access road maintenance and improvements, as established by the Mitigation Measure 16C, to offset the impacts this project may have on the local transportation system will be imposed and collected to offset the project’s contribution to the regional traffic needs in this portion of the county;

G. That the conditions listed are the minimum necessary to protect the public’s health, safety and general welfare and are essential to ensure that the Reclamation Plan will minimize water degradation, air pollution, damage to aquatic or wildlife habitat, erosion, and other adverse effects from surface mining operations;

H. That the ongoing monitoring and periodic review process will help ensure that the Reclamation Plan will restore the mined land to a usable condition which is
readily adaptable for an alternative land use that is consistent with the surrounding land uses, primarily low intensity recreation and forested lands and with the Nevada County General Plan;

I. That the Reclamation Plan will restore the mined land to a condition, which creates no danger to public health and safety;

J. That the requirement for the supplemental guarantee, which will be reviewed annually, is necessary to ensure a timely reclamation of the site, as well as to protect the County in the event of any unanticipated project abandonment;

K. That the approved Reclamation Plan complies with SMARA Sections 2772 and 2773, applicable requirements of the State regulations (CCR Section 3500-3505, and Section 3700-3713), and all other applicable provisions, as may be amended;

L. That the Reclamation Plan has been reviewed pursuant to the California Environmental Quality Act and the County’s environmental review guidelines (LUDC Chapter 13), and that all significant adverse impacts from the reclamation of the surface mining operations have been mitigated to the maximum extent feasible; and

M. That a written response to the State Department of Conservation (Office/Division of Mine Reclamation) was prepared and submitted, and that all of the recommendations by the Division of Mine Reclamation are now incorporated into the Reclamation Plan and there are no further comments from the Division of Mine Reclamation that have not been included in this approved Reclamation Plan.

IV. Recommend the Board of Supervisors adopt the Mitigated Negative Declaration and amend Zoning District Map #78 to reflect the rezoning of the APNs 38-370-17, 38-380-15, 38-380-16 and 38-430-02 acres from FR-40 (Forest - 40 acre density) to FR-40-ME (Forest – 40 acre density – Mineral Extraction).

Respectfully submitted,

BRIAN FOSS
Director of Planning
MITIGATION MEASURES AND CONDITIONS OF APPROVAL
HANSEN BROS ENTERPRISES GREENHORN CREEK AGGREGATE MINE
EXPANSION PROJECT AND RECLAMATION PLAN
Z15-004; U15-008; RP15-001; MGT17-003; EIS15-014

A. PLANNING DEPARTMENT

1. The Use Permit (U15-008) authorizes the mining activity as set forth in the approved Mine Plan (U15-003 within the approximately 38-acre harvest expansion area. All mining activities shall be operated and performed consistent with the approved Mining Plan and Reclamation Plan (RP15-001) (dated November 2016) and Financial Assurance Cost Estimate (dated February 10, 2017). This approval allows an expansion of extraction areas for the existing aggregate mining operation, with expanded areas including the bed and banks of Greenhorn Creek and Missouri Canyon, as shown on the approved expanded harvest areas exhibit kept on file with the Planning Department limiting harvesting to the Placer diggings soil type, which occurs almost predominantly within the creek bed. The new harvest areas are within four parcels immediately upstream and downstream of the Red Dog Road creek crossing, up to the northerly limit of USGS Section 25, and within both Sections 25 and 36. The material collected from Greenhorn Creek consists of placer diggings, placer digging fragments, and other minor components, which can range from fine sand to gravel to large cobble materials. This aggregate material is the resultant deposit from historic upstream hydraulic mining activities.

The Use Permit allows for mining activity within the 100-year floodplain. With the exception of the expanded areas for extraction, the operational aspects of the existing operation would remain the same, including the number of employees, the operational hours, the amount of aggregate materials processed annually, the type of harvesting and processing equipment used, and the methods of mining and processing. Extraction would simply expand from the existing permitted area to the additional area. Mineral exploration is not required for this operation as the material to be harvested, processed, and sold is naturally deposited in the creek canyon by stream flows and is visible without further exploration. No blasting associated with the mining operation is allowed by this permit. The Management Plan (MGT17-003) allows for disturbance within 100-feet of the project streams and riparian areas subject to those recommendations of the Biological Inventory prepared by Stantec dated June 16, 2015 and the 2007, 2012 and the 2014 Streambed Alteration Agreements (as modified per Condition F.4) which have been incorporated into the project specific Mitigated Negative Declaration (EIS15-014). The approved project shall be consistent with the final stamped set of plans which contain the site plan, and associated pages. The final plans shall be kept on file with the Planning Department.

2. Upon the successful approval of the Use Permit and Reclamation Plan, no mining activities shall occur onsite until the property is rezoned to include the Mineral Extraction combining district.

3. This permit approval allows sand and gravel mining activities to occur in the identified harvest areas as shown on the approved Use Permit (U15-008) harvest plan map for a
period of thirty (30) years from the effective date of the approval of the Rezone (Z15-004) (i.e. Final Project Action). If the operation requires additional time due to additional materials becoming available or additional market demand, a new use permit will be required.

4. A copy of these conditions of approval shall be provided to mine foreman or supervisory staff of the mining operation.

5. Pursuant to Policy 17.7 of the Mineral Management Chapter, the Mining Use Permit shall return to the Nevada County Planning Agency for a compliance review. The review shall be every five years commencing from the date of this Use Permit approval.

6. The mine plan and conditions may not be changed without amending this permit except that minor adjustments to the project and conditions may be made if approved by the staff and if such changes do not result in a major departure from the approval either individually or cumulatively. The staff will report all such adjustments to the Planning Commission when applicable (or during the review process as outlined in Condition A.5 above).

7. While the operation is active, facility personnel will monitor the progress of the revegetation process during regular operational activities. Once mining operations are complete, the operator, or individuals representing the operator, will monitor the progress of the revegetation process on a quarterly basis. The annual monitoring program report will include a discussion of the success of the previous year’s revegetation. If natural revegetation and augmented revegetation proves unsuccessful, test plots and additional study and consultation will be conducted to determine adjusted planting procedures. Annual monitoring of vegetative cover and vegetative composition would occur to ensure that revegetation has progressed to restoration or enhancement of the vegetative cover and composition. All inspections of reclamation activities by the Planning Department shall be funding by the applicant or its successor. All staff time, including inspections will be billed at actual costs in conformation with the adopted fee schedule in effect at that time.

8. Within 15 days after project approval the applicant shall sign and file with the Nevada County Planning Department a defense and indemnity agreement, in a form approved by County Counsel. No further permits or approvals shall be issued for the project, including without limitation a grading permit, building permit or final map approval, unless and until the applicant has fully complied with this condition.

9. Halt work and contact the appropriate agencies if human remains or cultural materials are discovered during project operations (Mitigation Measure 5A): All equipment operators shall be advised of the possibility of encountering cultural resources. If such resources are encountered or suspected, work shall be halted immediately within 200 feet of the suspected resource and the Nevada County Planning Department shall be contacted. A professional archaeologist shall be retained by the applicant and consulted to access any discoveries and develop appropriate management recommendations for archaeological resource treatment. If bones are encountered and appear to be human,
California Law requires that the Nevada County Coroner and the Native American Heritage Commission be contacted and, if Native American resources are involved, Native American organizations and individuals recognized by the County shall be notified and consulted about any plans for treatment.

**Timing:** During operations  
**Reporting:** As needed if cultural resources found  
**Responsible Agency:** Nevada County Planning Department

10. **Perform annual inspections of mined areas for creek bank slope and stability (Mitigation Measure 6A):** During the fall season of each year and prior to the rainy season (generally prior to October 15), a geotechnical engineer shall assess the soil and rock conditions and slopes exposed by aggregate removal, along the creek and within the Red Dog Narrows, to identify potential slope configurations that could be vulnerable to erosion and/or increase the risk of localized flooding. If conditions are identified that could constrict flow in the creek, additional grading may be necessary to reduce the potential for localized flooding. All eroded creek banks identified during the inspection shall be backfilled with a 2:1 gravel fill slope or shallower and revegetated as necessary to stabilize those areas, upon the recommendation of the mine inspector. If specific geotechnical recommendations are required during the course of the project as determined by the mine inspector, subsurface investigation and analysis shall be required to develop specific geotechnical design criteria.

**Timing:** Close of operational season each year  
**Reporting:** Close of operational season  
**Responsible Agency:** Nevada County Planning Department

11. **Limit Noise-Generating Uses (Mitigation Measure 12A):** The following measures shall be implemented during all project operations to protect surrounding residents from operational noise:

- Plant operation, gravel harvest, truck loading, and truck hauling are limited to the hours of 7 AM to 6 PM, Monday through Friday, except for plant repairs which may take place outside those hours. Exceptions may also be made for emergency operation as determined by the Planning Director and defined in the Section 15269 of the State CEQA Guidelines.
- The operation is required to provide mufflers which meet the standards of the California Highway Patrol on all trucks belonging to the operator and used on public roadways.
- Noise emissions from the plant site at any residential property line shall not exceed 65 decibels.
- Aggregate harvesting is prohibited within 20 feet from any neighboring property.
- Noise levels associated with the operation in the new harvesting area shall not exceed County noise standards at the nearest residential property lines.
- When paddle-wheel scrapers are used for excavation in Sections 25 and 36, no more than two shall be permitted to operate. Scrapers shall be staggered to avoid simultaneous operation in the same area.
Retail sales and rock processing is prohibited in Sections 25 and 36.
Blasting associated with the mining operation is prohibited.

Timing: During project operation
Reporting: Enforced through the code complaint process
Responsible Agency: Nevada County Planning Department

B. DEPARTMENT OF PUBLIC WORKS

1. Maintain the Red Dog Road Crossing (Mitigation Measure 16A): The applicant shall maintain the Red Dog Crossing and approaches in a passable condition during the operational season, within two weeks following haul road construction and in compliance with other County and State requirements such as pre-construction nesting surveys and Streambed Alteration Agreement requirements. This mitigation is not dependent on mining operations in the vicinity of the area because current and past upstream and adjoining mining activities can have long-term effects on the crossing. This condition shall be monitored during annual inspections and enforced other times of the year through a public complaint-driven process.

Timing: Annual inspection and on a complaint basis
Reporting: Annual inspection
Responsible Agency: Nevada County Public Works, Planning, and Code Compliance

2. Provide Red Dog Road Reclamation and Offer for Dedication (Mitigation Measure 16B): During reclamation of the Red Dog crossing area, the applicant shall ensure that it is left in a passable condition. The applicant shall also offer for dedication to Nevada County any portion of the Red Dog Road crossing that is owned by the applicant, in order to provide the County the opportunity to consider whether that portion should become part of the County-maintained mileage system at that time.

Timing: Prior to release of the Financial Assurance for reclamation
Reporting: Approval of FACE release
Responsible Agency: Nevada County Public Works Department

3. Pay Fair Share toward Public Access Road Maintenance and Improvements (Mitigation Measure 16C): The applicant shall contribute $0.05 per ton of aggregate materials on a quarterly basis for the proposed expansion areas for County road maintenance and improvement. The tonnage rates and annual maximum amount shall be adjusted annually based on the California Construction Cost Index (CCCI) so that these fees can keep with the anticipated rate of inflation.

Timing: To be paid quarterly during project operations
Reporting: Quarterly invoicing by Fiscal Department
Responsible Agency: Nevada County Public Works Department

4. The applicant shall be responsible for ensuring that the paved portion of the public road way near project entrances are kept clear of dirt, mud and gravel that is the result of trucking activities associated with this project.
C. DEPARTMENT OF ENVIRONMENTAL HEALTH

1. Prior to commencing harvesting activities in the harvest expansion areas, the permitted well, located on APN 38-430-02, shall be surveyed, and fully protected as necessary from any impacts of these proposed new activities.

2. Hazardous Materials: The facility is under permit with the Certified Unified Program Agency (CUPA) administered by the Department of Environmental Health. Storage, use and/or disposal of hazardous materials shall at all times be in compliance with Chapter XI of the Nevada County Land Use and Development Code, Chapter 6.95 of the California Health and Safety Code, and all applicable State and Federal laws. The operator shall secure and annually renew the permit for this facility within 30 days of becoming subject to applicable regulations. The applicant must adhere to all applicable codes and regulations regarding the storage of hazardous materials and the generation of hazardous wastes set forth in California Health and Safety Code Section 25500 – 25519 and 25100 – 25258.2 including the electronic reporting requirement to the California Environmental Reporting System (CERS).

D. NEVADA COUNTY OFFICE OF THE FIRE MARSHAL

1. Roads within the facility shall meet a minimum of 20’ in width. California Fire Code Section 503.2.1.

2. Roads shall be designed and maintained to support the imposed loads of Fire Apparatus. California Fire Code Section 503.2.3.

3. Dead end roads in excess of 150’ shall be provided with an approved area for turning around fire apparatus. California Fire Code Section 503.2.5.

4. Pursuant to Nevada County Land Use and Development Code Section L-II 4.3.18.C.4, prior to operation in the harvest expansion areas the applicant shall submit a Fire Protection Plan to be approved by the Nevada County Fire Marshal and/or his/her designee. The approved original shall be kept on file at the County Planning Department and an approved copy shall be provided to and kept on file with the appropriate fire district. The plan shall be site specific to the project and shall include the following:
   a. Identification of the proximity to emergency responders and estimated emergency response times;
   b. Description of the primary and, if applicable, secondary, access road conditions;
   c. Identification of the project’s emergency water supply or emergency water storage facilities consistent with Article 4 of Chapter XVI of the Land Use and Development Code;
   d. Identification of any proposed or required fire sprinkler system;
   e. Identification of a feasible evacuation plan and/or safe evacuation routes for use by future occupants of the project;
f. Identification and use of clustered buildings and/or building sites and where feasible, the use of common driveways and access roads; and

g. A Fuels Management Plan that includes:
   1) Identification of the project’s defensible space design, consistent with Public Resources Code 4291;
   2) Identification of high fuel load areas;
   3) Provisions to ensure that adequate defensible space is provided including, but not limited to, the use of increased property line setbacks or fuel modification zones or easements around newly created lots;
   4) Identification of the mechanism proposed for maintaining defensible space; and

The above fire prevention measures shall be incorporated into the project unless specific findings can be made and supported by the responsible fire agency which demonstrate that one or more of the Fire Protection Plan components are not necessary because of the project’s location, design and/or specific site features and because the project will not add to the cumulative fire hazard within the project area.

E. NORTHERN SIERRA AIR QUALITY MANAGEMENT DISTRICT (NSAQMD)

1. Reduce Emissions During Harvesting Activities (Mitigation Measure 3A). The following are the minimum recommended measures to reduce project emissions related to harvesting and ongoing operations in relation to the proposed project. In addition to these measures, all statewide air pollution control regulations shall be followed, including diesel regulations (which may be accessed at www.arb.ca.gov/diesel/diesel.htm).

1. Alternatives to open burning of vegetative material shall be used to dispose of site-cleared vegetation where feasible. Among suitable alternatives are chipping, mulching, or conversion to biomass fuel.
2. Grid power shall be used (as opposed to diesel generators) for job site power needs where feasible.
3. Mobile heavy equipment shall meet State engine-tier standards in effect at the time of operation.
4. Heavy equipment idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as feasible, and all heavy equipment shall also be maintained and properly tuned in accordance with manufacturer’s specifications.

Timing: During project operations
Reporting: During project operations
Responsible Agency: Northern Sierra Air Quality Management District

F. CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

1. Avoid and Minimize Impacts on Special-Status Plant Populations (Mitigation Measure 4A): Surveys shall be conducted for late-season blooming special-status plants not covered under the May 11, 2015 plant survey, including brownish-beaked rush, elegant
groundsel, Follett’s monardella, Gevers panicum, grass lead plantain, inundated bog clump-moss, Scadden Flat checkerbloom, and white beaked rush as follows:

1. Pre-construction botanical surveys for the late-blooming special-status plants shall be conducted in the appropriate blooming periods, and shall be performed by a qualified botanist following CDFW and CNPS protocols for surveying special-status native plants. The survey results shall be submitted to the Planning Department within one week of survey completion.

2. If special-status plants are determined to have no presence in the proposed Project site, then no further mitigation is required.

3. If special-status plants are determined present within the project area during pre-construction field surveys and feasibly be avoided, the applicant shall implement the following measures:
   - Hire a qualified biologist to map the population and place flagging to identify the population location. Install environmentally sensitive exclusion fencing and appropriate signage at an appropriate buffer distance, starting from the edge of the special-status plant and/or plant population. Signage shall indicate the area is environmentally sensitive and not to be disturbed;
   - Adjust project activities away from special-status plants. The project work area shall be confined to areas outside a buffer acceptable to the project biologist; and
   - Supervision, guidance, and verification of the implementation of these measures shall be achieved by Hansen Bros. Enterprises and an agency-approved biological monitor (i.e., a qualified biologist or botanist approved by CDFW and/or USFWS).

4. If special-status plants are determined present within the project area during pre-construction field surveys and direct or unavoidable impacts to special-status plants would result from project activities, then the applicant shall consult with appropriate agencies (i.e., CDFW and/or USFWS) to develop acceptable mitigation which may include the successful translocation of individual plants, rectification of impact by seed collecting and stockpiling for replanting/replacement, mitigation fees, and/or permitting.

**Timing:** Prior to start of mining operations during the late-bloom period (August-October)

**Reporting:** Prior to start of operations

**Responsible Agency:** Nevada County Planning Department; CDFW and USFWS as necessary

2. **Avoid Disturbance of Foothill Yellow-Legged Frog (Mitigation Measure 4B):** The applicant shall comply with all California Department of Fish and Wildlife requirements to avoid or minimize the disturbance of FYLF. These include but are not limited to conducting worker environmental awareness trainings, delineating and avoiding sensitive habitat areas during work, conducting egg mass surveys, limiting project activities to April 1 to December 31, further limiting work during wet weather periods, ensuring that aquatic life is not stranded in dewatered areas, and having a biological monitor onsite with stop-
work authorization during any relocation of stranded aquatic life. These measures may be modified as determined necessary by the California Department of Fish and Wildlife in their Streambed Alteration Agreement, as conditions change during the life of the project. 

**Timing:** Prior to the start of project operations each year and during project operations

**Reporting:** Prior to the start of project operations

**Responsible Agency:** CDFW

3. **Avoid and Reduce Impacts to Special-Status Bird Species, Nesting Raptors, and Migratory Birds (Mitigation Measure 4C):** To the extent feasible all necessary vegetation removal shall be conducted between September 1 and February 28 of each year to avoid nesting birds that may be present in the construction area during construction activities (defined for the purposes of this mitigation measure as haul road construction, berm construction, and extraction). If all construction activities are conducted outside of nesting season, no further mitigation is necessary. If construction activities begin in an area prior to the start of the nesting season (March 1 to August 31) and inactivity in that area does not exceed two weeks, no further mitigation is necessary. If construction activities begin during the nesting season, the applicant shall have a pre-construction nesting survey conducted by a qualified wildlife biologist within the project area and within an approximate 300-foot buffer. Surveys shall be conducted within one week before initiation. In addition, if construction activities begin after a period of two weeks or more of inactivity in any given area during the nesting season (even if that area was already surveyed), the applicant shall re-survey the area prior to performing or continuing extraction activities. The results of the survey shall be submitted to the Planning Department within one week of completion. If no active nests are detected, then no additional mitigation is required. If surveys indicate that migratory bird nests are found in any areas that would be directly affected by construction activities, the biologist shall establish a no-disturbance buffer around the site to avoid disturbance or destruction of the nest site until after the breeding season or after the biologist determines that the young have fledged (typically late June to mid-July). The extent of these buffers shall be determined by the biologist in consultation with the California Department of Fish and Wildlife and shall depend on the listing status of the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. The buffer zone and monitoring plan shall be reported to the California Department of Fish and Wildlife and to the Planning Department. Active sites shall be monitored by the biologist periodically until after the breeding season or after the young have fledged.

**Timing:** Within two weeks prior to the start of project construction each year and as needed during any periods of inactivity exceeding two weeks

**Reporting:** Prior to the start of project construction each year

**Responsible Agency:** Nevada County Planning Department and CDFW

4. **Amend the Streambed Alteration Agreement to Provide Protections to Riparian Habitat (Mitigation Measure 4D):** Prior to any work within the expansion area, the applicant shall obtain an amended Streambed Alteration Agreement from California Department of Fish and Wildlife that encompasses the expansion area and shall provide
the Agreement to the Planning Department. The applicant shall adhere to all the Streambed Alteration Agreement for the life of the project, which include but are not limited to providing an annual pre-extraction plan that delineates extraction areas for that season; an annual pre-extraction production data report to track cumulative extraction volumes from the stream channel; annual, temporary culvert crossings where heavy equipment will cross the creek; annual diversion channel and berms built in clean gravels; and erosion, sedimentation, turbidity, and siltation precautions.

**Timing:** Prior to operation and pre-extraction annually

**Reporting:** Annually prior to extraction activities for the season

**Responsible Agency:** CDFW

5. Pursuant to Section 21089 of the California Public Resource Code and Section 711.4 et. seq. of the California Fish & Game Code, a fee in the amount of $2,216.25 must be paid as a condition of filing the Notice of Determination for this project. This fee must be submitted to the Planning Department within 10 days of the permit approval with the check made payable to the County Clerk, County of Nevada. Without payment of this fee, the 30-day Statute of Limitations on court challenges to this project's approved environmental document will remain open, which could affect the permit validity. This fee is required to be collected on behalf of the State Department of Fish & Wildlife; it is not for County purposes.

G. **CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD (CVRWQCB)**

1. Wastewater discharge from the facility is currently regulated by Waste Discharge Requirements (WDRs) 98-185, which were adopted on 11 September 1998. Because WDRs 98-185 regulate wastewater disposal at the processing plan and wastewater volume will not increase with the extraction area expansion, the submittal of a Report of Waste Discharge (ROWD) is not required to revise the WDRs at this time. While WDRs 98-185 may be adequate to continue regulating the processing plan waste disposal, the Central Valley Regional Water Quality Control Board is authorized to review and revise WDRs periodically pursuant to Section 13263c of the Porter-Cologne Water Quality Control Act. WDRs are routinely updated every five to fifteen years due to changes in State laws, regulations, and revised Water Quality Control Plans which have been enacted since adoption of your WDRs. General WDRs are planned to be developed sometime in the future and would apply to the majority of aggregate mining operations in the Central Valley. CVRWQCB will likely request that the applicant submit a ROWD for enrollment under the general WDRs once they are adopted rather than revising WDRs 98-185.
RESOLUTION NO.   

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF NEVADA

A RESOLUTION ADOPTING A MITIGATED NEGATIVE DECLARATION IN CONNECTION WITH THE ADOPTION OF AN ORDINANCE AMENDING ZONING DISTRICT MAP NO. 078 TO ADD THE MINERAL EXTRACTION COMBINING DISTRICT TO ASSESSOR'S PARCEL NUMBERS 38-370-17, 38-380-15, 38-380-16 AND 38-430-02 (FILE NOs. Z15-004 AND EIS15-014)

WHEREAS, the County is proposing zoning map amendment (Z15-004) is being sought by Hansen Brothers Enterprises, property owner; and,

WHEREAS, on March 10, 2017, the Planning Department staff prepared an Initial Study and Mitigated Negative Declaration ("IS/MND") for the Project (EIS15-014/SCH2017032040) a copy of which is attached to this Resolution as Exhibit A; and,

WHEREAS, the IS/ND was submitted directly to affected local, regional, state, and federal agencies, and was released for a 30-day public review period, commencing on March 14, 2017 and ending April 12, 2017; and,

WHEREAS, the IS/MND analyzes all of the potential environmental impacts of the proposed Project and found that no significant impacts would result from the approval of the Project; and,

WHEREAS, on May 11, 2017, the Planning Commission held a public hearing on the proposed Project in which the Commission reviewed the proposed IS/MND together with all comments received during the public review period, and recommended adoption of this same Mitigated Negative Declaration before making a recommendation to the Board on the rezone.

NOW, THEREFORE, BE IT RESOLVED, that the Nevada County Board of Supervisors has reviewed and considered the recommendation of the Planning Commission and has independently reviewed the Initial Study and proposed Mitigated Negative Declaration (EIS15-014), together with all comments received during the public review period, and hereby finds and determines as follows:

1. The above recitals are true and correct.
2. On the basis of the whole record before the Board of Supervisors, there is no substantial evidence that the proposed Project will have a significant effect on the environment.

3. The IS/ND reflects the Board’s independent judgment and analysis.

4. The documents and materials constituting the record of the proceedings on which this decision is based are located and in the custody of the Nevada County Planning Department at 950 Maidu Avenue, Nevada City, California.

BE IT FURTHER RESOLVED that the Board of Supervisors hereby adopts the Mitigated Negative Declaration (EIS15-014) for the Hansen Brothers Greenhorn Creek Aggregate Mine Expansion Project, to allow for the rezoning of the project parcels to add the “ME” zoning combining district.

BE IT FURTHER RESOLVED that the Clerk of the Board is directed to file a Notice of Determination pursuant to CEQA Guidelines Section 15075 within five working after adoption of this resolution and approval of the proposed Project.
NEVADA COUNTY, CALIFORNIA
INITIAL STUDY

To: Nevada County Public Works Dept
   Nevada County Fire Protection Planner
   RWQCB – Waste Discharge to Land Unit
   General Plan Defense Fund
   Rural Quality Coalition
   Red Dog-You Bet Association
   Sierra Nevada Group / Sierra Club
   Federation of Neighborhoods
   Supervisor Richard Anderson, District 5
   Principal Planner
   CNPS – Redbud Chapter
   Washoe Tribe of Nevada and California
   Department of Water Resources
   State Clearinghouse
   Northern Sierra Air Quality Mgmt District
   US Fish and Wildlife Service
   Caltrans District 3
   FEMA

   California Dept of Fish and Wildlife
   Office of Mine Reclamation
   Friends of Nevada City
   George Olson
   Ray Bryars
   Sandy Jansen
   Izzy Martin
   Sue Ralston
   County Counsel
   CLAIM GV
   United Auburn Indian Community
   Native American Heritage Commission
   US Army Corps of Engineers
   Nevada County Resource Conservation Dist
   Nevada County Environmental Health Dept
   Nevada County Historical Society
   Nevada County Assessor’s Office

Date: March 10, 2017

Project Title: Hansen Bros. Enterprises (HBE) Greenhorn Creek Aggregate Mine Expansion

Application Description: A Rezone (Z15-004) of APNs 38-370-17, 38-380-15 & -16 and 38-430-02 from Forest-40 (FR-40) to FR-40 with the Mineral Extraction combining district (FR-40-ME); a Use Permit (U15-008) to expand an existing in-stream aggregate mining operation to an additional 38 acres in and on the banks of Greenhorn Creek in the vicinity of the Red Dog Road creek crossing and for work within the 100-year floodplain; a Reclamation Plan (RP15-001) to reclaim and restore the site after mining activities are completed; and a Management Plan (MGT17-0003) for work within a waterway.

File Number(s): Z15-004, U15-008, RP15-001, MGT17-0003, EIS15-014

Project Location: Within Greenhorn Creek from the northeast corner of Section 25, Township 16N, Range 9E, to Missouri Canyon at the south within Section 36, Township 16N, Range 9E. Red Dog-You Bet area of Grass Valley, CA, approximately 7 miles east of Grass Valley, 2.4 miles north of You Bet Road, and 3.3 miles north of Rollins Reservoir.

Assessor’s Parcel Numbers: 38-370-17; 38-380-15, -16; 38-430-02

Project Site Size: 38-acre expansion area

Prepared by: Jessica Hankins, Senior Planner

Comments to: Tyler Barrington, Principal Planner
Nevada County Planning Department
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Nevada City, CA 95959
(530) 470-2723
Email: Tyler.Barrington@co.nevada.ca.us

Applicant/Owner: Jeff Hansen, President
Hansen Bros. Enterprises
P.O. Box 1599
Grass Valley, 95945
(530) 273-3381

Representative: Alicia Brenner, BT Consulting, Inc.
5460 Merchant Circle, Suite A
Placerville, CA 95667
(530) 919-6955

Zoning District(s): FR-40 (proposed FR-40-ME)

General Plan Designation: Forest 40 (FOR-40)

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Project Location and Surrounding Uses: The project is located in the Red Dog-You Bet area, approximately 7 miles east of Grass Valley, 2.4 miles north of You Bet Road, and 3.3 miles north of Rollins Reservoir. Figure 1 below shows the general location of the project site.

Access to the site is from State Route 174 to County-maintained You Bet Road, to privately maintained Hansen Gravel Road just past the Greenhorn Creek crossing. From the processing plant off the Hansen Gravel Road, access to the in-stream mining areas is north up the Greenhorn Creek canyon, as shown in Figure 2 below. Proposed areas of expansion extend from approximately 1 mile north of the processing plant to the parcel just north of the Red Dog Narrows and the Red Dog Road creek crossing. Although the Hansen Bros. Enterprises (HBE) operation extends to Rollins Reservoir to the south, the project area for the purposes of CEQA analysis is defined as the new expansion areas within APNs 38-430-02, 38-380-15, 38-380-16, and 38-370-17 (see Figure 3).
Depending on site conditions, the operational areas may also be accessed from Red Dog Road, though it is not the current practice of the applicant to use Red Dog Road for operational purposes. The Red Dog Road crossing over Greenhorn Creek is a ford, and vehicles must wait until storm flows subside before crossing the stream.
The proposed sand and gravel extraction operation would operate within and on the banks of Greenhorn Creek, Missouri Canyon, and Arkansas Ravine. The width of the aggregate deposit varies from approximately 40 feet wide to approximately 600 feet wide throughout the length of the streambed in the operational area. The expansion area is located at elevations approximately 2,100 to 2,600 feet above mean sea level (msl). The streambed of Greenhorn Creek, which trends northeast to southwest, is mostly devoid of vegetation except for locations along the edge of the channel and in gravel bars where riparian vegetation grows. The canyon walls rise over 3,000 feet in elevation msl, and are heavily vegetated with upland species in the Douglas-fir forest alliance, and much of the area is characterized by disturbed or ruderal areas, including some areas of Scotch broom invasion. Other than the gravel processing plant and infrastructure improvements, there are no known manmade features on the subject properties.

Public lands are located to the north and east as shown in Figure 3. Unimproved private parcels are also located to the east, while many of the parcels to the west are improved private parcels. Several buffers are in place given that HBE owns adjoining parcels (many of which are mined under existing use permits), one to the southeast of APN 38-370-17 and all adjoining lands to the north, west, and south of the remaining project area (see Figure 3).
Project Background: Greenhorn Creek flows through a deep canyon with substantial gravel deposit resulting from numerous upstream hydraulic mining operations dating back to the 1860s. Hydraulic mining operations used high-pressure jets of water to dislodge and move the overburden and surface soils and rocks. The water-sediment slurry was directed through sluice boxes to capture gold, while natural and manmade processes moved the aggregate waste into the Greenhorn Creek streambed, where it covered the original streambed. These sand and gravel deposits still sit atop the natural streambed. More material moves downstream with every winter season, ultimately moving into Rollins Reservoir where it causes a loss of water storage capacity at the reservoir. The source of the gravel within Greenhorn Creek comes from Gas Canyon near Scotts Flat Reservoir, the Buckeye Diggins, portions of the Red Dog/You Bet Diggins, Little York Diggins, and Missouri Canyon. In the unmined areas, the historic creek channel is estimated as being 30 to 70 feet below the present surface of the creek.

In 1975 HBE first applied for a permit to mine sand and gravel from Greenhorn Creek, along with a permit to construct and operate a processing plant (U75-003). In 1978 a rock crusher and settling ponds were added to the operation (U78-013), and in 1982 an amendment was granted to the times and days of operation (U82-020). At that time the area of operation included an NID lease area from just upstream (north) of Rollins Reservoir to approximately three miles upstream. In 1994 the Planning Commission approved an expansion of the operation into Section 25, at the northern end of the extraction area (U93-063).

Project Description: The proposed project involves an expansion of extraction areas for the existing aggregate mining operation, with expanded areas including the bed and banks of Greenhorn Creek and Missouri Canyon, as shown in Figure 4. Although it appears from the site mapping that some expansion areas would occur within forested uplands, HBE would limit harvesting to the Placer diggings soil type,
which occurs almost predominantly within the creek as shown in Figure 5. The new harvest areas are within four parcels immediately upstream and downstream of the Red Dog Road creek crossing, up to the northerly limit of USGS Section 25, and within both Sections 25 and 36 (see Figure 6). Figure 7 shows the cross sections (referenced in Figure 6) of the expansion areas before and after aggregate harvesting. The material collected from Greenhorn Creek consists of placer diggings, placer digging fragments, and other minor components, which can range from fine sand to gravel to large cobble materials. This aggregate material is the resultant deposit from historic upstream hydraulic mining activities.

The project includes a Rezone, Use Permit, Reclamation Plan, and Management Plan as discussed in more detail below. The proposed use permit and management plan would function independently, while past and proposed reclamation plans would be incorporated under one Reclamation Plan (RP15-001) pursuant to Office of Mine Reclamation (OMR) requirements and to facilitate implementation and monitoring of reclamation plan measures.

Rezone
A Rezone (Z15-004) of APNs 38-370-17, 38-380-15 & -16 and 38-430-02 is proposed to add the Mineral Extraction (ME) combining district to these parcels. Zoning is currently Forest 40 (FR-40) and would be changed to FR-40-ME. The ME zoning overlay is required for all mineral extraction projects.

Use Permit
The Use Permit would allow existing aggregate harvesting activities within Greenhorn Creek to be expanded into the areas shown in Figure 4, and would permit this mining activity within the 100-year floodplain. The lifespan of the existing mining operation and use of the processing facilities would therefore be increased. All other aspects of the existing operation would remain the same, including the number of employees, the operational hours, the amount of aggregate materials processed annually, the type of harvesting and processing equipment used, and the methods of mining and processing. Extraction would simply be moved from the existing permitted area to the expansion area. Mineral exploration is not required for this operation as the material to be harvested, processed, and sold is naturally deposited in the creek canyon by stream flows and is visible without further exploration. The existing processing plant located approximately one mile downstream of the southernmost portions of the new extraction areas would continue to be used to process the materials by screening, washing and/or crushing, and stockpiling. This plant is shown in Figure 8.

Harvesting Methods
Prior to commencement of extraction activities each year, the applicant installs gravel berms to divert braided channels of Greenhorn Creek into one main stream channel. Dry diversion channels are also constructed starting at the bottom of the new channel, then working upstream to channelize flows between meanders that would otherwise exchange flows from side to side in the floodplain. Once construction of the channel is complete, water is introduced into the channel. Temporary crossing culverts are installed for repeated crossings of large equipment. Sand and gravel is not harvested from within the flowing portion of Greenhorn Creek. As required under the terms of the California Department of Fish and Wildlife (CDFW) Streambed Alteration Agreement, a pre-extraction plan is required to be provided to the department prior to the onset of extraction activities each season. The plan specifies the locations of the extraction areas for that season, a map of the season’s access roads and stream crossings, and a delineation of the low flow channel for the upcoming year’s operation. Harvesting utilizes heavy equipment, typically paddle wheel scrapers, to remove sand and gravel from sandbars within the streambed.
**Figure 5: Placer Diggings Soil Type**

Northern Extent of Project Site

Southern Extent of Project Site
**Processing Facilities**

After harvesting the material is transported to the material processing plant for screening, washing, and/or crushing. Raw and processed material is stockpiled at the plant. Crushed aggregate material that is mined from the facility's operation is crushed onsite with a jaw and cone rock crusher. The operation mines negligible quantities of overburden or waste material and therefore does not require waste piles or dumps. There is no rock waste resulting from this operation. All crushed and uncrushed rock material is sold and hauled offsite.

An office, maintenance shop, fuel building, scale, scale house, caretaker's residence, water tank, sheds, and other ancillary structures are located adjacent to the plant. Restrooms for the facility are located inside the office/maintenance shop and inside the scale house. The caretaker's residence and shop are served by a private well and a private septic system. Unused and aged equipment is stored in a designated area near the plant for future use or to supply parts for actively used equipment. The plant is powered by electrical service.

**Process Water Management**

Water for material washing, processing activities, and dust control is pumped and diverted from Greenhorn Creek. The operation is permitted by the Central Valley Regional Water Quality Control Board under Waste Discharge Order No. 98-185 to draw a maximum of 528,000 gallons per day of water from Greenhorn Creek. As permitted by CDFW Streambed Alteration Agreement No. 1600-2007-0142-R2, the operation is prohibited from drafting more than 20 percent of the flow in Greenhorn Creek as measured immediately upstream of the diversion point. The diversion may not cause flows to go below 2 cubic feet per second (cfs) below the diversion point. Creek water is conveyed via pipe from Greenhorn Creek into a pond where it is then pumped to the appropriate location for plant processes.
Process water is only utilized at the plant. Process water is discharged onsite to unlined settling ponds adjacent to Greenhorn Creek. Discharge of waste to surface waters or surface water drainage courses is prohibited.

The settling pond levees are constructed and maintained to prevent scouring and failure from elevated flows in Greenhorn Creek. A 2-foot freeboard is maintained in the settling ponds at all times. The ponds are aerated to prevent the breeding of mosquitoes and to minimize weeds, algae, and vegetation. The ponds are also monitored for dissolved oxygen and pH. Process water that is removed from the ponds is transferred to an onsite unlined evaporation pond. Sludge or solids that are removed from the ponds are transferred to an on-site drying pond and used in road base and other product applications.

The operation has an onsite stormwater settling/infiltration pond which receives runoff from the southern portion of the plant area. The watershed that drains to the stormwater pond is used to store piles of processed material, load trucks for the off hauling of processed materials, and access roads. The pond provides for the settling of material that is suspended in the storm water runoff, and the outlet of the pond is stabilized with native aggregate material. The pond is maintained by removing settled material as needed, typically in the drier seasons of the year when the pond contains minimal stormwater. There are also several diversion swales at the plant which serve the purpose of conveying process water, stormwater, and run-on to designated locations. Given that the material at the site is mainly aggregate, maintenance of the swales is minimal.

*Anticipated Production*

The annual anticipated production of aggregate to be mined and processed is expected to range from 200,000 to 600,000 tons per year, which is the same amount as historically mined for the last 35 years. The quantity of aggregate material varies substantially based on the current market demand and the amount of materials available that wash downstream from the historic hydraulic placer diggings. Storms continue to bring additional sand and gravel downstream into the operational area, replenishing the materials which are then harvested. Mineral commodities to be removed are estimated at 30 to 50 million tons, and the maximum anticipated depth of aggregate material to be removed is approximately 70 feet. The estimated ratio of tons per cubic yard of material being mined is 1.4 to 1.8 tons per cubic yard.

*Mine Operation Schedule*

Plant operation, gravel harvest, material hauling, truck loading, and hauling is limited under existing Use Permits U82-020 and U93-063 to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except for plant repairs which may take place beyond that time under the current approved use permit. Exceptions to the time and day limitations for Saturday operation, also limited to the hours of 7:00 a.m. to 6:00 p.m., may be made with County approval. In no case is Saturday or Sunday operation authorized in the area lying south of the You Bet Road Bridge over Greenhorn Creek.

The harvesting operation is limited to April 1 to December 31 and to periods of low stream flow and dry weather under the terms of the existing Streambed Alteration Agreement with CDFW. In stormy periods, the gravel bars are flooded and the harvesting of sand and gravel is suspended until the water table subsides enough to allow heavy equipment to operate. The processing plant, however, operates continuously throughout the year, and portable aggregate processing plants may be utilized on a seasonal basis outside of Section 25 under the existing Use Permit conditions. No portable processing plants are proposed with the new use permit application.

*Lifespan of Use Permit*

Previous Use Permits approved by Nevada County do not have expiration dates. However, in keeping with other mining operations in the County in more recent years, HBE is currently proposing a maximum 30-year lifespan on the new Use Permit. If the operation requires additional time due to additional
materials becoming available or additional market demand, a new Use Permit approval would be required.

**Floodplain**

The project would occur within the 100-year floodplain and as such requires a Use Permit for work within a floodplain pursuant to Land Use and Development (LUDC) Sec. L-II 4.3.10. Floodplain impacts are evaluated in the October 7, 2016, Geotechnical and Hydrological Feasibility Assessment by Holdridge & Kull, and mitigation is required at the end of each extraction season to ensure that remaining slope configuration do not cause flooding impacts. The conditions of the CFDW Streambed Alteration Agreement and the Waste Discharge Requirements of the Central Valley Regional Water Quality Control Board also serve to manage the impact of activities within the floodplain, as discussed more in the Hydrology/Water Quality section of this Initial Study.

**Reclamation Plan**

Annual reclamation activities are required under the terms of the Streambed Alteration Agreement. They include removing temporary stream crossing culverts prior to the winter and/or significant rain events unless the crossing devices have been designed to pass the expected flows without impounding water upstream of the crossing or impacting the integrity of the watercourse. Structures and associated materials not designed to withstand high seasonal flows must be moved to areas above the high water mark before such flows occur.

Although the project lowers the streambed gravels, each year the creek moves in more material. Depending on the weather, the amount moved may be less than, equal to, or greater than the amount of material in the streambed the prior year. Occasionally, large parts of the upstream deposit cover over or scour out reclaimed areas and the natural revegetation process begins again. The vegetative cover proposed for the end use is anticipated to be self-regenerating to a large extent without continued dependence on irrigation, soil amendments, or fertilizer. The operation at the facility has been active for over 40 years and, according to the project biologist, natural revegetation of the riparian zone along the slopes of the Greenhorn Creek canyon, which were previously covered with aggregate waste, has proven to be effective. Vegetation at a density that is substantially similar to native surrounding areas, with various native species, develops unassisted and stabilizes the slopes (Stantec 2016).

The revegetation process therefore entails two phases. First, passive or natural revegetation and active revegetation methods within small areas (test plots) over at least two years would be assessed. The second phase, landscape level restoration, would then occur as needed, applying adaptive management recommendations that would result from the test plot study. Test plots would occur both in riparian and upland habitats. Test plot success is generally defined as 50 percent of baseline conditions two years post-construction, as vegetation once established at 50 percent cover will likely continue to revegetate. This criteria was approved by OMR. If at the end of two years, neither test plot type meet the success criteria, then adaptive management is recommended and additional testing of augmented replanting methods necessary. During this time, the passive plots should continue to be monitored to verify, if a longer study period facilitates meeting the success criteria in passive treatment plots.

The landscape level restoration would entail the application of the successful restoration techniques defined through the test plot study in riparian and upland habitats throughout the reclamation site. If passive revegetation was successful in the test plots they would be applied throughout the site. Passive revegetation methods have been successful in the past and may be viable at this site or in portions of the site. Passive landscape-level revegetation means the reclamation site would be left alone after the stream bed, bank, and upland areas are recontoured. The site is then expected to revegetate passively through natural propagation of riparian and upland species, much as it has in downstream areas previously mined by HBE. Active landscape-level revegetation would entail a directed revegetation planting palette based
on the results of the test plots. The goal is to have the planting pallet recommendations primarily depend on locally sourced cuttings. The recommended duration and timing for the landscape-level restoration is five years to be implemented upon completion of mining activities and site recontouring.

Mined lands are required to be reclaimed to a usable condition which is readily adaptable for alternate land uses and which creates no danger to public health or safety. After the end of the proposed aggregate mining activities, the ultimate condition of the creek would be something similar to the pre-hydraulic condition, with a layer of aggregate material 18 inches deep on average through the streambed and riparian plants along the edges of the stream and other species further outside the area of frequent flooding. The absence of the accumulation of sand and gravel will allow the natural propagation of alder, willow, and other riparian vegetation species.

After mining of each section is completed, the stream would be contoured into a "V" shaped channel shaped sufficiently to pass the 100-year peak flow, which conforms to the surrounding topography, with Greenhorn Creek flowing in the "V" (see Figure 7). The stream profile would be cut to the proper angle of repose. Although the final slope of the streambed under the gravel is unknown because the bedrock contour has not been explored, the bedrock contour is assumed to follow the pattern of the streambed cross section and have a slope of less than 35 percent. If canyon walls under the deposit are less than 35 percent, no adjustments to the slope are planned. Sand and gravel would be left against slopes that are steeper than 35 percent as well as to cover the stream banks and streambed. The blanket of aggregate material that remains on the banks of the channel provides a natural form of rip-rap which assists in protecting the banks from soil erosion. Any soil encountered under the gravel would be left in place.

When the operation is nearing completion, the crushers, screens, scales, buildings, drainage structures, and all other plant related equipment would be removed in order to remove the aggregate material in which they are sited on, and any excess materials, waste, or debris would be removed from the work area. All private access roads, haul roads, and other temporary traffic routes used for mining purposes would then be reclaimed by removing any road base material. The Hansen Gravel Road would be left in its operational condition, on a layer of sand and gravel.

The potential end use of the reclaimed streambed would be for recreational, watershed, and beneficial environmental uses of Greenhorn Creek such as continued habitat for foothill yellow-legged frog. The current zoning designations for operation area include forest and agricultural designations in combination with the mineral extraction designation. The reclamation plan for the site is consistent with current and surrounding zoning and land use designations.

Management Plan
For all disturbance within watercourses, wetlands, and riparian, Nevada County LUDC Sec. L-II 4.3.3 requires a Management Plan to reduce impacts to water quality, habitat, and special-status species that could occur in these areas. The project’s management plan (MGT17-0003) consists of the CDFW Streambed Alteration Agreement which includes numerous protections for water quality, habitat, and special-status within Greenhorn Creek that could be affected by the project’s harvesting operations. For impacts to creek banks and slopes, the project’s Reclamation Plan would also serve as a management plan in the reclamation phase of the project.

Other Permits Which May Be Necessary: Based on initial comments received, the following permits may be required from the designated agencies:

1. County Road Encroachment Permit - Nevada County Public Works Dept.
2. Permit to Operate and Air Pollution Permit – Northern Sierra Air Quality Management District
3. Waste Discharge Requirements – Central Valley Regional Water Quality Control Board
4. Streambed Alteration Agreement – California Department of Fish and Wildlife

Relationship to Other Projects: The proposed project is an expansion of an existing aggregate mine extraction and processing facility currently permitted under U82-020 and U93-063, as well as a comprehensive update of the existing Reclamation Plans for the project. One other nearby mining project immediately east of the Red Dog Narrows, the Blue Lead Mine, has been approved but has no existing relationship with the proposed project.

SUMMARY OF IMPACTS and PROPOSED MITIGATION MEASURES

Environmental Factors Potentially Affected: All of the following environmental factors have been considered. Those environmental factors checked below would be potentially affected by this project, involving at least one impact that is “Less Than Significant with Mitigation” as indicated by the checklist on the following pages.

<table>
<thead>
<tr>
<th></th>
<th>1. Aesthetics</th>
<th>2. Agriculture / Forestry Resources</th>
<th>3. Air Quality</th>
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</table>

Recommended Mitigation Measures:

3. **AIR QUALITY:** To offset potentially adverse air quality and greenhouse gas impacts associated with the proposed project, the following mitigation measure shall be required:

**Mitigation Measure 3A. Reduce Emissions during Harvesting Activities:** The following are the minimum recommended measures to reduce project emissions related to harvesting and ongoing operations in relation to the proposed project. In addition to these measures, all statewide air pollution control regulations shall be followed, including diesel regulations (which may be accessed at www.arb.ca.gov/diesel/diesel.htm).

1. Alternatives to open burning of vegetative material shall be used to dispose of site-cleared vegetation where feasible. Among suitable alternatives are chipping, mulching, or conversion to biomass fuel.
2. Grid power shall be used (as opposed to diesel generators) for job site power needs where feasible.
3. Mobile heavy equipment shall meet State engine-tier standards in effect at the time of operation.
4. Heavy equipment idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as feasible, and all heavy equipment shall also be maintained and properly tuned in accordance with manufacturer’s specifications.
Timing: During project operations  
Reporting: During project operations  
Responsible Agency: Northern Sierra Air Quality Management District

4. **BIOLOGICAL RESOURCES:** To offset the potential impacts to biological resources associated with the project activities, the following mitigation measures shall be required:

**Mitigation Measure 4A. Avoid and Minimize Impacts on Special-Status Plant Populations:** Surveys shall be conducted for late-season blooming special-status plants not covered under the May 11, 2015 plant survey, including brownish-beaked rush, elegant groundsel, Follett’s monardella, Gevers panicum, grass lead plantain, inundated bog club-moss, Scadden Flat checkerbloom, and white beaked rush as follows:

1. Pre-construction botanical surveys for the late-blooming special-status plants shall be conducted in the appropriate blooming periods, and shall be performed by a qualified botanist following CDFW and CNPS protocols for surveying special-status native plants. The survey results shall be submitted to the Planning Department within one week of survey completion.
2. If special-status plants are determined to have no presence in the proposed Project site, then no further mitigation is required.
3. If special-status plants are determined present within the project area during pre-construction field surveys and feasibly avoided, the applicant shall implement the following measures:
   - Hire a qualified biologist to map the population and place flagging to identify the population location. Install environmentally sensitive exclusion fencing and appropriate signage at an appropriate buffer distance, starting from the edge of the special-status plant and/or plant population. Signage shall indicate the area is environmentally sensitive and not to be disturbed;
   - Adjust project activities away from special-status plants. The project work area shall be confined to areas outside a buffer acceptable to the project biologist; and
   - Supervision, guidance, and verification of the implementation of these measures shall be achieved by Hansen Bros. Enterprises and an agency-approved biological monitor (i.e., a qualified biologist or botanist approved by CDFW and/or USFWS).
4. If special-status plants are determined present within the project are during pre-construction field surveys and direct or unavoidable impacts to special-status plants would result from project activities, then the applicant shall consult with appropriate agencies (i.e., CDFW and/or USFWS) to develop acceptable mitigation which may include the successful translocation of individual plants, rectification of impact by seed collecting and stockpiling for replanting/replacement, mitigation fees, and/or permitting.

**Timing:** Prior to start of mining operations during the late-bloom period (August-October)  
**Reporting:** Prior to start of operations  
**Responsible Agency:** Nevada County Planning Department; CDFW and USFWS as necessary

**Mitigation Measure 4B. Avoid Disturbance of Foothill Yellow-Legged Frog:** The applicant shall comply with all California Department of Fish and Wildlife requirements to avoid or minimize the disturbance of FYLF. These include but are not limited to conducting worker environmental awareness trainings, delineating and avoiding sensitive habitat areas during work, conducting egg mass surveys, limiting project activities to April 1 to December 31, further limiting work during wet weather periods, ensuring that aquatic life is not stranded in dewatered areas, and having a biological monitor onsite with stop-work authorization during any relocation of stranded aquatic life. These measures may be modified as determined necessary by the California Department of Fish and Wildlife in their Streambed Alteration Agreement, as conditions change during the life of the project.

**Timing:** Prior to the start of project operations each year and during project operations  
**Reporting:** Prior to the start of project operations
Mitigation Measure 4C. Avoid and Reduce Impacts to Special-Status Bird Species, Nesting Raptors, and Migratory Birds: To the extent feasible all necessary vegetation removal shall be conducted between September 1 and February 28 of each year to avoid nesting birds that may be present in the construction area during construction activities (defined for the purposes of this mitigation measure as haul road construction, berm construction, and extraction). If all construction activities are conducted outside of nesting season, no further mitigation is necessary. If construction activities begin in an area prior to the start of the nesting season (March 1 to August 31) and inactivity in that area does not exceed two weeks, no further mitigation is necessary. If construction activities begin during the nesting season, the applicant shall have a pre-construction nesting survey conducted by a qualified wildlife biologist within the project area and within an approximate 300-foot buffer. Surveys shall be conducted within one week before initiation. In addition, if construction activities begin after a period of two weeks or more of inactivity in any given area during the nesting season (even if that area was already surveyed), the applicant shall re-survey the area prior to performing or continuing extraction activities. The results of the survey shall be submitted to the Planning Department within one week of completion. If no active nests are detected, then no additional mitigation is required. If surveys indicate that migratory bird nests are found in any areas that would be directly affected by construction activities, the biologist shall establish a no-disturbance buffer around the site to avoid disturbance or destruction of the nest site until after the breeding season or after the biologist determines that the young have fledged (typically late June to mid-July). The extent of these buffers shall be determined by the biologist in consultation with the California Department of Fish and Wildlife and shall depend on the listing status of the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. The buffer zone and monitoring plan shall be reported to the California Department of Fish and Wildlife and to the Planning Department. Active sites shall be monitored by the biologist periodically until after the breeding season or after the young have fledged.

**Timing:** Within two weeks prior to the start of project construction each year and as needed during any periods of inactivity exceeding two weeks

**Reporting:** Prior to the start of project construction each year

**Responsible Agency:** Nevada County Planning Department and CDFW

Mitigation Measure 4D. Amend the Streambed Alteration Agreement to Provide Protections to Riparian Habitat. Prior to any work within the expansion area, the applicant shall obtain an amended Streambed Alteration Agreement from California Department of Fish and Wildlife that encompasses the expansion area and shall provide the Agreement to the Planning Department. The applicant shall adhere to all the Streambed Alteration Agreement for the life of the project, which include but are not limited to providing an annual pre-extraction plan that delineates extraction areas for that season; an annual pre-extraction production data report to track cumulative extraction volumes from the stream channel; annual, temporary culvert crossings where heavy equipment will cross the creek; annual diversion channel and berms built in clean gravels; and erosion, sedimentation, turbidity, and siltation precautions.

**Timing:** Prior to operation and pre-extraction annually

**Reporting:** Annually prior to extraction activities for the season

**Responsible Agency:** CDFW

5. **CULTURAL RESOURCES:** To offset potentially adverse cultural or historical resources impacts associated with the proposed activities on site, the following mitigation measure shall be required:

Mitigation Measure 5A: Halt work and contact the appropriate agencies if human remains or cultural materials are discovered during project operations. All equipment operators shall be
advised of the possibility of encountering cultural resources. If such resources are encountered or suspected, work shall be halted immediately within 200 feet of the suspected resource and the Nevada County Planning Department shall be contacted. A professional archaeologist shall be retained by the applicant and consulted to access any discoveries and develop appropriate management recommendations for archaeological resource treatment. If bones are encountered and appear to be human, California Law requires that the Nevada County Coroner and the Native American Heritage Commission be contacted and, if Native American resources are involved, Native American organizations and individuals recognized by the County shall be notified and consulted about any plans for treatment.

**Timing:** During operations

**Reporting:** As needed if cultural resources found

**Responsible Agency:** Nevada County Planning Department

6. **GEOLOGY/SOILS:** To offset the potential for adverse soils or erosion impacts to result from project harvesting activities, the following mitigation measures shall be required:

**Mitigation Measure 6A:** Perform annual inspections of mined areas for creek bank slope and stability. During the fall season of each year and prior to the rainy season (generally prior to October 15), a geotechnical engineer shall assess the soil and rock conditions and slopes exposed by aggregate removal, along the creek and within the Red Dog Narrows, to identify potential slope configurations that could be vulnerable to erosion and/or increase the risk of localized flooding. If conditions are identified that could constrict flow in the creek, additional grading may be necessary to reduce the potential for localized flooding. All eroded creek banks identified during the inspection shall be backfilled with a 2:1 gravel fill slope or shallower and revegetated as necessary to stabilize those areas, upon the recommendation of the mine inspector. If specific geotechnical recommendations are required during the course of the project as determined by the mine inspector, subsurface investigation and analysis shall be required to develop specific geotechnical design criteria.

**Timing:** Close of operational season each year

**Reporting:** Close of operational season

**Responsible Agency:** Nevada County Planning Department

7. **GREENHOUSE GAS EMISSIONS:** See Mitigation Measure 3A.

9. **HYDROLOGY/WATER QUALITY:** See Mitigation Measure 6A.

10. **LAND USE:** See Mitigation Measures 6A, 16A, and 16B.

12. **NOISE:** To offset the potential for noise impacts at nearby residences, the following mitigation measures shall be required:

**Mitigation Measure 12A: Limit Noise-Generating Uses.** The following measures shall be implemented during all project operations to protect surrounding residents from operational noise:

- Plant operation, gravel harvest, truck loading, and truck hauling are limited to the hours of 7 AM to 6 PM, Monday through Friday, except for plant repairs which may take place outside those hours. Exceptions may also be made for emergency operation as determined by the Planning Director and defined in the Section 15269 of the State CEQA Guidelines.
- The operation is required to provide mufflers which meet the standards of the California Highway Patrol on all trucks belonging to the operator and used on public roadways.
- Noise emissions from the plant site at any residential property line shall not exceed 65 decibels.
- Aggregate harvesting is prohibited within 20 feet from any neighboring property.
16. **TRANSPORTATION/CIRCULATION:** To offset the potential for road impacts, the following mitigation measures shall be required:

**Mitigation Measure 16A. Maintain the Red Dog Road Crossing at All Times:** The applicant shall maintain the Red Dog Crossing and approaches in a passable condition during the operational season, within two weeks following haul road construction and in compliance with other County and State requirements such as pre-construction nesting surveys and Streambed Alteration Agreement requirements. This mitigation is not dependent on mining operations in the vicinity of the area because current and past upstream and adjoining mining activities can have long-term effects on the crossing. This condition shall be monitored during annual inspections and enforced other times of the year through a public complaint-driven process.

*Timing: Annual inspection and on a complaint basis*
*Reporting: Annual inspection*
*Responsible Agency: Nevada County Public Works, Planning, and Code Compliance*

**Mitigation Measure 16B. Provide Red Dog Road Reclamation and Offer for Dedication:** During reclamation of the Red Dog crossing area, the applicant shall ensure that it is left in a passable condition. The applicant shall also offer for dedication to Nevada County any portion of the Red Dog Road crossing that is owned by the applicant, in order to provide the County the opportunity to consider whether that portion should become part of the County-maintained mileage system at that time.

*Timing: Prior to release of the Financial Assurance for reclamation*
*Reporting: Approval of FACE release*
*Responsible Agency: Nevada County Public Works Department*

**Mitigation Measure 16C. Pay Fair Share toward Public Access Road Maintenance and Improvements:** The applicant shall contribute $0.05 per ton of aggregate materials on a quarterly basis for the proposed expansion areas for County road maintenance and improvement. The tonnage rates and annual maximum amount shall be adjusted annually based on the California Construction Cost Index (CCCI) so that these fees can keep with the anticipated rate of inflation.

*Timing: To be paid quarterly during project operations*
*Reporting: Quarterly invoicing by Fiscal Department*
*Responsible Agency: Nevada County Public Works Department*

18. **MANDATORY FINDINGS OF SIGNIFICANCE:** To offset potentially adverse impacts to air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, land use, noise, and transportation/circulation, see Mitigation Measures 3A, 4A-4D, 5A, 6A, 12A, and 16A-C.
## Mitigation Monitoring Matrix:

<table>
<thead>
<tr>
<th>MEASURE #</th>
<th>MONITORING AUTHORITY</th>
<th>IMPLEMENTATION TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>3A</td>
<td>Planning and NSAQMD</td>
<td>During project operations</td>
</tr>
<tr>
<td>4A</td>
<td>Planning, CDFW, USFWS</td>
<td>Prior to start of any mining operations</td>
</tr>
<tr>
<td>4B</td>
<td>CDFW</td>
<td>Prior to start of mining operations each year and during operations</td>
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<tr>
<td>4C</td>
<td>Planning, CDFW</td>
<td>Prior to start of mining operations each year</td>
</tr>
<tr>
<td>4D</td>
<td>CDFW</td>
<td>Prior to start of any mining operations and prior to start of mining operations each year</td>
</tr>
<tr>
<td>5A</td>
<td>Planning</td>
<td>During project operations</td>
</tr>
<tr>
<td>6A</td>
<td>Planning</td>
<td>Annual inspection</td>
</tr>
<tr>
<td>12A</td>
<td>Planning</td>
<td>During project operations</td>
</tr>
<tr>
<td>16A</td>
<td>Public Works and Planning</td>
<td>Annual inspection and on complaint basis</td>
</tr>
<tr>
<td>16B</td>
<td>Public Works</td>
<td>Prior to release of Financial Assurance for reclamation</td>
</tr>
<tr>
<td>16C</td>
<td>Public Works</td>
<td>Quarterly during project operations</td>
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</table>
INITIAL STUDY AND CHECKLIST

Introduction

This checklist is to be completed for all projects that are not exempt from environmental review under the California Environmental Quality Act (CEQA). The information, analysis and conclusions contained in the checklist are the basis for deciding whether an Environmental Impact Report (EIR) or Negative Declaration is to be prepared. If an EIR is determined to be necessary based on the conclusions of the Initial Study, the checklist is used to focus the EIR on the effects determined to be potentially significant. This Initial Study uses the following terms to describe the level of significance of adverse impacts. These terms are defined as follows.

- **No Impact:** An impact that would result in no adverse changes to the environment.
- **Less than Significant Impact:** An impact that is potentially adverse but does not exceed the thresholds of significance as identified in the impact discussions. Less than significant impacts do not require mitigation.
- **Less than Significant with Mitigation:** An environmental effect that may cause a substantial adverse change in the environment without mitigation, but which is reduced to a level that is less than significant with mitigation identified in the Initial Study.
- **Potentially Significant Impact:** An environmental effect that may cause a substantial adverse change in the environment; either additional information is needed regarding the extent of the impact to make the significance determination, or the impact would or could cause a substantial adverse change in the environment. A finding of a potentially significant impact would result in the determination to prepare an EIR.

The existing environmental conditions against which the project impacts are evaluated (CEQA baseline) in this Initial Study include the ongoing uses approved under Use Permits U82-020 and U93-063. These uses include harvesting within Greenhorn Creek, processing aggregate materials at the HBE plant, and hauling the materials off-site. This Initial Study evaluates the delta between these and other existing conditions and the proposed expansion of the harvesting areas. The Initial Study also considers how increasing the mining areas would extend the lifespan of the operation.

1. **AESTHETICS**

**Existing Setting:** The project is located approximately 5 miles upstream of Rollins Reservoir, within a rural area of the County along Greenhorn Creek and Missouri Canyon in USGS Sections 25 and 36. The project area follows the meander of Greenhorn Creek from the Buckeye Road crossing at its northern extent to Missouri Canyon at its southern extent, and extends east approximately 1,650 feet into Missouri Canyon. Greenhorn Creek in the project area has a bed width of approximately 40 feet wide to 600 feet wide, with a substantial amount of aggregate material and very little existing riparian vegetation. The canyon walls of Greenhorn Creek and Missouri Canyon rise rapidly from the streambeds approximately 400 to 600 feet high, from about 2,500 feet elevation to 3,000 feet elevation. The canyon walls are heavily vegetated with upland forest vegetation (Douglas-fir Forest Alliance) while sparse vegetation along the creek is riparian (White Alder Grove Forest Alliance). There is very little mingling of these vegetation types, with an abrupt transition from riparian to upland vegetation generally due to mining operations yielding exposed slopes with no vegetation present (Stanetc 2015). Surrounding uses include public lands to the north east, HBE-owned land to the southeast of APN 38-370-17 and all adjoining lands to the north, west, and south of the APNs 38-380-15, 38-380-16, and 38-430-02. There are unimproved private parcels to the east and improved private parcels to the west.
<table>
<thead>
<tr>
<th>CEQA Environmental Checklist Item</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Have a substantial adverse effect on a scenic vista or views open to the public?</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td>A, D</td>
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<tr>
<td>b. Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?</td>
<td></td>
<td></td>
<td>√</td>
<td></td>
<td>A, D</td>
</tr>
<tr>
<td>c. Substantially degrade the existing visual character or quality of the site and its surroundings?</td>
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<td>√</td>
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<td>A, D</td>
</tr>
<tr>
<td>d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?</td>
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<td>A, D</td>
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**Impact Discussion 1a, c-d:** The site is not visible from any public roadway with the exception of Red Dog Road, which is infrequently used given that it is an at-grade stream crossing. The mining operation may be visible from some adjoining properties. The nearest neighbors on lots that appear to be improved (i.e., that have an improvement value in the tax rolls and/or where residential structures are clearly visible on aerial photographs) are three properties to the west of the Narrows (APNs 38-370-13, -14, and -19), two properties on the western side of Greenhorn Creek opposite the Missouri Canyon area (APNs 38-440-29 and -30), and a property to the south of Missouri Canyon at APN 38-430-11. All of the homes on these properties are at least 1,000 feet from the proposed new operation areas. Most of the lot development also occurs on the ridgelines and canyons above the proposed operation. However, the operation is located in a remote area, and the number of individuals who are able to view the operation is extremely limited. Additionally, the operation is predominantly along currently mined areas of the creekbed and within the creek and is thus not removing substantial vegetation. The change of views for the limited number of viewers would be very gradual as the aggregate deposit becomes lower over decades of time. No new lighting, signage, or processing areas are proposed with the project. Therefore, any adverse aesthetic impacts from aggregate extraction would be considered less than significant.

**Impact Discussion 1b:** The project site is not located on a state scenic highway and does not contain unique scenic resources. Therefore, there would be no impact related to damaging scenic resources on a state scenic highway.

**Mitigation Measures:** None required.

2. **AGRICULTURAL/FORESTRY RESOURCES**

**Existing Setting:** The project area is designated as “Other Land” by the Farmland Mapping and Monitoring Program (California Department of Conservation, 2010). The site does not contain any important farmlands, nor is it adjacent to any Important Farmlands. Commercial agricultural uses do not exist in the project area, and the project area contains neither Williamson Act contracts nor land zoned for agriculture. The primary areas of gravel extraction are within Greenhorn Creek’s bed and banks, while the upland vegetated areas of the site are forested with mixed conifer forest.
### CEQA Environmental Checklist Item

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<thead>
<tr>
<th>CEQA Environmental Checklist Item</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, D, 4</td>
</tr>
<tr>
<td>b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A</td>
</tr>
<tr>
<td>c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resource Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A</td>
</tr>
<tr>
<td>d. Result in the loss of forest land or conversion of forest land to non-forest use?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, 4</td>
</tr>
<tr>
<td>e. Involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, D, 4</td>
</tr>
</tbody>
</table>

**Impact Discussion 2a,e:** The project site does not contain any Important Farmlands as identified by the Farmland Mapping and Monitoring Program, nor are surrounding properties zoned for agricultural use. Project implementation would neither directly nor indirectly result in the conversion of farmland to non-agricultural uses. Therefore, there would be no impact to farmlands from the proposed project.

**Impact Discussion 2b-c:** Portions of the site are zoned Agricultural (AG) and Forest (FOR), and some adjoining land is zoned within a Timberland Production Zone (TPZ). However, given that the site does not have appropriate soils, and is largely within a creekbed and on the banks of a creek that are heavily graveled, the site is not appropriate for agricultural uses at this time. Additionally, mineral extraction of the site would not preclude timber harvesting on adjoining properties. Therefore, this impact is considered less than significant.

**Impact Discussion 2d:** The project site is partially forested in the upland areas. Small portions of upland forested areas, where mixed conifer forest grows on gravel ledges, could be affected by the project, but these areas are not considered valuable timberland or forest land due to the poor gravelly soils in these areas. The project would only be allowed to harvest Placer diggings soil which are not considered useful for forest or timber-growing conditions. Conversion of these areas to banks and streambed is therefore considered less than significant.

**Mitigation Measures:** None required.

### 3. AIR QUALITY

**Existing Setting:** Nevada County is located in the Mountain Counties Air Basin. The overall air quality in Nevada County has improved over the past decade, largely due to vehicles becoming cleaner. State
and Federal air quality standards have been established for specific “criteria” air pollutants including ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter. In addition, there are State standards for visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. State standards are called California Ambient Air Quality Standards (CAAQS) and federal standards are called National Ambient Air Quality Standards (NAAQS). NAAQS are composed of health-based primary standards and welfare-based secondary standards.

Western Nevada County is Marginal Nonattainment for the 1997 ozone NAAQS, with a “Finding of Attainment” based on three years of “clean” data. The area is also Marginal Nonattainment for the 2008 ozone NAAQS and is Nonattainment for the ozone CAAQS. Most of western Nevada County’s ozone is transported to the area by wind from the Sacramento area and, to a lesser extent, the San Francisco Bay Area. The existing project operations are a source of ozone in the project area as well. Ozone is created by the interaction of Nitrogen Oxides and Reactive Organic Gases (also known as Volatile Organic Compounds) in the presence of sunlight, especially when the temperature is high. Ozone is mainly a summertime problem, with the highest concentrations generally observed in July and August, especially in the late afternoon and evening hours.

Nevada County is also Nonattainment for the PM10 CAAQS, but Unclassified for the PM10 NAAQS due to lack of available recent data. The number after “PM” refers to maximum particle size in microns. PM10 is a mixture of dust, combustion particles (smoke) and aerosols, whereas PM2.5 is mostly smoke and aerosol particles. PM2.5 sources include woodstoves and fireplaces, vehicle engines, wildﬁres and open burning. PM10 sources include the PM2.5 plus dust, such as from surface disturbances, road sand, vehicle tires, and leaf blowers. The existing project operations are also a source of PM2.5 and PM10 in the area. Some pollen and mold spores are also included in PM10, but most are larger than 10 microns. All of Nevada County is Unclassifiable/Attainment for the PM2.5 NAAQS and Unclassified for the PM2.5 CAAQS.

Ultramafic rock and its altered form, serpentinite rock (or serpentinite), both typically contain asbestos, a cancer-causing agent. Ultramafic rock and serpentinite exist in several locations in Nevada County, mainly in the western half, but these geologic types are not located in the project area (California Department of Conservation, 2017).

An evaluation of project impacts related to greenhouse gas emissions is provided in Section 7 of this Initial Study.

<table>
<thead>
<tr>
<th>Would the proposed project:</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Result in substantial air pollutant emissions or deterioration of ambient air quality?</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td>A, 3, 20, 31, 32, 40</td>
</tr>
<tr>
<td>b. Violate any air quality standard or contribute to an existing or projected air quality violation?</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td>A, 31, 32, 40</td>
</tr>
<tr>
<td>c. Expose sensitive receptors to substantial pollutant concentrations?</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td>A, 3, 31, 32</td>
</tr>
<tr>
<td>d. Create objectionable smoke, ash, or odors?</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td>A, 31, 32</td>
</tr>
<tr>
<td>e. Generate dust?</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td>A, 31, 32</td>
</tr>
<tr>
<td>f. Exceed any potentially significant thresholds adopted in County Plans and Goals?</td>
<td>✅</td>
<td></td>
<td></td>
<td></td>
<td>A, 31, 32, 40</td>
</tr>
</tbody>
</table>
Impact Discussion 3a-e: The project consists of the extraction of aggregate materials from sand bars and other areas within and on the banks of Greenhorn Creek. Harvested material is then transported to the existing processing plant where it is screened, washed, crushed if necessary, and stockpiled. Approximately 200,000 to 600,000 tons of materials is expected to be mined and processed annually, depending on the year-to-year market demand. The existing operation, which consists of the same activities and quantities but in different areas of Greenhorn Creek, holds a Permit to Operate containing production and emission limitations, as issued by the NSAQMD (Longmire 2015). NSAQMD has indicated that this permit is anticipated to accommodate any additional mineral processing that occurs within the proposed expansion. HBE also annually obtains an Air Pollution Permit for the burning of natural wood waste. Neither construction nor grading are proposed with the project.

The California Emissions Estimation Model (CalEEMod) was used to estimate potential emissions associated with aggregate harvesting and processing. Two separate model runs were conducted to ensure that inputs were specific to these different functions of the mining operation.

For aggregate extraction, the construction tabs in CalEEMod were used in order to input specific haul trip and heavy equipment data needed for the analysis. Based on the current conditions of approval for Section 25, it was assumed that no more than two scrapers would operate simultaneously and that one water truck would always operate on the haul road. Table 1 identifies an annual average level of emissions over 30 years of project operation. The identified levels of emissions include reductions for watering for dust control three times per day.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NSAQMD Level A Thresholds</th>
<th>NSAQMD Level B Thresholds</th>
<th>NSAQMD Level C Thresholds</th>
<th>Project Impact1</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>&lt; 24 lbs/day</td>
<td>24-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>44.88 lbs/day (4.40 tons/yr)</td>
</tr>
<tr>
<td>ROG</td>
<td>&lt; 24 lbs/day</td>
<td>24-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>3.87 lbs/day (0.38 tons/yr)</td>
</tr>
<tr>
<td>PM10</td>
<td>&lt; 79 lbs/day</td>
<td>79-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>70.09 lbs/day (6.87 tons/yr)</td>
</tr>
</tbody>
</table>

Notes:
1. Pounds per day were calculated by assuming that extraction would occur 5 days per week for 9 months per year, consistent with the Streambed Alteration Agreement requirements. This provides a conservative calculation of how many pounds per day could be emitted by aggregate extraction.

As shown in Table 1, the project would be within Level B thresholds for NOx and PM10 and would be within Level A for ROG.

The processing facility is currently in use under the existing Use Permits U82-020 and U93-063. For the purposes of this project, it was assumed that the plant would continue to be used for the new gravel extraction areas, without any need for expansion or construction. Based on applicant input, three crushers (stationary sources), three front-end loaders (mobile sources), and three load-out trucks (mobile sources) are assumed to be used in processing of aggregate. The operations tab in CalEEMod was used for this analysis. Table 2 shows the pollutant emissions that would result from the continued use of the processing plant.
Table 2: Aggregate Processing Air Quality Impacts

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NSAQMD Level A Thresholds</th>
<th>NSAQMD Level B Thresholds</th>
<th>NSAQMD Level C Thresholds</th>
<th>Project Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>&lt;24 lbs/day</td>
<td>24-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>32.38 lbs/day (5.91 tons/yr)</td>
</tr>
<tr>
<td>ROG</td>
<td>&lt;24 lbs/day</td>
<td>24-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>4.85 lbs/day (0.74 tons/yr)</td>
</tr>
<tr>
<td>PM10</td>
<td>&lt;79 lbs/day</td>
<td>79-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>2.47 lbs/day (0.45 tons/yr)</td>
</tr>
</tbody>
</table>

Note:
1. Although extraction may not occur between January 1 and March 31 under the Streambed Alteration Agreement, the processing plant is in use throughout the year, and pounds per day impacts were calculated to reflect that. CalEEMod can quantify PM emissions only from heavy equipment used for processing during operations, and not the particulate emissions generated from moving and crushing aggregate. However, according to the NSAQMD, there are virtually no particulate emissions from crushing and moving rock due to the high moisture content of the material (Longmire 2017). The NSAQMD Permit to Operate requires that particulate emissions are controlled by ensuring that crushed rock is kept moist with water sprayers. Water is required to be applied by nozzles mounted above the conveyor belts that automatically apply a fine spray over the rock material to reduce dust emissions. The plant site, stockpiles, and private access roads are also required to be watered to control dust. All extraction areas are also required to be kept watered as needed to prevent emission of fugitive dust.

Table 3 below shows the total project emissions from operations when harvesting and processing emissions are combined.

Table 3: Total Project Air Quality Impacts

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>NSAQMD Level A Thresholds</th>
<th>NSAQMD Level B Thresholds</th>
<th>NSAQMD Level C Thresholds</th>
<th>Project Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>&lt;24 lbs/day</td>
<td>24-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>77.26 lbs/day</td>
</tr>
<tr>
<td>ROG</td>
<td>&lt;24 lbs/day</td>
<td>24-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>7.92 lbs/day</td>
</tr>
<tr>
<td>PM10</td>
<td>&lt;79 lbs/day</td>
<td>79-136 lbs/day</td>
<td>&gt;136 lbs/day</td>
<td>72.56 lbs/day</td>
</tr>
<tr>
<td>CO</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>87.63 lbs/day</td>
</tr>
</tbody>
</table>

Additionally, emissions from processing are regulated by the NSAQMD under the existing Permit to Operate. The Permit to Operate for the 2015/2016 operating years includes a number of conditions designed to reduce the project impacts. These conditions include but are not limited to the following:

- Equipment must be in good working order in order to operate efficiently and minimize air pollutant emissions.
- Visible emissions from all emission points shall not meet or exceed 20 percent opacity more than 3 minutes in any one hour.
- Maximum annual process rate allowed is up to 750,000 tons per year.
- Applicant must keep records of plant operating hours and number of operation days, in addition to separate records for the number of gallons and type of fuel used by each crusher, screen power plant, and generator.
- At least one water truck must be assigned to dust control operations in and around the equipment operation areas and pile areas and on all haul roads as necessary to control dust.
- Any soils tracked onto adjoining paved roadways shall be promptly removed by washing, sweeping, or other technique to prevent entrainment of particulate matter into the air by passing traffic.
- The maximum speed limit on the haul road shall be posted and shall not exceed 25 miles per hour.
- Total emissions limits from all stationary sources may not exceed the following:
  - Total suspended particulate: 80.0 tons/yr
  - PM 10: 40 tons/yr
  - NOx: 0.5 ton/yr
Sulfur Oxides: 0.1 ton/yr
Total organic gases: 0.1 ton/yr
CO: 0.2 ton/yr

Additionally, the project will be required to comply with the State’s diesel regulations regarding the tier level of heavy equipment. Recommendations from the NSAQMD regarding diesel-powered heavy equipment are included in Mitigation Measure 3A to help reduce overall impacts of the project regarding criteria pollutants.

The project does not have the potential to encounter ultramafic rock as the operation would occur only in the Placer diggings soil type. With the NSAQMD Permit to Operate in place which would incorporate the proposed area of operations, and with Mitigation Measure 3A to reduce the amount of criteria pollutants generated by the project, air quality impacts are anticipated to be less than significant with mitigation.

Impact Discussion 3f: Nevada County’s 1995 General Plan, Chapter 14 Air Quality Element, contains numerous policies to protect air quality in Nevada County. With the exception of General Plan Air Quality Element Policy 14.7A, which requires compliance with NSAQMD Rule 226, Nevada County General Plan Air Quality Element policies are intended to apply to development that generates new residents or new employees. The ongoing Permit to Operate requires compliance with Rule 226, which is related to the control of dust emissions. The Air Quality Element of the General Plan does not otherwise provide policies that apply to site-specific development projects. The proposed development of the project site would therefore have a less than significant impact with regard to Nevada County goals and policies.

Impact Discussion 3g: The proposed project would result in a temporary but incrementally small net increase in pollutants due to construction vehicle and equipment emissions. However, Mitigation Measure 3B, as well as compliance with the County’s grading ordinance, would reduce impacts to the extent that the project would not contribute to a cumulatively considerable net increase for ozone and PM10, for which the County is in non-attainment. Therefore, this impact is less than significant.

Mitigation Measures: To offset potentially adverse air quality and greenhouse gas impacts associated with the proposed project, the following mitigation measure shall be required:

Mitigation Measure 3A. Reduce Emissions during Harvesting Activities: The following are the minimum recommended measures to reduce project emissions related to harvesting and ongoing operations in relation to the proposed project. In addition to these measures, all statewide air pollution control regulations shall be followed, including diesel regulations (which may be accessed at www.arb.ca.gov/diesel/diesel.htm).

1. Alternatives to open burning of vegetative material shall be used to dispose of site-cleared vegetation where feasible. Among suitable alternatives are chipping, mulching, or conversion to biomass fuel.
2. Grid power shall be used (as opposed to diesel generators) for job site power needs where feasible.
3. Mobile heavy equipment shall meet State engine-tier standards in effect at the time of operation.
4. Heavy equipment idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes as feasible, and all heavy equipment shall also be maintained and properly tuned in accordance with manufacturer’s specifications.

Timing: During project operations
Reporting: During project operations
Responsible Agency: Northern Sierra Air Quality Management District
4. **BIOLOGICAL RESOURCES**

**Existing Setting:** The proposed expansion area is located in southern Nevada County, California upstream from Rollins Lake in Greenhorn Creek. The approximate 38-acre expansion area is located in the USGS Chicago Park Quad, at approximately 2,500 feet above mean sea level. The vegetative cover in the area is generally either disturbed or relatively intact and can be divided into the following three primary categories: streambed, riparian, and upland.

The intact streambed of Greenhorn Creek consists primarily of cobble and gravel and is highly mobile, moving downstream with precipitation events on a seasonal basis. The stream channel is mostly devoid of vegetation due to the highly mobile bedload, except for locations along the channel bank where it transitions to riparian habitat. The disturbed streambed located within the existing mining area is also generally devoid of vegetation likely due to natural channel movement and mining activities.

The riparian habitat is dominated primarily by willow (*Salix spp.*) and alder (*Alnus spp.*) species. The riparian community present within the project expansion area is sparse, somewhat fractured, and often isolated to narrow stretches along the edges of the Greenhorn Creek channel, where slopes are moderate and not as consolidated as the upland areas. Potential factors influencing the sparse distribution of riparian habitat along the stream banks in un-mined areas include a naturally shifting channel location (highly mobile bedload through riparian habitat during high flows), general public use (e.g., off-road vehicles), and associated increased erosion along the channel banks. In previously mined areas, riparian habitat also persists in some locations and is relatively devoid in others. A total of approximately 3.10 acres of this riparian biological community was identified and mapped within the proposed expansion area.

The upland habitat is generally comprised of mixed coniferous and oak vegetation. It is dominated by Douglas fir (*Pseudotsuga menziesii*), ponderosa pine (*Pinus ponderosa*), black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), and interior live oak (*Quercus wislizeni*). Generally, this upland community is located along Greenhorn Creek approximately 50 to 200 feet upslope from the top of bank. The upland community is relatively intact and in good overall health. However, some upland tree mortality is evident, likely due to logging, fires, and bark beetle disease. A total of approximately 19.7 acres of this upland biological community was identified and mapped within the study area.

<table>
<thead>
<tr>
<th>CEQA Environmental Checklist Item</th>
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<th>Less Than Significant Impact</th>
<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?</td>
<td>✓</td>
<td></td>
<td></td>
<td>A, 7, 9, 10, 46, 47</td>
<td></td>
</tr>
<tr>
<td>b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?</td>
<td>✓</td>
<td></td>
<td></td>
<td>A, 7, 9, 10, 46, 47</td>
<td></td>
</tr>
<tr>
<td>CEQA Environmental Checklist Item</td>
<td>Potentially Significant Impact</td>
<td>Less Than Significant with Mitigation</td>
<td>Less Than Significant Impact</td>
<td>No Impact</td>
<td>Reference Source (Appendix A)</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------------------------------</td>
<td>-------------------------------</td>
<td>--------------------------------------</td>
<td>-------------------------------</td>
<td>-----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td>A, 7, 9, 10, 46, 47</td>
</tr>
<tr>
<td>d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</td>
<td></td>
<td>☑</td>
<td></td>
<td></td>
<td>A, 7, 9, 10, 31 46, 47</td>
</tr>
<tr>
<td>e. Conflict with any local policies or ordinances, or other approved local, regional, or state habitat conservation plan, protecting biological resources, such as a tree preservation policy or ordinance?</td>
<td></td>
<td></td>
<td>☑</td>
<td></td>
<td>A, 7, 9, 10, 46, 47</td>
</tr>
<tr>
<td>f. Introduce any factors (light, fencing, noise, human presence, and/or domestic animals), which could hinder the normal activities of wildlife?</td>
<td></td>
<td></td>
<td>☑</td>
<td></td>
<td>A, 7, 9, 10, 46, 47</td>
</tr>
</tbody>
</table>

**Impact Discussion 4a**: During March 2015 two Stantec biologists conducted reconnaissance-level biological surveys of a 66-acre area in and around the proposed mining expansion areas. In response to OMR comments, these surveys were updated in April 2016 to include additional surrounding upland habitat along Greenhorn Creek, for a total survey area of approximately 82 acres. The 82-acre survey area is referenced in this section as the Biological Survey Area (BSA) and encompasses and is more extensive than the proposed mining expansion area, which is approximately 38 acres. An additional quantitative protocol-level vegetation assessment was also conducted in October 2016 in accordance with an OMR-approved Study Plan. The results of this assessment are included in a December 1, 2016 Stantec report.

To describe the habitat types and identify associated wildlife resources, a botanist and wildlife biologist conducted reconnaissance-level field surveys of the BSA. The assessment included a vegetation field method called the California Native Plant Society (CNPS) Relevé Protocol (pursuant to OMR requirements), which characterizes habitats by documenting the dominant naturally occurring community to determine baseline biological composition of native overstory. The streambed, riparian, and upland area along Greenhorn Creek are suitable wildlife habitat in most areas. Common wildlife species that were observed (or for which signs of presence such as tracks/scat were observed) in the operation and proposed expansion area include foothill yellow-legged frog (FYLF) (Rana boylii), California newt (Taricha torosa), garter snake (Thamnophis sirtalis), Pacific treefrog (Pseudac regilla), mule deer (Odocoileus hemionus), raccoon (Procyon lotor), black bear (Ursus americanus), common raven (Corvus corax), osprey (Pandion haliaetus), and great blue heron (Ardea Herodias). Greenhorn Creek also contains fish species such as rainbow (Oncorhyncus spp.) and brown trout (Salmo spp.) upstream from Rollins Reservoir to approximately the You Bet Road Bridge.

**Special-Status Plant Species**
A species site-suitability analysis evaluating the potential for each special-status plant species to occur within and near the proposed project area was completed for all plant species that were identified through background research prior to field surveys. A level of potential of occurrence within the proposed project area was applied to each identified species, which was then augmented and verified through a mid-bloom field survey on May 11, 2015. Additionally, an early bloom survey was conducted in April 2016 within
test plot areas, and a late-bloom survey was conducted on October 11, 2016 for specific transects within the reclamation area. Of the 65 species identified during background research, one species, the State-listed Brandegee's clarkia (Clarkia biloba ssp. brandegeae), has a high potential to occur within or near the proposed project area. Brandegee's clarkia was observed close to the You Bet Bridge next to the Greenhorn Creek Bridge in 2004, approximately three miles downstream from the proposed project area. Fourteen special-status species also have a moderate chance of potentially occurring in the proposed project area: brownish beaked-rush (Rhyhchospora capitellata), Butte County frilllary (Fritillaria eastwoodiae), Cedar Crest popcorn-flower (Plagiobothrys glyptocarpus var. modestus), clustered lady's-slipper (Cypripedium fasciculatum), elongate copper moss (Mielichhoferia elongata), finger rush (Juncus digitatus), giant checkerbloom (Sidalcea gigantea), inundated bog club-moss (Lycopodiella inundata), long-fruit jewel-flower (Streptanthus longisiliquus), Scadden Flat checkerbloom (Sidalcea stipularis), Sierra blue grass (Poa sierra), Sierra foothills brodiaea (Brodiaea sierra), tripod buckwheat (Eriogonum tripodium), and Van Zuuk's morning glory (Calystegia vanzukiae). None of the special-status species with a high or moderate potential to occur in the BSA were observed during botanical surveys conducted on May 11, 2015. Nonetheless, protective measures to reduce impacts to special-status plant species are provided in Mitigation Measure 4A, which requires a late-season plant survey and avoidance and minimization measures for late-blooming special-status plant species not covered in the previous surveys.

Special-Status Wildlife Species
There are no known occurrences of State- or federally listed wildlife species within the project area, and there are no listed fish species in the project area. Downstream, Camp Far West Reservoir prevents anadromous fish passage. However, foothill yellow-legged frog (FYLF) (Rana boylii), a State Species of Special Concern being considered for State listing, is known to occur onsite. Through the existing Streambed Alteration Agreement, protections for this species are in place for existing operations in accordance with CDFW protocols.

Under the Streambed Alteration Agreement, the operation is required to ensure that aquatic life is not stranded in dewatered areas, and reasonable efforts are to be made to capture and move all stranded aquatic life observed in the dewatered areas. An approved biological monitor must be onsite during relocation of stranded aquatic life and is responsible for monitoring all activities related to channelizing the stream. The biological monitor has the authority to immediately stop any non-compliant activity and/or to order any reasonable measure to avoid or minimize impacts to fish and wildlife resources. Captured aquatic life is required to be released immediately within the main channel closest to the work site. The operation is prohibited from the take or disturbance of any State- or federally listed species. The operation is responsible for having a survey for FYLF (including egg masses, tadpoles, subadults, and adults) conducted by the biological monitor at an appropriate time as identified by CDFW prior to beginning of each work season. A report of the survey results must be submitted to CDFW before beginning work. If FYLF egg masses and/or amplexing adults are found during the egg mass surveys, the operation must work with CDFW to revise the project to avoid negative impacts to the breeding area(s), including, but not limited to the installation of exclusionary or high visibility fencing, and a breeding area avoidance plan must be submitted to demonstrate how the project will be altered or redesigned to avoid negative impacts to breeding areas.

The project operation and expansion area also contain habitat that has a moderate potential to support the coast horned lizard (Phrynosoma coronatum), a State species of special concern. This species can be found in open sandy areas, scattered low bushes, riparian habitat, chaparral, and oak woodlands. The nearest known occurrence is from 1995 and is four miles southeast of the project area near Hwy 80. Coast horned lizard was not observed during the May 11, 2015, field survey, and the closest known occurrence, recorded in 1995, occurred approximately four miles southeast of the project area. Based on the annual bedload movement through Greenhorn Creek and the fact that the creek was extensively
surveyed by biologists without any observation of this species, impacts to coast horned lizard are not considered substantially adverse.

Also under the Streambed Alteration Agreement, if any other special-status species are found, the approved biological monitor is required to inform CDFW. If there is a threat of harm to any sensitive species, or other aquatic wildlife, the biologist must halt construction and notify CDFW immediately. Continued compliance with these measures and the Streambed Alteration Agreement is required in Mitigation Measure 4B.

Relative to avian species, the project area contains potential habitat for tree and ground nesting migratory birds protected under the Migratory Bird Treaty Act (MBTA). No special-status or nesting raptors and migratory birds were observed nesting during the biological survey on May 11, 2015. However, suitable nesting habitat exists within/adjacent to the proposed project area, and 16 bird species protected under the MBTA were observed within or adjacent to the proposed expansion area. Mitigation Measure 4C therefore requires pre-construction nesting surveys and proper precautions to be taken when work will occur within nesting season.

With the implementation of Mitigation Measures 4A-4C, which require pre-operational plant surveys and minimization strategies, compliance with Streambed Alteration Agreement requirements, and pre-operational nesting surveys, potential impacts to special-status species would be less than significant with mitigation.

Impact Discussion 4b,c: Riparian vegetation exists along the low flow channel and in the floodplain of Greenhorn Creek. For all disturbance within watercourses, wetlands, and riparian, Nevada County LUDC Sec. L-II 4.3.3 requires a Management Plan to reduce impacts to water quality, habitat, and special-status species that could occur in these areas. The project’s management plan consists of the Streambed Alteration Agreement, which includes numerous protections for water quality, habitat, and special-status within Greenhorn Creek that could be affected by the project’s harvesting operations. For impacts to creek banks and slopes, the project’s Reclamation Plan would serve as a management plan in the reclamation phase of the project. The current Streambed Alteration Agreement does not permit the disturbance of riparian habitat, but the proposed harvesting expansion area may include the removal of some riparian vegetation, depending on where the riparian vegetation is growing from year to year. Mitigation Measure 4D is therefore provided to avoid impacts to riparian habitat and incorporate performance measures and standards into the Streambed Alteration Agreement if riparian habitat is impacted.

Typical site operations consist of removing layers of sand and gravel from the current stream bed at the bottom of the canyon, which results in the exposure of the native walls of the canyon. Therefore, ongoing natural revegetation would occur to some extent as the native walls are exposed. Nonetheless, to assist with rapid revegetation and prevention of establishment and spread of invasive species such as Scotch broom which also occur in the canyon, a site-specific quantitative baseline study was implemented in accordance with OMR-recommended protocols. Specifically, the project biologist developed a stratified random sampling study plan, which was then submitted it for review and approval by OMR along with the final revegetation plan. The vegetative cover proposed for the end use is anticipated to be self-regenerating without dependence on irrigation, soil amendments, or fertilizer. With implementation of this revegetation plan which would be required with approval of the proposed Use Permit and Reclamation Plan, impacts to riparian habitat would not be substantially adverse.

Additionally, under the existing Streambed Alteration Agreement, the conditions of which would apply to the expanded operation area, vegetation removal is limited to areas which must be cleared for operational purposes. The removal of vegetation in advance of mining is required to be kept to a
minimum. Established riparian zones are prohibited from being disturbed in Section 25. The operation is responsible for restoring any fish and wildlife habitat which was impaired or damaged either directly or, incidentally to the project, as a result of failure to properly implement or complete documented requirements. As discussed in Impact Discussion 4a above, measures are also in place to ensure that impacts to riparian species such as FYLF are minimized. Before starting work, the work area and environmentally sensitive areas are required to be clearly delineated. Work is required to be restricted to the delineated, mapped, and approved boundaries.

With regard to impacts to Waters of the U.S., the proposed expansion area is within the floodplain of Greenhorn Creek, and the site excavation areas are below the ordinary high water mark of the creek. Currently, the permitted areas of Greenhorn Creek (south of the project area) is covered under an Streambed Alteration Agreement, which would be extended to cover the proposed Project expansion as noted in Mitigation Measure 4D. Although the US Army Corps of Engineers (Corps) regulates the placement of dredge and fill material in waters of the U.S., per the project biologist they do not regulate “clean excavation,” meaning excavation with no incidental fall back or fill placement. As such, HBE operates without Clean Water Act Section 404 permits from the Corps.

Because the project would be required to minimize impacts to riparian habitat under the Streambed Alteration Agreement as noted in Mitigation Measure 4D and because no Section 404 permits are required, this impacts would be less than significant with mitigation.

Impact Discussion 4e: A number of local policies and ordinances that protect biological resources exist, including policies protecting deer habitat; rare, threatened, and endangered species and their habitats; timber resources; landmark and heritage trees and groves; and watercourses, wetlands, and riparian areas. The project would not impact any upland species such heritage or landmark oaks that are protected by local ordinances. Special-status species are discussed in Impact Discussion 4a above. The site is mapped within a deer migration corridor and within the Deer Winter Range on the Master Environmental Inventory; however, the project would not create obstacles for wildlife movement such as fences or walls. Deer and other wildlife movement through the Greenhorn Creek corridor would not be inhibited by the project, and streamside travel corridors would remain open. Therefore, the proposed would not conflict with any local policies or ordinances protecting biological resources, and this impact is less than significant.

Impact Discussion 4f: The proposed project could temporarily result in light sources, noise, and human activity. However, the project area is already subjected to human activity consisting of illicit OHV use. Additionally, while there would be daytime activity on the site, much wildlife activity occurs at dusk, dawn, and nighttime, when operations would not be active. Therefore, this impact would be less than significant.

Mitigation Measures: To offset the potential impacts to biological resources associated with the project activities, the following mitigation measures shall be required:

Mitigation Measure 4A. Avoid and Minimize Impacts on Special-Status Plant Populations: Surveys shall be conducted for late-season blooming special-status plants not covered under the May 11, 2015 plant survey, including brownish-beaked rush, elegant groundsel, Follett’s monardella, Gevers panicum, grass lead plantain, inundated bog club-moss, Scadden Flat checkerbloom, and white beaked rush as follows:

1. Pre-construction botanical surveys for the late-blooming special-status plants shall be conducted in the appropriate blooming periods, and shall be performed by a qualified botanist following CDFW
and CNPS protocols for surveying special-status native plants. The survey results shall be submitted to the Planning Department within one week of survey completion.

2. If special-status plants are determined to have no presence in the project site, then no further mitigation is required.

3. If special-status plants are determined present within the project area during pre-construction field surveys and feasibly be avoided, the applicant shall implement the following measures:
   - Hire a qualified biologist to map the population and place flagging to identify the population location. Install environmentally sensitive exclusion fencing and appropriate signage at an appropriate buffer distance, starting from the edge of the special-status plant and/or plant population. Signage shall indicate the area is environmentally sensitive and not to be disturbed;
   - Adjust project activities away from special-status plants. The project work area shall be confined to areas outside a buffer acceptable to the project biologist; and
   - Supervision, guidance, and verification of the implementation of these measures shall be achieved by Hansen Bros. Enterprises and an agency-approved biological monitor (i.e., a qualified biologist or botanist approved by CDFW and/or USFWS).

4. If special-status plants are determined present within the project area during pre-construction field surveys and direct or unavoidable impacts to special-status plants would result from project activities, then the applicant shall consult with appropriate agencies (i.e., CDFW and/or USFWS) to develop acceptable mitigation which may include the successful translocation of individual plants, rectification of impact by seed collecting and stockpiling for replanting/replacement, mitigation fees, and/or permitting.

**Timing:** Prior to start of mining operations during the late-bloom period (August-October)

**Reporting:** Prior to start of operations

**Responsible Agency:** Nevada County Planning Department; CDFW and USFWS as necessary

**Mitigation Measure 4B. Avoid Disturbance of Foothill Yellow-Legged Frog:** The applicant shall comply with all California Department of Fish and Wildlife requirements to avoid or minimize the disturbance of FYLF. These include but are not limited to conducting worker environmental awareness trainings, delineating and avoiding sensitive habitat areas during work, conducting egg mass surveys, limiting project activities to April 1 to December 31, further limiting work during wet weather periods, ensuring that aquatic life is not stranded in dewatered areas, and having a biological monitor onsite with stop-work authorization during any relocation of stranded aquatic life. These measures may be modified as determined necessary by the California Department of Fish and Wildlife in their Streambed Alteration Agreement, as conditions change during the life of the project.

**Timing:** Prior to the start of project operations each year and during project operations

**Reporting:** Prior to the start of project operations

**Responsible Agency:** CDFW

**Mitigation Measure 4C. Avoid and Reduce Impacts to Special-Status Bird Species, Nesting Raptors, and Migratory Birds:** To the extent feasible all necessary vegetation removal shall be conducted between September 1 and February 28 of each year to avoid nesting birds that may be present in the construction area during construction activities (defined for the purposes of this mitigation measure as haul road construction, berm construction, and extraction). If all construction activities are conducted outside of nesting season, no further mitigation is necessary. If construction activities begin in an area prior to the start of the nesting season (March 1 to August 31) and inactivity in that area does not exceed two weeks, no further mitigation is necessary. If construction activities begin during the nesting season, the applicant shall have a pre-construction nesting survey conducted by a qualified wildlife biologist within the project area and within an approximate 300-foot buffer. Surveys shall be conducted within one week before initiation. In addition, if construction activities begin after a period of two weeks or more of inactivity in any given area during the nesting season (even if that area was already surveyed), the applicant shall re-survey the area prior to performing or continuing extraction activities. The results
of the survey shall be submitted to the Planning Department within one week of completion. If no active nests are detected, then no additional mitigation is required. If surveys indicate that migratory birds are found in any areas that would be directly affected by construction activities, the biologist shall establish a no-disturbance buffer around the site to avoid disturbance or destruction of the nest site until after the breeding season or after the biologist determines that the young have fledged (typically late June to mid-July). The extent of these buffers shall be determined by the biologist in consultation with the California Department of Fish and Wildlife and shall depend on the listing status of the species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. The buffer zone and monitoring plan shall be reported to the California Department of Fish and Wildlife and to the Planning Department. Active sites shall be monitored by the biologist periodically until after the breeding season or after the young have fledged.

**Timing:** Within two weeks prior to the start of project construction each year and as needed during any periods of inactivity exceeding two weeks

**Reporting:** Prior to the start of project construction each year

**Responsible Agency:** Nevada County Planning Department and CDFW

Mitigation Measure 4D. Amend the Streambed Alteration Agreement to Provide Protections to Riparian Habitat. Prior to any work within the expansion area, the applicant shall obtain an amended Streambed Alteration Agreement from California Department of Fish and Wildlife that encompasses the expansion area and shall provide the Agreement to the Planning Department. The applicant shall adhere to all the Streambed Alteration Agreement requirements for the life of the project, which include but are not limited to providing an annual pre-extraction plan that delineates extraction areas for that season; an annual pre-extraction production data report to track cumulative extraction volumes from the stream channel; annual, temporary culvert crossings where heavy equipment will cross the creek; annual diversion channel and berms built in clean gravels; and erosion, sedimentation, turbidity, and siltation precautions.

**Timing:** Prior to operation and pre-extraction annually

**Reporting:** Annually prior to extraction activities for the season

**Responsible Agency:** CDFW

5. **CULTURAL RESOURCES**

**Existing Setting:** The project vicinity was home to the Nisenan or Southern Maidu Native American people. The Nisenan had permanent settlements along major rivers in the Sacramento Valley and foothills, and would travel yearly into higher elevations to hunt or gather seasonal plant resources. In the project vicinity, prehistoric-period habitation sites are primarily found adjacent to streams or on ridges or knolls, especially those with a southern exposure. The project site is predominantly within and along the banks of Greenhorn Creek and Missouri Canyon, which have been heavily impacted by past mining activities. The banks of Greenhorn are relatively steep, confined by bedrock and mined gravel debris, and are fairly unstable and unvegetated (Stantec 2015).

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?</td>
<td>![Checkmark]</td>
<td>![Checkmark]</td>
<td>![Checkmark]</td>
<td>![Checkmark]</td>
<td>A, 39</td>
</tr>
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### Impact Discussion 5a-d:

The North Central Information Center (NCIC) conducted a search of the California Historic Resources Information System within a 1/8-mile radius of the proposed project area. The records search indicates that the project area contains no recorded prehistoric-period cultural resource and two historic-period cultural resources, both of which correspond with hydraulic mining sites on the northern margins of the search area. The 1867 GLO plant for the project area shows evidence of a 19th century road or trail. The 1951 Chicago Park 7.5' USGS topographical map shows evidence of a 20th century unpaved road. Given the extent of known cultural resources and the environmental setting, NCIC indicates that there is a low potential for locating historic-era and prehistoric-period cultural resources in the project area. Further archival and field study by a cultural resources professional was therefore not recommended. Nonetheless, buried historical, archaeological, or paleontological resources may be discovered as the aggregate deposit is removed. Under the current use permit (U93-063) conditions, all discovered objects (metal, glass, wood, etc.) that may be of historical significance must be stored for later inspection by an official representative of the Nevada County Historical Society (NCHS). However, NCHS has not always been responsive in retrieving artifacts, and the 1993 condition is inconsistent with current practice. Mitigation Measure 5A therefore shifts the responsibility from NCHS to the County and/or a qualified archaeologist for the proposed project. This impact would be less than significant with mitigation that requires that if any artifacts are found, harvesting activities stop in the area of discovery and appropriate steps taken.

### Mitigation Measures:

To offset potentially adverse cultural or historical resources impacts associated with the proposed activities on site, the following mitigation measure shall be required:

**Mitigation Measure 5A:** Halt work and contact the appropriate agencies if human remains or cultural materials are discovered during project operations. All equipment operators shall be advised of the possibility of encountering cultural resources. If such resources are encountered or suspected, work shall be halted immediately within 200 feet of the suspected resource and the Nevada County Planning Department shall be contacted. A professional archaeologist shall be retained by the applicant and consulted to access any discoveries and develop appropriate management recommendations for archaeological resource treatment. If bones are encountered and appear to be human, California Law requires that the Nevada County Coroner and the Native American Heritage Commission be contacted and, if Native American resources are involved, Native American organizations and individuals recognized by the County shall be notified and consulted about any plans for treatment.

**Timing:** During operations

**Reporting:** As needed if cultural resources found

**Responsible Agency:** Nevada County Planning Department
6. GEOLOGY / SOILS

Existing Setting: The aggregate harvesting area is a stream canyon with steep, fairly heavily wooded sides rising several hundred feet to rounded ridge tops. The Soil Survey of Nevada County Area, California (USDA, 1993) indicates that the Greenhorn Creek corridor in the proposed harvesting expansion areas is classified as Placer Diggings (tertiary river deposits and placer mined areas). Upland slopes are mapped as Josephine-Mariposa complex 50 to 75 percent slopes, eroded; and Mariposa-Maymen complex, 2 to 50 and 50 to 75 percent slopes, eroded. Placer diggings consist of hydraulic diggings materials. The width of the aggregate deposit varies from approximately 40 feet wide to 600 feet wide, and has an estimated depth of approximately 30 to 70 feet. The typical Mariposa-Maymen profile consists of gravelly loam underlain by a gravelly clay loam, which is underlain by bedrock at 15 to 31 inches. Runoff is rapid, and erosion hazard is high. The Josephine-Mariposa complex also consists of gravelly loam underlain by gravelly clay loam, followed by bedrock at 40 to 72 inches. Rock outcrop typically covers 2 to 25 percent of the surface area. Runoff is medium to rapid, and erosion hazard is moderate to high. In their Reclamation Plan, HBE estimates that the typical depth to groundwater within the recent alluvial deposits ranges from approximately 0 to 20 feet in the Greenhorn Creek harvesting area, and estimates that the typical depth of the alluvial deposits is approximately 30 feet.

The California Geological Survey Open File Report 96-08, Probabilistic Seismic Hazard Assessment for the State of California and the 2002 update entitled California Fault Parameters, indicate the site location is within the Foothills Fault System. The Foothills Fault System is designated as a Type C fault zone, with low seismicity and a low rate of recurrence. The 1997 edition of California Geological Survey Special Publication 42, Fault Rupture Hazard Zones in California, describes active faults and fault zones (activity within 11,000 years), as part of the Alquist-Priolo Earthquake Fault Zoning Act. This document indicates the site is not located within an Alquist-Priolo active fault zone. The nearest active faults are located in eastern Nevada County near Truckee. The project site is not located within an Alquist-Priolo active fault zone.

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<tbody>
<tr>
<td>a. Expose people or structures to potential substantial adverse effects, including the risk or loss, injury, or death involving exposure to or production of unstable earth conditions such as landslides, earthquakes, liquefaction, soil creep, mudslides, ground failure (including expansive, compressible, collapsible soils), or similar hazards?</td>
<td></td>
<td>✓</td>
<td></td>
<td>A, D, 6, 25, 51</td>
<td></td>
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<tr>
<td>b. Result in substantial disruption, displacement, compaction, erosion, or over-covering of the soil by cuts, fills, extensive grading, or loss of topsoil?</td>
<td></td>
<td>✓</td>
<td></td>
<td>A, D, 6, 25, 51</td>
<td></td>
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<tr>
<td>c. Be located on a geologic unit or expansive soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?</td>
<td></td>
<td>✓</td>
<td></td>
<td>A, D, 6, 25, 51</td>
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<td>d. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?</td>
<td></td>
<td>✓</td>
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<td>A, 6, 25, 51</td>
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<tr>
<td>e. Result in excessive grading on slopes of over 30 percent?</td>
<td></td>
<td>✓</td>
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<td>A, 6, 25, 51</td>
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Impact Discussion 6a-c,e: Consulting engineers and geologists Holdredge & Kull performed a surface reconnaissance of the proposed harvesting expansion areas in July 2016 to observe existing slope gradients and surface conditions in the proposed harvesting areas. Their findings, which are used as the primary reference source in this section, are based on their review of project documents, observation of surface conditions at the proposed aggregate harvesting areas, and review of published maps and literature. Holdredge & Kull addressed two areas with regard to unstable conditions: the bank slopes that result from proposed mining activities, and the “Red Dog Narrows,” a stream crossing that was substantially filled in by past hydraulicking aggregate materials, at the creek bend just north of the Red Dog Road crossing.

The project would remove sand and gravel that was deposited as a result of historic hydraulic gold mining and would return the Greenhorn and Missouri canyons to a setting similar to its pre-hydraulic mining configuration. If the bedrock canyon walls underlying the aggregate deposit to be removed are less than 35 percent, then no adjustments to the slope are planned. Sand and gravel would be left against slopes that are steeper than 35 percent, which is nearly a 3:1 slope and less steep than the current requirement of 2:1 slope before the winter season. See Figure 7 in the Project Description depicting current and proposed slope configurations.

Holdredge & Kull recommends that slope conditions in the active harvesting area be reviewed on an annual basis during the late summer to evaluate the soil and rock conditions exposed by aggregate removal. At the end of each harvesting season, an inspection of the mined areas is performed for current mining activities in Greenhorn Creek in conformance with SMARA Section 2774(b), and all eroded creek banks must be backfilled with a maximum 2:1 gravel slope and revegetated to stabilize those areas. This practice would continue as a condition of the proposed permit and Reclamation Plan with the implementation of Mitigation Measure 6A.

Holdredge & Kull did not observe evidence of landslides, nor conditions that would be prone to seismically induced landslides. They indicate that the hazard of seismically induced landslides is low, provided that the slopes at the aggregate harvesting areas are monitored and surveyed routinely as required under conditions and in Mitigation Measure 6A.

Sand and gravel extraction above the narrows would reduce the surcharge loading of the soil and rock conditions in the narrows. According to Holdredge & Kull engineers, aggregate removal would most likely redirect the channel over time back to its original alignment before hydraulic mining, which would direct flow east of the Narrows, decreasing the chances of erosion. Rock overhang in the narrows has collapsed in the past, and future rock fall is possible; however, it should not pose a hazard to surrounding residents, homes, or structures given their distance from the Narrows. Impacts related to unstable slope conditions would be less than significant with mitigation as identified in Mitigation Measure 6A.

Impact Discussion 6c: The project site is not within an Alquist-Priolo Earthquake Fault Zone, and there are no known faults that cross through the project site (California Department of Conservation, 2015). Generally, western Nevada County is located in the low-intensity zone for earthquake severity (Nevada County, 1991). The site may experience moderate ground shaking caused by earthquakes occurring along off-site faults, which could cause localized instability of slopes associated with the proposed aggregate harvesting areas. However, the localized instabilities would likely consist of shallow (less than 2 feet) raveling of sand and gravel that was left on the side slopes of the harvested areas. Holdredge & Kull has indicated that these instabilities would not pose a hazard. Ground motions may initiate secondary events such as liquefaction and landslides, but the likelihood of secondary seismic hazard impacts would be reduced by implementation of Mitigation Measure 6A, which requires annual inspections and slope stability and any necessary remediation measures. With Mitigation Measure 6A in place, this impact is considered less than significant with mitigation.
Impact Discussion 6d: The project would not result in any additional need for sewage capacity or septic system infrastructure. Therefore, the project would have no impact related to inadequate soils for septic systems.

Mitigation Measures: To offset the potential for adverse soils or erosion impacts to result from project harvesting activities, the following mitigation measures shall be required:

Mitigation Measure 6A: Perform annual inspections of mined areas for creek bank slope and stability. During the fall season of each year and prior to the rainy season (generally prior to October 15), a geotechnical engineer shall assess the soil and rock conditions and slopes exposed by aggregate removal, along the creek and within the Red Dog Narrows, to identify potential slope configurations that could be vulnerable to erosion and/or increase the risk of localized flooding. If conditions are identified that could constrict flow in the creek, additional grading may be necessary to reduce the potential for localized flooding. All eroded creek banks identified during the inspection shall be backfilled with a 2:1 gravel fill slope or shallower and revegetated as necessary to stabilize those areas, upon the recommendation of the mine inspector. If specific geotechnical recommendations are required during the course of the project as determined by the mine inspector, subsurface investigation and analysis shall be required to develop specific geotechnical design criteria.

Timing: Close of operational season each year
Reporting: Close of operational season
Responsible Agency: Nevada County Planning Department

7. GREENHOUSE GAS EMISSIONS

Existing Setting: Greenhouse gases (GHGs) are those gases that trap heat in the atmosphere. GHGs are emitted by natural and industrial processes, and the accumulation of GHGs in the atmosphere regulates the earth's temperature. GHGs that are regulated by the State and/or EPA are carbon dioxide (CO2), methane (CH4), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF6) and nitrous oxide (NO2). CO2 emissions are largely from fossil fuel combustion. In California, approximately 43 percent of the CO2 emissions come from cars and trucks. Most HFC emissions come from refrigerants, solvents, propellant agents and industrial processes, and persist in the atmosphere for longer periods of time and have greater effects at lower concentrations compared to CO2. The adverse impacts of global warming include impacts to air quality, water supply, ecosystem balance, sea level rise (flooding), fire hazards, and an increase in health related problems. The existing mining operations in Greenhorn Creek currently contribute to greenhouse gas emissions in the project area.

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act, was adopted in September 2006 and requires that statewide GHG emissions be reduced to 1990 levels by the year 2020. This reduction would be accomplished through regulations to reduce emissions from stationary sources and from vehicles. The California Air Resources Board (ARB) is the State agency responsible for developing rules and regulations to cap and reduce GHG emissions. In addition, the Governor signed Senate Bill 97 in 2007 directing the California Office of Planning and Research to develop guidelines for the analysis and mitigation of the effects of greenhouse gas emissions and mandating that GHG impacts be evaluated in CEQA documents (California Attorney General's Office, 2010). CEQA Guidelines Amendments for GHG Emissions were adopted by OPR on December 30, 2009. The NSAQMD has also prepared a guidance document that includes mitigations for general air quality impacts that can be used to mitigate GHG emissions, Guidelines for Assessing Air Quality Impacts of Land Use Projects (Northern Sierra Air Quality Management District, 2009).
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<tbody>
<tr>
<td>a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</td>
<td></td>
<td>✓</td>
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<tr>
<td>b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?</td>
<td></td>
<td>✓</td>
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**Impact Discussion 7a-b:** Existing mining operations in Greenhorn Creek currently contribute to greenhouse gas emissions; implementation of the proposed project which consists of an expansion of the harvesting area and potentially a longer operational timeframe would increase these local GHG emissions. Estimated GHG emissions attributable to the proposed project would be primarily associated with increases of CO2 and other GHGs, such as methane (CH4) and nitrous oxide (N2O), from mobile sources and utility usage. CO2e is Carbon Dioxide Equivalent, a measurement that expresses units of different greenhouse gases as equivalent to units of carbon dioxide in the ability to affect global warming. For that reason, CO2e is evaluated here. It is anticipated that the proposed project would result in approximately 1,002.44 and 634.36 MT/yr of CO2e related to the consumption of energy for harvesting and processing activities, respectively, for the life of the project (CalEEMod Version 2013.2.2 2016), for a total of 1,636.8 MT/yr of CO2e per year. Harvesting activities include all expansion areas covered under the current use permit, while processing activities were evaluated at current processing levels for 30 years, the proposed lifespan of the use permit to extract materials out of expansion areas.

Typically, cumulative impacts are analyzed and mitigated in a county’s General Plan and associated EIR. In this case, the General Plan for Nevada County does not address GHG emissions. Additionally, no thresholds have been adopted by the County, the NSAQMD, or the State for project-specific greenhouse gas emission impacts. Thresholds for greenhouse gases have not been adopted by any relevant agencies, including the California Air Resources Board, the NSAQMD, Nevada County, or the State of California. However, several air districts around the state, including the neighboring Placer Air Pollution Control District, have adopted thresholds in the range of 1,100 MT CO2e/year for de minimis impacts (i.e., project impacts below 1,100 MT CO2e/year would be less than significant) and 10,000 MT CO2e/year for significant and unavoidable impacts. Mitigation Measure 3A requires emissions-reducing measures during harvesting activities to help reduce greenhouse gas emissions during the project’s construction phase. This mitigation would reduce the overall GHG impact to a level that is less than significant with mitigation.

**Mitigation Measures:** See Mitigation Measure 3A.

8. **HAZARDS / HAZARDOUS MATERIALS**

**Existing Setting:** The project area is designated as a Very High Fire Hazard Area for wildland fire. The property is not within or adjacent to any hazardous materials sites compiled pursuant to Government Code Section 65962.5, and is not located on an abandoned solid waste disposal site known to the County. However, Greenhorn Creek was the subject of a 2005 USGS report, Scientific Investigations Report 2004-5251, that analyzed water, sediment, and invertebrate samples in throughout the Greenhorn Creek drainage system and identified specific levels of mercury and methylmercury contamination at various sites throughout the drainage. The results document several hot spots of mercury contamination that represent areas for ongoing and future remediation efforts at abandoned mine sites.
<table>
<thead>
<tr>
<th>CEQA Environmental Checklist Item</th>
<th>Potentially Significant Impact</th>
<th>Less Than Significant with Mitigation</th>
<th>Less Than Significant Impact</th>
<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>B, 11, 26, 27, 52</td>
</tr>
<tr>
<td>b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>B, 11, 26, 27, 52</td>
</tr>
<tr>
<td>c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>B, 11, 26, 27, 52</td>
</tr>
<tr>
<td>d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>B, 11, 26, 27, 52</td>
</tr>
<tr>
<td>e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>D</td>
</tr>
<tr>
<td>g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td>h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>I, 27</td>
</tr>
</tbody>
</table>

**Impact Discussion 8a:** The operation does not utilize herbicides, pesticides, or radiation in any facility processes, nor does it utilize any portals, shafts, tunnels, or other surface openings that would create a public entry hazard or threat to public safety. Materials with explosive risk and potential risk of release of hazardous substances are limited to fuel, lubricants, and other operational fluids. Storage and/or use of hazardous material is required to comply with Nevada County LUDC Chapter XI. Materials storage must comply with the California Health and Safety Code Chapter 6.95, and if threshold quantities are triggered, the applicant is required by State law to file a chemical business plan and inventory with the Environmental Health Department within 30 days.

Under the existing Streambed Alteration Agreement for current operational areas, which would be extended to the proposed harvest expansion areas if the project is approved, staging and storage areas for equipment, materials, fuels, lubricants, and solvents must be located outside of the stream’s high water channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located in the dry portion of the stream channel or adjacent to the stream are required to be positioned over drippans. Vehicles must be moved a minimum of 50 feet from the flowing water of the stream prior to refueling and lubricating. The operation is prohibited from dumping any litter or construction debris within the stream zone and preventing disposal of any rinse/wash waters or industrial materials into the storm water conveyance system.
Under existing Use Permit U93-063, industrial waste disposal containers and industrial material storage containers that contain industrial materials must be covered when not in use. Industrial type wastes are prohibited from being disposed of onsite, unless a specific method of disposal and design has been approved by the Nevada County Department of Environmental Health, in compliance with Chapter 6.5 of the California Health and Safety Code, Hazardous Waste Control. All waste is disposed of in accordance with state and local health and safety ordinances. Equipment is also required to be monitored for conditions that could result in the development of leaks and an appropriate schedule for prompt maintenance of equipment is required to be established. The facility maintains and implements a Spill Prevention, Control, and Countermeasure (SPCC) Plan as required by the U.S. Code of Federal Regulations, Title 40, which is submitted to the County of Nevada Environmental Health Department for review and approval.

With compliance with state and federal statutes, there would therefore be a less than significant impact associated with the use of hazardous materials during project operation.

Impact Discussion 8b: Due to the proximity to the Starr Tunnel portal and the location of the aggregate deposit within Greenhorn Creek which has several mercury contamination “hot spots” (USGS 2005), aggregate sampling and mercury analysis was performed in 2015 by consulting engineers Holdredge & Kull. At the request of the RWQCB, Holdredge & Kull performed additional surface water sampling and analysis on May 5, 2016. Locations of soil and water sampling are shown in Figures 9 and 10 below and include two soil and two surface water samples in the vicinity of the Starr Tunnel (Figure 9), and one additional surface water sample downstream of the processing plant (Figure 10).

The Starr Tunnel portal and immediate downstream areas are already approved for mining under the existing Use Permit U93-063, so the nearest possible location currently required to be evaluated under CEQA was sampled (Sample A location). The Sample B location captures any mercury that may be transported downstream from other mining sites upstream of this location, such as the Poore Mine, Buckeye Mine, and Boston Mine. The results of the analysis were compared to Human Health Screening Levels developed by the United States Environmental Protection Agency (US EPA) and the California Department of Toxic Substances Control (DTSC). The total mercury concentrations detected in the four samples were all below 0.1 milligrams per kilogram (mg/kg), which is typical of river-run sand and gravel in Nevada County and well below the screening levels (9.4 mg/kg for residential soils and 40 mg/kg in industrial soils for US EPA Region 9 Regional Screening Levels; and 0.89 mg/kg for residential soils and 3.9 mg/kg for commercial soils for new California Department of Toxic Substances Control screening levels). The highest concentration detected in the samples (0.089 mg/kg) is ten times lower than the most conservative of these screening levels (0.89 mg/kg).

Given that mercury levels were found to be well below human health screening levels in Greenhorn Creek and in the vicinity of the Starr Tunnel portal, it is not anticipated that the aggregate harvesting operation would result in the substantially adverse release of mercury into the waterway.

Holdredge & Kull also conducted surface water sampling for dissolved metals, as shown in their report dated July 14, 2016. The results show that the existing aggregate extraction and processing activities do not appear to threaten water quality with respect to mercury or other sampled constituents. The Regional Water Quality Control Board reviewed the results and concurred with the sampling methods and results. It should also be noted that wastewater discharge from the existing processing facility is currently regulated by Waste Discharge Requirements (WDRs) Order No. 98-185, which were adopted on September 11, 1998. WDRs are routinely updated every 5 to 15 years due to changes in State laws, regulations, and revised Water Quality Control Plans which have been adopted since 1998. With existing
permits in place, the project would result in less than significant impacts related to accidental or reasonably foreseeable release of hazardous materials into the environment.

**Impact Discussion 8c:** The project area is not within one-quarter mile of an existing or proposed school. Therefore, there would be no impact related to hazardous emissions or substances near a school.

**Impact Discussion 8d:** The property is not within or adjacent to any hazardous materials sites compiled pursuant to Government Code Section 65962.5 (Department of Toxic Substances Control, 2016). Therefore, there would be no impact in terms of a significant hazard to the public from placement of the project on a Cortese-listed hazardous waste site.

*Figure 9: Soil and Surface Water Sampling Locations in Northern Expansion Area*
Impact Discussion 8e-f: The project is not within the vicinity any private or public airport or airstrip. Therefore, there would be no impact related to safety of the public in the project area.

Impact Discussion 8g: The proposed project would not alter any allowable residential density in the nearby area, change any of the existing road networks, or alter any existing emergency evacuation plans. The Fire Marshal’s Office has reviewed the project proposal and did not comment on any adverse impacts to emergency response or evacuation plans. The proposed project would not impair or physically interfere with the adopted emergency response and evacuation plans, resulting in a less than significant impact.

Impact Discussion 8h: The project site is within a Very High Fire Hazard Severity Zone as mapped by CalFire, a zone which requires the preparation of a Fire Protection Plan per LUDC Sec. L-II 4.3.18.C.4. Fire District approval of the Fire Protection Plan would therefore be a required condition of approval for the project. The Fire Marshal’s Office has indicated that all roads within the facility would be required to meet Fire Safe Road standards and that all dead end roads in excess of 150 feet must provide an approved area for turning around fire apparatus. These requirements would also be conditions of project approval for the project. The project would not result in the construction of new structures or the introduction of
new residents into the Very High Fire Hazard Severity Zone. With compliance with Fire Marshal and Zoning Ordinance requirements, the project would not adversely expose unexpected volumes of people or structures to possible wildland fires, and there would be less than significant impacts.

Mitigation Measures: None required.

9. HYDROLOGY / WATER QUALITY

Existing Setting: The proposed project operations are predominantly within Greenhorn Creek, a major tributary to the Bear River in the Upper Bear Watershed, feeding Rollins Reservoir. The project also extends into Missouri Canyon and Arkansas Ravine. The Greenhorn Creek basin includes Greenhorn Creek, South Fork Greenhorn Creek and several unnamed tributaries, and is roughly bounded by Quaker Hill on the northwest and Chalk Bluff on the southeast, as shown on Figure 11. The drainage area comprises approximately 14,300 acres. Surface water hydrology is dominated by Greenhorn Creek and its tributaries, and hydrogeology is characterized by shallow alluvial deposits in the creek canyons and underlying fractured bedrock (Holdredge & Kull 2015). No streamflow data are available for Greenhorn Creek, and no gauging station data are available from the National Water Information System or Nevada Irrigation District (NID). The existing beneficial uses of Rollins Reservoir and the Bear River downstream of the discharge are municipal and agricultural supply; industrial supply; water contact and noncontact recreation; aesthetic enjoyment; groundwater recharge; fresh water replenishment; and preservation and enhancement of fish, wildlife and other aquatic resources (Holdredge & Kull 2016).

Figure 11: Greenhorn Creek Drainage Basin
Greenhorn Creek can be classified as a meandering perennial stream that generally has continuous year-round flows during years with normal rainfall. The banks of Greenhorn Creek within the project area are relatively steep, confined by bedrock and mined gravel debris, and are fairly unstable and unvegetated. The streambed consists of a mosaic of cobble, gravel, sand and some silt. The bedload is highly mobile due to minimal, yet flashy, winter and spring flows as evidenced by the scour and lack of riparian vegetation (Stantec 2015). Greenhorn Creek and Missouri Canyon are within the 100-year floodplain (no base flood elevations determined), which is, on average, 600 to 700 feet wide. An approximately 1,200-foot length of Arkansas Ravine is also designated as having a 0.2 percent annual chance of flood hazard. Typical depth to groundwater ranges from approximately 0 to 20 feet in the proposed harvesting area (Hansen Brothers 2017).

<table>
<thead>
<tr>
<th>CEQA Environmental Checklist Item</th>
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<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Violate any water quality standards or waste discharge requirements?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, G, 7, 8, 10, 16, 24</td>
</tr>
<tr>
<td>b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level, which would not support existing land uses or planned uses for which permits have been granted)?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>28</td>
</tr>
<tr>
<td>c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 7, 9, 10, 16</td>
</tr>
<tr>
<td>d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner, which would result in flooding on- or off-site?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 7, 9, 16, 24</td>
</tr>
<tr>
<td>e. Create or contribute to runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 7, 9, 16, 24</td>
</tr>
<tr>
<td>f. Otherwise substantially degrade water quality?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, 7, 9, 16, 24, 30</td>
</tr>
<tr>
<td>g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 25</td>
</tr>
<tr>
<td>h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 25</td>
</tr>
<tr>
<td>i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 25</td>
</tr>
<tr>
<td>j. Create inundation by mudflow?</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>A, D, 25</td>
</tr>
</tbody>
</table>
Impact Discussion 9a,c-f: The applicant’s current mining operations within Greenhorn Creek, which includes in-stream sand and gravel harvesting and processing, would be expanded into new areas under the proposed project. The proposed project does not include any new processing components or increase in aggregate materials to be mined. As such, current regulations and requirements of the County, Regional Water Quality Control Board, and CDFW, which ensure that surface and groundwater is protected from siltation and pollutants, are anticipated to remain the same or substantially similar for the expanded harvesting areas. Water quality must be protected onsite and for downstream beneficial uses of water during all phases of the project. The three primary components of the project are harvesting, processing, and reclamation activities. These three components are discussed in further detail below.

Harvesting
Gravel harvesting impacts to the water quality of Greenhorn Creek are protected by Nevada County and by the Streambed Alteration Agreement 1600-2007-0142-R2 dated June 12, 2007 and amendments thereto dated May 2, 2012 and June 20, 2014. The Streambed Alteration Agreement includes but is not limited to the following provisions to protect the creek from siltation, erosion, and turbidity:

- At least two surveyed cross sections within the creek bed gravel extraction area and immediately adjacent terrace/slope surfaces are required at five-year intervals.
- The installed berms along the channel are required to be at a height that is the lowest possible to contain the creek. Before the winter period, the berms are required to be lowered to a height that will allow the channel to meander.
- Temporary stream channels are required to be built in clean gravels and not excavated in silts or soil.
- Gravel extraction is prohibited within 25 feet of the main channel of Greenhorn Creek to prevent dewatering of the creek channel. If the 25-foot distance results in dewatering of the channel, the distance shall be increased. Monitoring of extraction activities is required to prevent or cease any action that may result in dewatering of the creek.
- Operations shall not result in a feature that will result in the ponding of water or entrainment of aquatic species in a location separate from the main channel during high flows. Natural wetland features may not be backfilled.
- No heavy equipment may operate in the live stream, except for occasional stream crossings that are authorized in locations where the stream channel is free of sediment.
- Structures and associated materials not designed to withstand high season flows are required to be removed to areas above the high water mark before such flows occur.
- All temporary culverts and the top 6 inches (or depth necessary) of gravel must be removed when 2 inches or more of rain is forecast in a 24-hour period.
- If there is a 30 percent chance of rainfall over ½ inch, all temporary crossings are required to be removed, unless the crossing devices have been designed to pass the expected flow without impounding water or impacting the integrity of the watercourse.
- Mining within Greenhorn Creek is restricted to periods of low stream flow and dry weather during the period of April 1 to December 31 of the same calendar year. Mining activities must be timed with awareness of precipitation forecasts and likely increases in stream flow. Mining activities within the floodplain are required to cease until all reasonable erosion control measures, inside and outside of the floodplain, have been implemented prior to all storm events. Work is prohibited when there has been two inches of rain or more in a 24-hour period.

The Streambed Alteration Agreement also contains a number of criteria and standards for the processing portion of the project, which are described below under “Processing.”

Storm water within the aggregate material harvesting area is permitted to flow into Greenhorn Creek. Though the surface of the streambed is continuously changing, the operation removes layers of sand and
gravel which only expose lower levels of sand and gravel, resulting in storm water conveyance to the
creek that is substantially similar to the original flow. The removal of sand and aggregate material from
the proposed upper reaches of Greenhorn Creek also reduces the further migration of these materials to
Rollins Reservoir downstream, where these materials would otherwise settle and replace valuable storage
capacity (Nevada Irrigation District 2015). The removal of these materials therefore has a beneficial
impact on downstream water storage capacity.

**Processing:**
The RWQCB issues, monitors, and enforces Waste Discharge Requirements (WDRs) for the processing
plant within the existing mining operation (Order No. 98-185, adopted September 11, 1998). The WDRs
include but are not limited to the following requirements for the processing facility:

- Waste and/or waste water is prohibited from being discharged into surface waters, drainage
courses, or wetlands.
- By-pass or overflow of untreated or partially treated waste is prohibited.
- Discharge of hazardous waste is prohibited.
- Pond levees must be constructed and maintained to prevent scouring and failure due to elevated
flows in Greenhorn Creek.
- Objectionable odors originating at this facility may not be perceivable beyond the limits of the
property owned by HBE.
- Water quality standards for dissolved oxygen and pH must be met.
- Two feet of freeboard must be maintained in the settling ponds at all times.
- Waste discharges are prohibited from causing underlying groundwater degradation or any water
supply degradation.

The operation can draw a maximum of 528,000 gallons per day of water from Greenhorn Creek under the
WDRs, but is prohibited by the Streambed Alteration Agreement from drafting more than 20 percent of
the flow in Greenhorn Creek as measured immediately upstream of the diversion point. At no time may
the diversion cause flows to go below two cubic feet per second (cfs) below the diversion point. CDFW
requires in the Streambed Alteration Agreement that water drafting activities are monitored to ensure
compliance. Intake valves for water drafting must be screened to prevent the entrainment of amphibians
and all age classes of fish, including eggs. Structures implemented to facilitate diversion or drafting of
water are prohibited from impeding the passage of fish at any time. Turbid water from drafting activities
is also not allowed to enter the stream.

This facility is also regulated under the California General Permit for Storm Water Discharges
Associated with Industrial Activities (Industrial General Permit) and an attendant Storm Water Pollution
Prevention Plan (SWPPP). The site must maintain the following erosion and sediment control best
management practices:

- Implement effective wind erosion controls.
- Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to
a forecasted storm event.
- Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently
control discharges of erodible materials from discharging or being tracked off the site.
- Divert run-on and storm water generated from within the facility away from all erodible
materials.
- Implement and maintain any advanced best management practices necessary to reduce or prevent
discharges of pollutants in its storm water discharge.
Storm water discharges are permitted and monitored under the Industrial General Permit and SWPPP. Storm water from around the plant is conveyed to a settling/infiltration pond which occasionally discharges to Greenhorn Creek. Storm water from the stockpiles south of the plant drains via surface flow to an underground storm drain pipe that discharges to Greenhorn Creek. Storm water from the stockpiles north of the plant drains via surface flow to Greenhorn Creek and/or the freshwater intake channel. Erosion caused by storm water and storm water discharges are minimal at this facility due to the nature of the sand and gravel material that forms the operational areas, roads, and surface around the plant. Most runoff infiltrates in a short period of time.

With the existing controls in place by the RWQCB and CDFW, which would continue to apply to the proposed project, water quality impacts from the processing facilities would not be substantially adverse.

Reclamation
Erosion and sedimentation controls are required during all phases of construction, operation, reclamation, and closure of the mining operation to minimize siltation of lakes and watercourses, including the following:

- Erosion and sedimentation is required to be controlled during all phases of construction, operation, reclamation, and closure of the mining operation to minimize siltation of lakes and watercourses. The operation must ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation, and contamination.
- Precautions to minimize turbidity and siltation are required to be taken, and adequate erosion and siltation controls measures must be used to prevent turbid or silt-laden water from entering the stream.

Reclamation would also be conducted as each portion of the project is mined to its full extent. Natural or passive revegetation would be given an opportunity to establish for two seasons before active revegetation would occur. Based on current natural revegetation success, the vegetative cover proposed for the end use is anticipated to be self-regenerating without continued dependence on irrigation, soil amendments, or fertilizer. This would prevent soil amendments from contaminating the water quality within and downstream of Greenhorn Creek.

Other
Where the Streambed Alteration Agreement does not distinguish among harvesting, processing, and reclamation activities, its measures apply to any phase or portion of the project. For example, the Streambed Alteration Agreement requires that precautions be taken “to minimize turbidity and siltation [. . .] during operations. Adequate erosion and siltation control measures shall be used to prevent turbid or silt-laden water from entering the stream.” Additionally, “no debris, soil, silt, sand, rubbish, cement or concrete washings thereof, petroleum products, or other organic or inorganic materials from any construction or associated activity of whatever nature shall be allowed to enter into [. . .] waters of the State.” These standards apply to any portion of the operation, including harvesting, processing, and reclamation activities.

Nevada County also has the following conditions of approval on the existing operation:

- Inspection of the mined areas and mitigation of potential erosion concerns is required during the fall season of each year.
- The materials to be mined are limited to Placer diggings surface type.
It should also be noted that there is a permitted well on APN 38-430-02 which must be surveyed and fully protected from the mining activities. This requirement would be included as a condition of approval from the Environmental Health Department as noted in their September 1, 2015 memo (Karim 2015).

Summary
With compliance with the Streambed Alteration Agreement required in Mitigation Measure 4D, WDRs which would continue to be applied to the existing processing facility, and County conditions in place, the operation would not result in degradation of water quality over existing conditions, nor would it result in increased storm water runoff. The project would therefore have an impact that is less than significant with mitigation impact on water quality and alteration of stream channels.

Impact Discussion 9b: Under certain project criteria, SB 610 requires an assessment of whether available water supplies are sufficient to serve project demands and reasonably foreseeable cumulative demands. The proposed Greenhorn Creek harvesting expansion project meets the definition of a project requiring a Water Supply Assessment (WSA) under SB 610 because the aggregate harvesting area occupies more than 40 acres of land and demands an amount of water similar to the amount of water required by a 500 dwelling-unit project. Holdredge & Kull prepared a WSA for the project dated November 4, 2015. The WSA considers estimates of projected surface water and groundwater consumptive uses associated with the project, as well as other estimated consumptive groundwater uses projected for the surrounding site vicinity. The following discussion is based on the WSA.

Project Consumptive Water Use
Groundwater resources used at the HBE Greenhorn Creek aggregate mine operation include one domestic well used for water supply to the bathrooms, the office/maintenance building, and scale house. The restroom is used on average by four to seven employees, five days per week plus one weekend per month (approximately 284 days per year), working 8- to 10-hour days. No shower facilities, food service or industrial wastes are associated with the facility. No groundwater use is associated with the existing aggregate harvesting operations, and no groundwater use is proposed for expansion of the aggregate harvesting area.

All other water use at the Greenhorn aggregate mine is from surface water sources, which make up the vast majority of the consumptive project water use. Processing at the plant includes screening, washing and crushing of aggregate materials. Surface water consumptive water uses associated with the gravel washing operation include evaporation from the surfaces of the ponds and plant; water lost with the processed gravel; and evaporative losses associated with dust control.

Under the proposed use permit the Greenhorn plant would continue to process 200,000 to 600,000 tons of aggregate per year, in keeping with historical production figures, depending on the market conditions and weather. During peak summer processing months, a maximum of 528,000 gallons per day (gpd) of surface water from Greenhorn Creek are used for cleaning this extracted gravel. This maximum extraction rate corresponds to 11 hours of pumping fresh water at 800 gallons per minute (gpm). However, gravel extraction and wash operations are typically limited and often ceased during several winter months each year.

Haul routes between the harvesting areas and the Greenhorn plant would be watered with a water truck when needed with water from Greenhorn Creek. Water for dust control is expected to range from 10,000 to 20,000 gallons per day (gpd), with up to 40,000 gpd during peak months.

Wash water resulting from the wet aggregate production process is discharged onsite to unlined settling ponds adjacent to Greenhorn Creek. Up to five ponds are in operation at one time including a freshwater pond, two process water ponds, and two evaporation ponds. The surface area of the five ponds is
approximately 61,000 square feet (1.4 surface acres). The typical storage capacity of the ponds is estimated to be 6 acre-feet. Although pond water may not directly discharge back into Greenhorn Creek or other surface water drainage courses under the facility's WDRs, water that percolates from the unlined ponds flows through the alluvial deposits and recharges Greenhorn Creek.

HBE does not propose to increase the scope of the existing gravel extraction and washing plant operations, and does not propose to increase water usage above the current/historical permitted rates. The project would not increase the number of employees or the amount of aggregate being harvested and processed. Rather, HBE proposes to permit additional harvesting area with the intent to continue the operation in its current and historic permitted capacity.

Peak water use at the Greenhorn plant and harvesting area is estimated to be up to 0.528 million gallons per day (MGD). Conservatively assuming that this peak water usage takes place every day, 24 days per month, 12 months per year, an upper bound water use estimate would be approximately 500 acre-feet per year. However, much of the surface water use is not consumptive, because the surface water pumped from Greenhorn Creek subsequently recharges the creek. As shown in Table 4 below, once recharge is accounted for, the project consumptive uses of both surface water and groundwater totals approximately 77.7 acre-feet per year (ac-ft/yr).

<table>
<thead>
<tr>
<th>Location</th>
<th>Source</th>
<th>Consumptive Use (ac-ft/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greenhorn plant, restrooms</td>
<td>Groundwater</td>
<td>0.09</td>
</tr>
<tr>
<td>Greenhorn plant, wet processing</td>
<td>Surface water</td>
<td>29.6</td>
</tr>
<tr>
<td>Greenhorn Plant, evaporative loss</td>
<td>Surface water</td>
<td>7.9</td>
</tr>
<tr>
<td>Greenhorn Plant, dry processing</td>
<td>Surface water</td>
<td>22.3</td>
</tr>
<tr>
<td>Harvesting area, dust control</td>
<td>Surface water</td>
<td>17.8</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>77.7</td>
</tr>
</tbody>
</table>

Groundwater use was estimated using County guidelines as to the number of gallons per day (gpd) per employee (15 gpd), which is similar to the US EPA (2002) estimate of typical consumptive use (13 gpd per employee) for industrial buildings, sanitary waste only. Surface water use was estimated using monthly records kept by HBE and the type and number of pieces of equipment and processes methods and practices. These assumptions are outlined in detail in the WSA.

**Nearby Water Use**

SB 610 also requires an analysis of nearby residential water use in the WSA. Domestic water use data was obtained from an Urban Water Management Plan (UWMP) prepared for the nearby NID service area. The data indicates that annual per-household usage is 0.34 ac-ft/yr. Approximately 107 residences exist within a one-mile radius of the Greenhorn plant; therefore, the corresponding residential water usage is estimated to be 36.4 ac-ft/yr for this approximately 2,011-acre area. A significant increase in consumptive water use is not expected in the near future, because the land in the vicinity of the project includes Tahoe National Forest and low-density zoning designations. However, this assessment conservatively assumes that the residential water demand will increase by 61 percent by 2035, pursuant to the high-growth scenario established in the UWMP for the adjacent service area.

Surface water uses on other adjacent properties are expected to be low. Water demand for the Blue Lead Mine is expected to be 29 acre-feet per year (ac-ft/yr). Of this total, 15 ac-ft/yr would be supplied by storm water runoff, which would be captured from within the mine site and not diverted from Greenhorn Creek, while 14 ac-ft/yr would be supplied by groundwater. During dry years, pumping of up to 16 ac-ft/yr of groundwater is expected at the mine. The groundwater extraction associated with the Blue Lead Mine takes place two miles northeast of the Greenhorn plant.
Summary
The groundwater supply for the approximately 2,011-acre project area (comprised of the project site and all uses within a 1-mile radius) during the normal, multiple dry and critical dry year are estimated to be approximately 2,288 ac-ft/yr, 1,444 ac-ft/yr and 853 ac-ft/yr, respectively. The total annual 2015 critical dry-year demand is estimated to be approximately 53 ac-ft/yr, and the projected total annual 2035 critical dry-year demand is estimated to be approximately 68 ac-ft/yr. During the critical dry year the project-only groundwater demand is estimated to be approximately 0.1 ac-ft/yr, while the local recharge supply on the 50-acre Greenhorn Plant area is estimated to be approximately 21 ac-ft/yr. Both surface water and groundwater supplies are therefore sufficient to meet project demands given normal historical rainfall distribution, and when considering single and multiple dry years. Given these reasons, this impact is considered less than significant.  

Impact Discussion 9g-j: Greenhorn Creek and its tributaries within the project area are within the 100-year floodplain, which is on average 600 to 700 feet wide. The processing plant is within the floodplain as well. An approximately 1,200-foot length of Arkansas Ravine is also designated as having a 0.2 percent annual chance of flood hazard. Holdredge & Kull prepared a Geotechnical and Hydrological Feasibility Assessment dated October 7, 2016, to determine what impacts to the floodplain and upstream and downstream flows, if any, could result from the proposed project. According to the report, surface water velocities would likely increase as the sand and gravel is removed, due to the decrease in channel width. The channel would continue to shape into more of the natural channel that existed before hydraulic mining. However, even with increased velocities, the chance of flooding habitable structures or the downstream bridge would not be increased because the nearest residences are located above and laterally far enough away from Greenhorn Creek that flooding would not occur. There are also no adverse impacts anticipated to the You Bet Bridge because, though velocities may be increased at the bridge, the distance between the proposed activities and the bridge is such that the water would have the same hydraulic elevation by the time it reaches the bridge. The existing requirements of the WDRs include constructing levees around the processing plant before each winter season, and the Streambed Alteration Agreement requires the applicant to remove structures and associated materials not designed to withstand high season flows to areas above the high water mark before such flows occur. The Streambed Alteration Agreement also helps to reduce potential flooding impacts of harvesting activities by restricting mining activities to periods of low stream flow and dry weather, and between April 1 and December 31 of any year. Work is also prohibited when it has rained two inches or more in a 24-hour period.

The Red Dog Narrows area would also be excavated and mined as part of the proposed project. Holdredge & Kull assessed the potential for the proposed excavation to result in any hydrological impacts to sensitive uses such as residences. They have indicated that the sand and gravel above and upstream of the Red Dog Narrows is blocking the Narrows by acting as a dam. If this material were not removed, as in a no-project scenario, there would be a potential for catastrophic failure of this dam, which could increase flooding downstream. The project’s removal of the sand and gravel above the Narrows would decrease the chance of blockage within the Narrows and decrease the chance of flooding downstream. The project would therefore have a beneficial impact on potential flooding conditions related to the Red Dog Narrows. Additionally, although slope configurations left within the Narrows and within other expansion areas along the banks of the creek could contribute to localized flooding or constrict flow in such a way that could increase the potential for localized flooding, Mitigation Measure 6A would reduce this impact by requiring an annual assessment and remediation measures as part of the mining inspection process at the end of each mining season (in the fall). As such this impact would be less than significant with mitigation with the implementation of Mitigation Measure 6A.

Mitigation Measures: See Mitigation Measures 4D and 6A.
10. LAND USE / PLANNING

Existing Setting: The proposed expansion area is located within Greenhorn Creek and its tributaries from Missouri Canyon and Arkansas Ravine, where the project applicant currently operates an existing permitted aggregate extraction and processing mine operation. With the exception of occasional off-highway vehicle use by trespassers, the project lands are currently unoccupied and unused for human purposes. Surrounding land uses include timber/forest land, low-density single family homes and recreational uses at Rollins Reservoir and Greenhorn Creek. The Tahoe National Forest is located immediately north of the operation area. Several active and/or historic mine sites are also location within the vicinity of the operation. The land in which the proposed expansion area is located is zoned Forest and Forest with Mineral Extraction combining zoning designation with 40-acre maximum density (FR-40 and FR-40-ME). All land surrounding the operation property is zoned Agricultural, Forest, or Timber Production Zone, with densities ranging from 20 acres in the southerly area to 160 acres on the Tahoe National Forest land to the northeast. The Blue Lead Mine site to the east also has the Mineral Extraction combining district.

<table>
<thead>
<tr>
<th>CEQA Environmental Checklist Item</th>
<th>Potentially Significant Impact</th>
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<th>Less Than Significant Impact</th>
<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Result in structures and/or land uses incompatible with existing land uses?</td>
<td>Yes</td>
<td></td>
<td></td>
<td>A, 35</td>
<td></td>
</tr>
<tr>
<td>b. The induction of growth or concentration or population?</td>
<td></td>
<td></td>
<td></td>
<td>A, 35</td>
<td></td>
</tr>
<tr>
<td>c. The extension of sewer truck lines or access roads with capacity to serve new development beyond this proposed project that would result in growth inducement?</td>
<td></td>
<td></td>
<td></td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>d. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?</td>
<td></td>
<td></td>
<td></td>
<td>A, 35</td>
<td></td>
</tr>
<tr>
<td>e. Physically divide an established community?</td>
<td>Yes</td>
<td></td>
<td></td>
<td>A</td>
<td></td>
</tr>
</tbody>
</table>

Impact Discussion 10a: Although the proposed project would not result in the construction of any additional structures, it would result in a change of land use in the proposed expansion areas from unused, undeveloped areas to the site of aggregate harvesting uses. Where the project would result in physical impacts, the project’s conflicts with surrounding land uses are identified in this Initial Study and mitigated in Mitigation Measures 3A, 6A, 12A, and 16A-16C. As such, the project’s incompatibility with existing surrounding residential uses would be less than significant with mitigation.

Impact Discussion 10b-c: The proposed project would not result in growth-inducing impacts because it would not construct any infrastructure or other physical development that could serve additional development. Therefore, the project will have no impact related to future development potential offsite.

Impact Discussion 10d: A portion of the project in the northern area is currently zoned Forest and requires a rezone to add the Mineral Extraction combining district in order to comply with the Zoning Ordinance. Properties proposed for mining are required to have a Mineral Extraction zoning district overlay. With the approval of this rezone by the Board of Supervisors, the project would be consistent with the zoning districts established for the project area. The project has been evaluated relative to the County’s standards regarding work within floodplain and watercourse setbacks. Impacts to the floodplain...
are evaluated in Section 9 of this Initial Study and found to be less than significant with implementation of Mitigation Measure 6A and the Reclamation Plan for the project, which would ensure that biological resources are protected as required by the LUDC. With the implementation of the Reclamation Plan and the Streambed Alteration Agreement, and Mitigation Measure 6A related to increased localized flooding, the proposed project would be compatible with adopted land use plans and impacts would be less than significant with mitigation.

**Impact Discussion 10:** Most of the proposed project would not disrupt or divide the physical arrangement of any established community as it would occur within Greenhorn Creek. However, the northerly portion of the proposed expansion area includes the Red Dog Road crossing, and maintenance of this crossing is imperative to emergency access and circulation within the Red Dog-You Bet community. Mitigation to ensure access and circulation across Red Dog is predominantly a transportation and circulation issue, however; therefore, mitigation to reduce circulation impacts is included in the Transportation/Circulation section of this Initial Study to reduce land use impacts related to the division of an established community. Mitigation Measures 16A and 16B require annual maintenance of the crossing, reclamation of the road post-mining, and an offer of dedication to the County. With these measures in place, this impact would be less than significant with mitigation.

**Mitigation Measures:** See Mitigation Measures 6A, 16A, and 16B.

### 11. MINERAL RESOURCES

**Existing Setting:** The project area is mapped within a Mineral Resource Zone (MRZ), or area of known valuable mineral deposits (Nevada County, 2016).

<table>
<thead>
<tr>
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<th>No Impact</th>
<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>A, D</td>
</tr>
<tr>
<td>b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td>A, D, 35</td>
</tr>
</tbody>
</table>

**Impact Discussion 11 a-b:** The project would utilize and mine aggregate resources to the fullest extent possible within the project boundaries, resulting in a beneficial impact regarding mineral resources. The project would not result in any adverse impacts to mineral resources such as the loss of their availability for future use. Therefore, there would be no impact to mineral resources.

**Mitigation Measures:** None required.

### 12. NOISE

**Existing Setting:** Existing noise in the project area is from the existing permitted Greenhorn Creek sand and gravel mining and processing operation which occurs adjacent to much of the proposed expansion area. Harvesting operations include belly-scalpers which harvest the aggregate material and transport it to the processing plant. The processing plant includes two cone crushers with screens and one jaw crusher
with screens. Front-end loaders move the processed sand and gravel to stockpiles and load trucks, which transport the material. At any given time, up to three bellyscrapers, and three front-end loaders and load-out trucks are operating at the existing plant, along with the crushers and screens. The existing noise environment in the processing area and existing harvest areas is defined primarily by existing plant and harvesting operations. The northern portion of the proposed harvesting expansion is rural and can be characterized as fairly quiet.

On October 14-16, 2015, J.C. Brennan & Associates conducted continuous noise measurements on the project site to determine the existing baseline for CEQA purposes. Noise Monitoring Site A was located adjacent to the northern portion of the proposed harvesting expansion area. It represents a portion of the site that is considered fairly quiet. There are some rural residential structures which are approximately 1,200 feet from the proposed harvest expansion areas. Noise Monitoring Site B was located adjacent to the project area where future harvesting will occur. The nearest residence is approximately 1,000 feet from the harvest area.

Figure 12: Noise Measurement Locations

The results of the continuous noise measurements are summarized in Table 5 below and shown in Figure 13. Improved parcels (those with at least one residential or non-residential/agricultural structure currently
being assessed by the Nevada County Assessor’s Office) are also shown in relation to existing mining areas in Figure 13 below.

**Figure 13: Existing Noise Levels**
Table 5: Summary of Existing Ambient Noise Measurement, October 14-16, 2015

<table>
<thead>
<tr>
<th>Site</th>
<th>Date</th>
<th>Ldn</th>
<th>Average Measured Hourly Noise Levels, dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Daytime (7 am - 10 pm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leq</td>
</tr>
<tr>
<td>Site A</td>
<td>October 14-15, 2015</td>
<td>45 dBA</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>October 15-16, 2015</td>
<td>41 dBA</td>
<td>37</td>
</tr>
<tr>
<td>Site B</td>
<td>October 14-15, 2015</td>
<td>44 dBA</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>October 15-16, 2015</td>
<td>41 dBA</td>
<td>43</td>
</tr>
</tbody>
</table>

All surrounding parcels, including the nearby residences, are within the Agricultural (AG) and Forest (FR) zoning districts, for which the General Plan and LUDC have established the following exterior noise limits:

Table 6: Exterior Noise Limits for Rural Zoning Districts (AG, FR, TPZ, OS)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Noise Level, dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Leq</td>
</tr>
<tr>
<td>7 am – 7 pm</td>
<td>55</td>
</tr>
<tr>
<td>7 pm – 10 pm</td>
<td>50</td>
</tr>
<tr>
<td>10 pm – 7 am</td>
<td>40</td>
</tr>
</tbody>
</table>

CEQA Environmental Checklist Item

<table>
<thead>
<tr>
<th>Item</th>
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</tr>
</thead>
<tbody>
<tr>
<td>a. Expose persons to or generation of noise levels in excess of the County's adopted standards established in the General Plan and Land Use and Development Code?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>A, 29, 35</td>
</tr>
<tr>
<td>b. Expose persons to or generate excessive ground borne vibration or ground borne noise levels?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>A, 29</td>
</tr>
<tr>
<td>c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>A, 29, 35</td>
</tr>
<tr>
<td>d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>A, 29, 35</td>
</tr>
<tr>
<td>e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?</td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td>A</td>
</tr>
</tbody>
</table>

Impact Discussion 12a,c,d: The project would expand the excavation area by approximately 38 acres, with the expansion area located to the north of the existing processing plant. The land uses adjacent to the proposed excavation areas are either existing quarry area or forested lands. The Tahoe National Forest boundary is located immediately adjacent to the northeast boundary of the proposed excavation area. The Blue Lead Mine, an approved but not yet operational project, is located approximately 500 feet
east of the excavation area, and four residences are located between 1,200 feet and 2,400 feet from the proposed excavation areas.

The harvesting plan includes running no more than two scrapers at any given time between the harvesting areas and the existing plant. The operations occur Monday through Friday between the hours of 7:00 AM and 6:00 PM. This plan is consistent with current operations. The project does not increase the production capacity or result in additional truck traffic on the roadway.

To quantify the existing ambient noise environment in the project vicinity, J.C. Brennan & Associates, Inc. conducted continuous hourly noise level measurements for a period of two days at two locations adjacent to the expansion areas, as shown in Figure 13. The noise level measurements were conducted between October 14 (a Wednesday) and October 16, 2015 (a Friday). In addition, noise level measurements were conducted at the existing plant site and harvesting area to quantify the existing operations, as well as to acquire reference data for analysis of the existing and future operations. The primary receptors in the region of the operational noise are residents. The results of these measurements are shown in Table 7.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Measured Noise Levels</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belly scraper operations at the harvesting area</td>
<td>SEL/Leq: 92.2 dBA, 95.6 dBA</td>
<td>120 feet, 85 feet</td>
</tr>
<tr>
<td></td>
<td>Leq: 77.4 dBA, 79.3 dBA</td>
<td></td>
</tr>
<tr>
<td>Belly scraper operations on the haul road</td>
<td>SEL/Leq: 84.7 dBA, 88.9 dBA</td>
<td>50 feet, 50 feet</td>
</tr>
<tr>
<td></td>
<td>Leq: 77.1 dBA, 74.7 dBA</td>
<td></td>
</tr>
<tr>
<td>Water truck operations on the haul road</td>
<td>SEL/Leq: 93.6 dBA</td>
<td>50 feet</td>
</tr>
<tr>
<td>Quarry plant operations</td>
<td>Leq: 74.7 dBA</td>
<td>245 feet to jaw crusher and screens</td>
</tr>
<tr>
<td>• 2 cone crushers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• 1 jaw crusher</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• All screens</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Scraper deliveries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Truck loading and haul-out</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leq: 81.6 dBA</td>
<td>300 feet to middle cone crusher and screens</td>
</tr>
<tr>
<td></td>
<td></td>
<td>160 feet to south cone crusher and screens</td>
</tr>
</tbody>
</table>

Based upon this data and the assumptions that existing conditions on the 1982 and 1993 use permits would continue for this project (for hours of operations, minimization of number of scrapers, use of mufflers, etc.), noise impacts from the proposed expansion areas would not result in an exceedance of the Nevada County 55 dBA Leq and 75 dBA Lmax noise level standards for Rural areas. All of the residences are located far enough away, and there is enough topographic relief and vegetation, to significantly reduce noise levels from the operation. The project would also not result in a substantial adverse noise increase above existing Leq noise levels (Brennan 2015). Results from the noise analysis are shown in Figure 14.
Although not all areas of expansion are in the noise model shown in Figure 14, for the purposes of determining impacts to the nearest residences, the closest areas of mining were factored into the model. The model therefore shows a worst-case scenario. As shown in the figures above, there are several properties (APNs 38-370-13, 38-370-19, 38-380-17, 38-430-11, and 38-440-29) where noise levels would exceed the 55 dBA Leq threshold at the border or within a small portion of the residential parcels closest to the mining operations, but this exceedance would not occur at the residences themselves, so this
impact is not considered substantially adverse. Daytime average noise levels from the proposed new harvesting areas at the nearest residences would be up to approximately 47 dBA (APN 38-370-19), which is well below the 55 dBA Leq threshold. Predicted noise levels at the processing plant are the same as existing noise levels, so no impacts would occur in that area of the operation.

As noted above, the results of the noise analysis rely on the existing use permit conditions to reach the conclusion that noise impacts would not be substantially adverse. Therefore, these conditions should continue to apply to the current project to ensure these impacts remains less than significant. These measures are therefore provided in Mitigation Measure 12A to ensure that noise levels remain at current levels within both Sections 25 and 36 (proposed new harvesting areas). It should also be noted that existing Occupational Safety and Health Administration (OSHA) standards must also be met for the protection of employees from noise impacts in the work environment, and that these standards are enforced and monitored by OSHA. With continued implementation of these measures in Mitigation Measure 12A, noise impacts from the proposed project are anticipated to be less than significant with mitigation.

*Impact Discussion 12b:* According to the Environmental Noise Analysis, during the noise measurement survey, no noticeable vibrations were noticeable during the equipment operations. Additionally, per OSHA standards, the operation is required to provide noise and vibration insulation at all metal-to-metal contact points where feasible. Any rock hoppers or bins must also be rubberized or insulated to reduce noise vibration. Finally, as noted above, blasting is prohibited in the mining operation. Based upon the considerable distances between the quarry expansion areas and the nearest homes, no vibration impacts are expected to occur, and this impact is less than significant.

*Impact Discussion 12e.f:* The project site is not within the vicinity of a private or public airport, nor within any airport noise contour areas; therefore, there would be no impacts related to airport noise.

**Mitigation Measures:** To offset the potential for noise impacts at nearby residences, the following mitigation measures shall be required:

**Mitigation Measure 12A: Limit Noise-Generating Uses.** The following measures shall be implemented during all project operations to protect surrounding residents from operational noise:

- Plant operation, gravel harvest, truck loading, and truck hauling are limited to the hours of 7 AM to 6 PM, Monday through Friday, except for plant repairs which may take place outside those hours. Exceptions may also be made for emergency operation as determined by the Planning Director and defined in the Section 15269 of the State CEQA Guidelines.
- The operation is required to provide mufflers which meet the standards of the California Highway Patrol on all trucks belonging to the operator and used on public roadways.
- Noise emissions from the plant site at any residential property line shall not exceed 65 decibels.
- Aggregate harvesting is prohibited within 20 feet from any neighboring property.
- Noise levels associated with the operation in Sections 25 and 36 shall not exceed County noise standards at the nearest residential property lines.
- When paddle-wheel scrapers are used for excavation in Sections 25 and 36, no more than two shall be permitted to operate. Scrapers shall be staggered to avoid simultaneous operation in the same area.
- Retail sales and rock processing is prohibited in Sections 25 and 36.
- Blasting associated with the mining operation is prohibited.

*Timing: During project operation*
*Reporting: Enforced through the code complaint process*
*Responsible Agency: Nevada County Planning Department*
13. POPULATION / HOUSING

Existing Setting: The proposed expansion areas are currently undeveloped and unused. Surrounding lands are undeveloped to a large extent in the northern project area and developed with rural residential uses in the southern project area.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, 35</td>
</tr>
<tr>
<td>b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, 35</td>
</tr>
<tr>
<td>c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, 35</td>
</tr>
</tbody>
</table>

Impact Discussion 13a-c: The proposed project includes extraction of aggregate materials on property with a Forest zoning district. The project would not result in population growth or displacement of housing or people. Therefore, the proposed project would have no impact related to these issues.

Mitigation Measures: None required.

14. PUBLIC SERVICES

Existing Setting: The following public services are provided to this site:

Fire: The project site is within a State Responsibility Area, and CalFire provides fire protection services to the site.
Police: The Nevada County Sheriff provides law enforcement services.
Water: The site is served by an existing well for plumbing facilities and by surface water for aggregate processing facilities and dust control.
Transit: There is no transit route serving the project site or environs.
Sewer: Sewage treatment occurs via a private septic system.

<table>
<thead>
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<th>Reference Source (Appendix A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Result in substantial adverse physical impacts associated with the provision of or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following the public services:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Fire protection?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, I, 37</td>
</tr>
<tr>
<td>ii) Police protection?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A</td>
</tr>
<tr>
<td>CEQA Environmental Checklist Item</td>
<td>Potentially Significant Impact</td>
<td>Less Than Significant with Mitigation</td>
<td>Less Than Significant Impact</td>
<td>No Impact</td>
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<td>-------------------------------</td>
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<td>-----------------------------</td>
</tr>
<tr>
<td>iii) Schools?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>iv) Parks?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td>v) Other public services or facilities?</td>
<td></td>
<td></td>
<td></td>
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**Impact Discussion 14a.1-5:** The proposed project consists of the expansion of an in-stream aggregate mining facility and would thus not result in a new substantial need for additional schools, parks, and police protection because it would not result in increased population. No new structures are proposed, and the processing facility would continue to handle the same amounts of aggregate material, with no increase in quantity of processed material. The Fire Marshal has indicated that all access roads would be required to meet Fire Safe Road standards. Therefore, the proposed project would have a *less than significant* impact related to public services.

**Mitigation Measures:** None required.

15. **RECREATION**

**Existing Setting:** The project site is located within the Nevada City Recreation Benefit Zone. No formal recreation facilities are located on or near the project site, although off-highway vehicles often recreate without the landowner's permission within and in the vicinity of Greenhorn Creek.

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<tbody>
<tr>
<td>a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</td>
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<tr>
<td>b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?</td>
<td></td>
<td></td>
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<tr>
<td>c. Conflict with established recreation uses of the area, including biking, equestrian and/or hiking trails.</td>
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</table>

**Impact Discussion 15a-c:** As a mining project, the project would not result in development that would affect recreational uses or increase demand for recreational uses. The project may affect illegal off-highway vehicle use within Greenhorn Creek. However, because this use is illegal and done without Hansen Brothers' permission, impacts to recreationists are not considered substantially adverse and the impact is *less than significant*.

**Mitigation Measures:** None required.

16. **TRANSPORTATION / CIRCULATION**

**Existing Setting:** Access to the site is from State Route 174, to the County-maintained You Bet Road, to the privately maintained Hansen Gravel Road just past the Greenhorn Creek crossing. From the
processing plant off the Hansen Gravel Road, access to the in-stream mining areas is north up the Greenhorn Creek canyon. Proposed areas of expansion extend from approximately one mile north of the processing plant two miles north up the Greenhorn Creek canyon to the boundary of the Tahoe National Forest. The expansion area includes the Red Dog Road crossing and the Red Dog Narrows. Red Dog Road in the vicinity of the stream crossing is public from the middle of the creek running west; and a public, non-County maintained road from the middle of the creek running east. HBE is conditioned under Use Permit U93-063 to maintain the Red Dog Road crossing, while the County maintains the western portion of Red Dog Road within the public right-of-way. The eastern portion of Red Dog Road is not maintained by the County because the County does not have easements through this segment. Red Dog Road and You Bet Road are both Minor Collectors currently functioning at Level of Service (LOS) A with 2,483 and 2,087 average daily trips (ADT), respectively, according to the latest traffic counts in 2013 and 2014. The site is not served by public transit, the Nevada County-operated Gold Country Stage.

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<tbody>
<tr>
<td>a. Result in an increase in traffic that is substantial in relation to the existing traffic load and capacity or the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio, on roads, or congestion at intersections.)</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>A, H, 21</td>
</tr>
<tr>
<td>b. Result in a need for private or public road maintenance, or new roads?</td>
<td>✓</td>
<td></td>
<td></td>
<td>A, H, 44, 45</td>
<td></td>
</tr>
<tr>
<td>c. Substantially increase hazards due to a design feature (e.g., a sharp curve or dangerous intersection) or incompatible uses (e.g., farm equipment)?</td>
<td></td>
<td>✓</td>
<td></td>
<td>A, H, 44, 45</td>
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<tr>
<td>d. Result in a substantial impact upon existing transit systems (e.g., bus service) or alteration of present patterns of circulation or movement of people and/or goods?</td>
<td>✓</td>
<td></td>
<td></td>
<td>A, H</td>
<td></td>
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<tr>
<td>e. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?</td>
<td></td>
<td>✓</td>
<td></td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>f. Result in an increase in traffic hazards to motor vehicles, bicyclists, or pedestrians, including short-term construction and long-term operational traffic?</td>
<td>✓</td>
<td></td>
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<td>A</td>
<td></td>
</tr>
<tr>
<td>h. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?</td>
<td>✓</td>
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</table>

*Impact Discussion 16a:* The proposed project is not anticipated to generate additional traffic on a day-to-day basis because the amount of aggregate being mined and processed would remain the same as under the existing Use Permit U93-063. Traffic from the existing and proposed operation are largely driven by market forces and can therefore fluctuate broadly in any given year depending on demand for aggregate
materials. An estimated 4,000 tons of material is hauled to the plant daily and varies substantially based on the current market demand. However, the existing operation functions under the same principle, so the proposed project relative to that baseline would not contribute to additional traffic on a daily or yearly basis. Existing traffic levels on Red Dog Road and You Bet Road are at approximately 2,483 and 2,087 average daily trips (ADT), according to the latest traffic counts in 2013 and 2014, respectively. These levels of traffic are considered Level of Service (LOS) A and would have to reach 8,550 ADT to degrade to LOS D, the level that is considered unacceptable under the General Plan LOS standard for Rural Regions (Policy LU-4.1.1). The current Use Permit is conditioned with a maximum daily cap of 492 truck trips, which may be exceeded up to thirty days in any calendar year. However, the average number of daily one-way haul trips to the Plant is approximately 120, well under the 492 trip cap (HBE 2017). This amount of trips would continue at the same rate as under existing conditions. Because the project would not result in a substantial increase in traffic, this impact would be less than significant.

Impacts Discussion 16b, df, fg: The northernly portion of the proposed expansion area includes the Red Dog Road crossing, which is part of the emergency access route and circulation for the Red Dog-You Bet community. The existing Use Permit conditions of approval require maintenance of the crossing, but the new expansion area directly affects it and as such should be included in any maintenance prescriptions to prevent dividing the communities on the west and east of Greenhorn Creek. Mitigation Measure 16A requires that Red Dog Road be maintained in a passable condition during all periods of the year when the stream is passable. Mitigation Measure 16B requires reclamation of the road post-mining and an offer of dedication to the County. It should also be noted that the annually maintained haul road traversing Greenhorn Creek could also be used as an emergency access route in the event of a wildlife or other emergency.

Although the project would not result in an increase of traffic on a daily or even yearly basis, the project would extend the life of the existing operation and continue to contribute to degradation of public access roads. Mitigation Measure 16C is therefore provided to ensure that impacts to roads are reduced with adequate road mitigation fees, which are charged on a tonnage basis. With implementation of Mitigation Measures 16A-16C, impacts related to road maintenance and access would be reduced to a level that is less than significant with mitigation.

Impact Discussion 16c, h: There is currently no transit route in the vicinity of the project, and staff arrive to the site by driving their personal vehicles or carpooling with others. The proposed expansion of harvesting areas would not result in an increase of employees over existing conditions that might require transit. Project operation would not interfere with transit services which are located closer to central Grass Valley, with the nearest stop over four air-miles west of the site in the Loma Rica area. The project would not conflict with rideshare programs or other policies supporting multi-modal transportation. Therefore, impacts to transit, pedestrian, and bicycle facilities are considered less than significant.

Impact Discussion 16e: The proposed project does not include any components that would impact airport operations or other travel patterns. Therefore, there would be no impact related to airport operations and traffic patterns.

Mitigation Measures: To offset the potential for road impacts, the following mitigation measures shall be required:

Mitigation Measure 16A. Maintain the Red Dog Road Crossing at All Times: The applicant shall maintain the Red Dog Crossing and approaches in a passable condition during the operational season, within two weeks following haul road construction and in compliance with other County and State requirements such as pre-construction nesting surveys and Streambed Alteration Agreement requirements. This mitigation is not dependent on mining operations in the vicinity of the area because
current and past upstream and adjoining mining activities can have long-term effects on the crossing. This condition shall be monitored during annual inspections and enforced other times of the year through a public complaint-driven process.

**Timing:** Annual inspection and on a complaint basis
**Reporting:** Annual inspection
**Responsible Agency:** Nevada County Public Works, Planning, and Code Compliance

### Mitigation Measure 16B. Provide Red Dog Road Reclamation and Offer for Dedication:
During reclamation of the Red Dog crossing area, the applicant shall ensure that it is left in a passable condition. The applicant shall also offer for dedication to Nevada County any portion of the Red Dog Road crossing that is owned by the applicant, in order to provide the County the opportunity to consider whether that portion should become part of the County-maintained mileage system at that time.

**Timing:** Prior to release of the Financial Assurance for reclamation
**Reporting:** Approval of FACE release
**Responsible Agency:** Nevada County Public Works Department

### Mitigation Measure 16C. Pay Fair Share toward Public Access Road Maintenance and Improvements:
The applicant shall contribute $0.05 per ton of aggregate materials on a quarterly basis for the proposed expansion areas for County road maintenance and improvement. The tonnage rates and annual maximum amount shall be adjusted annually based on the California Construction Cost Index (CCCI) so that these fees can keep with the anticipated rate of inflation.

**Timing:** To be paid quarterly during project operations
**Reporting:** Quarterly invoicing by Fiscal Department
**Responsible Agency:** Nevada County Public Works Department

17. **UTILITIES / SERVICE SYSTEMS**

**Existing Setting:** Electrical service is provided to this area by Pacific Gas & Electric and is currently available and used on the site. Potable water is provided by a private well. The applicant maintains a dumpster for solid waste which is picked up by Waste Management and hauled to the McCourtney Road Transfer Station on a regular basis. There is a number of wireless telephone services available in southwestern Nevada County but with variable coverage depending upon the carrier. AT&T provides land line phone service to this area. Sewage treatment and disposal are provided via an onsite system.

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<tbody>
<tr>
<td>a. Result in a need for the extension of electrical power, natural gas, or communication systems?</td>
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<tr>
<td>b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</td>
<td></td>
<td></td>
<td>✓</td>
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<tr>
<td>d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>A, 28</td>
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<tr>
<td>CEQA Environmental Checklist Item</td>
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<tr>
<td>e. Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project’s projected demand in addition to the provider’s existing commitments?</td>
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<td>✓</td>
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<tr>
<td>f. Be served by a landfill or transfer station with sufficient permitted capacity to accommodate the project’s solid waste disposal needs?</td>
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<tr>
<td>g. Comply with federal, state, and local statutes and regulations related to solid waste?</td>
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**Impact Discussion 17a-e:** The proposed project is an expansion of the harvesting area for an existing in-stream aggregate mining operation and as such would not result in development that would create a need for the extension of electrical power, storm drainage facilities, or water or wastewater treatment facilities. The same amount of aggregate materials would continue to be processed, so no expansion in the processing facilities or number of employees is proposed. Services are already provided to or adjacent to the site. Therefore, the project would have **no impact** related to these issues.

**Impact Discussion 17f,g:** The site contains a dumpster that is picked up by Waste Management on a regular basis. All materials are subject to State standards for safe disposal, which are implemented at the Transfer Station. Solid waste generated during the development of the site or after occupancy is processed at the McCourtney Road Transfer Site, which is maintained by a solid waste disposal company contracted by Nevada County to haul material to a permitted sanitary landfill. The existing mining project already permitted under U93-063 typically results in the generation of solid waste in the form of tree stumps and vegetative material which is burned under a permit with the NSAQMD. Impacts related to solid waste disposal are therefore considered **less than significant.**

**Mitigation Measures:** None required.

### 18. MANDATORY FINDINGS OF SIGNIFICANT ENVIRONMENTAL EFFECT

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<tr>
<td>a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of major periods of California's history or prehistory?</td>
<td>✓</td>
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b. Does the project have environmental effects that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of the project are considered when viewed in connection with the effects of past, current, and probable future projects.)

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<tr>
<td>c. Does the project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?</td>
<td></td>
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**Impact Discussion 18a:** Development of the proposed project would comply with all local, state, and federal laws governing general welfare and environmental protection. Project implementation would result in potentially adverse impacts to air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hazards and hazardous materials, land use, noise, and transportation/circulation. Each of those impacts is mitigated to levels that are less than significant levels with mitigation as outlined in each section. No additional mitigation is required.

**Impact Discussion 18b:** A project’s cumulative impacts are considered significant when the incremental effects of the project are “cumulatively considerable,” meaning that the project’s incremental effects are considerable when viewed in connection with the effects of past, current, and probable future projects. The proposed project would expand aggregate mining areas along Greenhorn Creek and its tributaries, resulting in continued impacts to the resources described in Impact Discussion 18a.

The project would not develop land but would remove aggregate material that was washed downstream by past hydraulic mining activities and that now overlies much of the riparian corridor along Greenhorn Creek and its tributaries. Although there would be short-term impacts to biological resources during project operation (as mitigated in Mitigation Measures 4A-4D), the ultimate and cumulative biological impacts of the project, once revegetation and reclamation has taken place, would be beneficial. The project would remove most of the aggregate material and bringing the sand and gravel layer to 18 inches, enabling the riparian vegetation to ultimately recover and the canyon to take on its former natural contours and habitats. Therefore the proposed project would not result in a cumulatively considerable contribution to cumulative impacts on surrounding biological resources.

Daily operational traffic would not increase as a result of the project. Existing conditions in place today would continue with regard to daily and yearly traffic because no new employees would be added, and the amount of materials being harvested and processed would remain the same as under the existing Use Permit U93-063. However, the project would increase the long-term amount of traffic by adding to the harvesting area, such that mining and processing would occur over a longer period of time. However, with Mitigation Measure 16C in place to pay a fair share toward road maintenance, longer operation of the project would not impact local roads. Traffic impacts to air quality and greenhouse gas emissions would also be reduced over the long term with the implementation of Mitigation Measure 3A which requires compliance with diesel equipment regulations and reduction of overall emissions. Noise impacts would not be cumulative as noise does not accumulate but would simply occur for a longer period of time. Noise impacts from the project would be well below County thresholds at the nearest sensitive receptors and are thus not cumulatively considerable.

Reasonably foreseeable projects that could have similar impacts to the proposed project include other future projects within the project vicinity that could be constructed or operated within the same
timeframe as the project. The Blue Lead Mine is a reasonably foreseeable project that has been approved but has not started operations as of this writing. However, other than potential traffic on You Bet Road and the resulting air quality and GHG impacts, which are not anticipated to be substantial from either project (and in the case of the proposed project to be the same as under existing conditions), none of the impacts would be considered cumulative. Cumulatively with the Blue Lead Mine project, these impacts would remain less than significant. Where the project would have no impact, it would not contribute to cumulative impacts. In addition, issues specific to site conditions, such as site geology and soils, do not have cumulative effects. Therefore, the proposed project would have less than significant environmental effects that are individually limited but cumulatively considerable.

Impact Discussion 18c: Project operations could result in temporary impacts to human beings from dust, noise, and traffic. However, implementation of the mitigation measures in this Initial Study, in addition to compliance with existing federal, state, and local regulations, would reduce any adverse direct or indirect effects on human beings to a level that is less than significant with mitigation.

Impact Discussion 18d: The basic objective of the project is to expand an existing aggregate mining operation to increase overall harvesting potential and meet market demand for aggregate products. The project could accomplish this objective by relocating to a different site, but this would involve moving the entire base of operations which is already established on the project site. Depending on the alternative site, situating the project elsewhere could result in greater environmental impacts. Therefore, this impact is considered less than significant.

Mitigation Measures: To offset potentially adverse impacts to air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions, hydrology and water quality, land use, noise, and transportation/circulation, see Mitigation Measures 3A, 4A-4D, 5A, 6A, 12A, and 16A-C.
RECOMMENDATION OF THE PROJECT PLANNER

On the basis of this initial evaluation:

_____ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

X I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

_____ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

_____ I find that the proposed project MAY have a "potentially significant impact" or a "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

_____ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Jessica Hankins, Senior Planner

3/16/17
Date
REFERENCES

A. Planning Department
B. Department of Public Works
C. Environmental Health Department
D. Building Department
E. Nevada Irrigation District
F. Natural Resource Conservation Service/Resource Conservation District
G. Northern Sierra Air Quality Management District
H. Caltrans
I. Nevada County Consolidated Fire District
J. Regional Water Quality Control Board (Central Valley Region)
K. North Central Information Service, Anthropology Department, California State University, Sacramento
L. California Department of Fish & Wildlife
M. Nevada County Geographic Information Systems
N. California Department of Forestry and Fire Protection (Cal Fire)
O. Nevada County Transportation Commission/Nevada County Airport Land Use Commission
P. Nevada County Agricultural Advisory Commission
Q. Nevada Joint Union School District


ORDINANCE No.

OF THE BOARD OF SUPERVISORS OF THE COUNTY OF NEVADA

AN ORDINANCE AMENDING ZONING DISTRICT MAP 078, TO ADD THE MINERAL EXTRACTION (ME) COMBINING DISTRICT TO ASSESSOR’S PARCEL NUMBERS 38-370-17, 38-380-15, 38-380-16 AND 38-430-02 RESULTING IN A FOREST (FR)-40-ME DESIGNATION (FILE NOs. Z15-004 AND E1515-014) (HANSEN BROTHERS ENTERPRISES, PROPERTY OWNER)

THE BOARD OF SUPERVISORS OF THE COUNTY OF NEVADA, STATE OF CALIFORNIA, ORDAINS AS FOLLOWS:

SECTION I:

That Assessor’s Parcel Numbers 38-370-17, 38-380-15, 38-380-16 AND 38-430-02, which is located within Greenhorn Creek from the northeast corner of Section 25, Township 16N, Range 9E, to Missouri Canyon at the south within Section 36, Township 16N, Range 9E, Red Dog-You Bet area of Grass Valley, CA, approximately 7 miles east of Grass Valley, 2.4 miles north of You Bet Road, and 3.3 miles north of Rollins Reservoir, unincorporated Nevada County, California be rezoned from Forest with 40-acre minimum densities (FR-40) to FR-40 with the Mineral Extraction District (FR-40-ME) based on the following findings A-E:

A. That the proposed amendment is consistent with and furthers the goals, objectives, policies, programs and implementation measures of the General Plan and the provisions of the Land Use and Development Code Chapter II Zoning Regulations, including Land Use and Development Code Section L-II 2.7.3 and 3.22, to allow for the expansion of Hansen Brothers Greenhorn Creek aggregate mine harvest areas; and

B. That the project site is physically suitable for the requested “ME” zoning combining district for the use of the site aggregate mining activities; and

C. That the proposed amendment for the project site will not conflict with uses and zoning that surround the subject parcels as the proposed zoning is consistent with those established uses which are also used for aggregate mining by the applicant; and

D. That the proposed amendment will not be detrimental to the public interest, health, safety, convenience, or welfare of the County; and

E. That the Nevada County Planning Commission after taking public testimony and deliberating on the project recommended that the Board of Supervisors adopt this Ordinance by a ___ vote as required by Nevada County Land Use and Development Code section L-II 5.9.E.
SECTION II:

Pursuant to Section L-II 1.3.D of Article 1 of Chapter II of the Land Use and Development Code of the County of Nevada, Zoning District Map No. 078 is hereby amended as follows:

Zoning District Map No. 078 is hereby amended as shown on Exhibit “A” attached hereto and made a part of this Ordinance. Said property comprises approximately 138-acres combined and is located at Greenhorn Creek in unincorporated Nevada County, California; and

All that certain property described on Exhibit “A”, is hereby rezoned as follows: From Forest 40-acre minimum Density (FR-40) to FR-40 with the Mineral Extraction Combining District (FR-40-ME), as defined in Chapter II of the Land Use and Development Code of the County of Nevada, and is hereby subject to the restrictions and allowable uses set forth therein.

SECTION III:

If any section, sentence, clause or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of this ordinance. The Board of Supervisors hereby declares that it would have passed this ordinance and adopted this ordinance and each section, sentence, clause or phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared invalid or unconstitutional.

SECTION IV:

This Ordinance shall take effect and be in full force thirty (30) days from and after introduction and adoption, and it shall become operative on the 24th day of June, 2017, and before the expiration of fifteen (15) days after its passage it shall be published once, with the names of the Supervisors voting for and against same in the Union, a newspaper of general circulation printed and published in the County of Nevada.
Hansen Bros. Enterprises

Amended
Surface Mining and Reclamation Plan

for
Greenhorn Creek Harvesting and Material Processing
in
Grass Valley, California

CA Mine ID No. 91-29-0006
Reclamation Plan No. RP93-001
Use Permit No. U82-20 and U93-063
Amended Reclamation Plan No. RP15-001
Amended Use Permit No. U15-008

Date:
November 2016

Prepared by:
BT Consulting
5460 Merchant Circle, Suite A
Placerville, CA 95667
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Appendix B: Biological Inventory  
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Appendix D: Special Use Permits

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October 1982: U82-20

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Appendix F: Water Supply Assessment

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<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APN</td>
<td>Assessor's Parcel Number</td>
</tr>
<tr>
<td>BSA</td>
<td>Biological Study Area</td>
</tr>
<tr>
<td>CCR</td>
<td>California Code of Regulations</td>
</tr>
<tr>
<td>CDFW</td>
<td>California Department of Fish and Wildlife</td>
</tr>
<tr>
<td>CEQA</td>
<td>California Environmental Quality Act</td>
</tr>
<tr>
<td>cfs</td>
<td>Cubic Feet per Second</td>
</tr>
<tr>
<td>CNPS</td>
<td>California Native Plant Society</td>
</tr>
<tr>
<td>dBA's</td>
<td>Decibels</td>
</tr>
<tr>
<td>DTSC</td>
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<tr>
<td>FYLF</td>
<td>Foothill Yellow-Legged Frog</td>
</tr>
<tr>
<td>HBE</td>
<td>Hansen Bros. Enterprises</td>
</tr>
<tr>
<td>Leq</td>
<td>Equivalent Level</td>
</tr>
<tr>
<td>Lmax</td>
<td>Maximum Noise Level</td>
</tr>
<tr>
<td>MBTA</td>
<td>Migratory Bird Treaty Act</td>
</tr>
<tr>
<td>mg/kg</td>
<td>milligrams per kilogram</td>
</tr>
<tr>
<td>NID</td>
<td>Nevada Irrigation District</td>
</tr>
<tr>
<td>NCHS</td>
<td>Nevada County Historical Society</td>
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<td>NOI</td>
<td>Notice of Intent</td>
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<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
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<td>OMR</td>
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<td>Plan</td>
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<td>United States Department of Agriculture</td>
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<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
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</table>
Plan Responsibility

As required by Section 2772(c)10 of the Surface Mining and Reclamation Act of 1975 (SMARA), Hansen Bros. Enterprises accepts responsibility for reclaiming the mined lands in accordance with this Reclamation Plan.

__________________________
Jeff Hansen

Date
1 Introduction

The Greenhorn Mining Operation, which generally consists of harvesting aggregate material from the streambed of Greenhorn Creek and processing the material into marketable products, is owned and operated by Hansen Bros. Enterprises (HBE). Mining on the deposit began in 1878 and has been continuously mined since that time. Mining of the site in its current capacity began in 1971 when the facility was owned by Terex Corporation. HBE acquired the property and the operation in 1973, has improved the facility throughout their time of ownership, and expanded the operation into Section 25 in 1994. An application for an additional expansion was submitted in 2015 to extend the operation onto approximately 38 acres of property that HBE has acquired since the prior expansion, necessitating the preparation of this plan. This Surface Mining and Reclamation Plan for the Greenhorn Creek Surface Mining and Material Processing Operations (Plan) is intended to encompass the operations, specifications, and restrictions for the entire operation and facility, including: the original area; the past expansion area; and the proposed expansion area, in an all-inclusive document. Prior Surface Mining and Reclamation Plans are included in Appendix A.

1.1 Purpose of the Plan

This Plan has been prepared in accordance with the requirements of the California Surface Mining and Reclamation Act (SMARA) found in California Public Resources Code (PRC) Section 2710 et seq., Section 2755 et seq., and Section 2770 et seq., Title 14 of the California Code of Regulations (CCR) Section 3700 et seq., and Nevada County (Lead Agency) Land Use and Development Code.

The Plan serves several purposes which include: providing the required contents for a reclamation plan; documenting the intended actions necessary to comply with minimum practices and reclamation standards for operation and reclamation; providing a reference manual for mine operators; assisting in regulatory compliance; and assisting the Lead Agency in monitoring ongoing compliance with the approved plan.

Operating standards, as applicable to the operation and its approved plan, must be met during operation and reclamation. This plan employs a comprehensive approach to the statute and regulations to avoid ambiguity in determining regulatory compliance during operations and following reclamation.

This Plan provides guidance for the minimization of water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations.

Substantial deviations from this plan shall not be undertaken until such amendment has been filed with, and approved by, the Lead Agency. Amendments to the approved reclamation plan may be submitted detailing proposed changes from the original plan.
1.2 Owner and Operator Information

1.2.1 Mineral Property and Physical Address

Hansen Bros. Enterprises’ Greenhorn Material Harvesting and Processing operation is located approximately 7 miles east of Grass Valley, California. The property described in the Plan includes the parcels in Table 1. This Plan includes the land associated with three Nevada County Use Permit numbers which are also listed in Table 1 along with the name of the owner of each parcel and the Section, Township, and Range based on the Mount Diablo Baseline and Meridian.

Acreages provided in Table 1 are based on Nevada County Assessor Data.

<table>
<thead>
<tr>
<th>Assessor’s Parcel Number (APN)</th>
<th>Use Permit</th>
<th>Section, Township, and Range</th>
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</table>
The total permitted land encompasses approximately 491.76 acres. The aggregate deposit to be mined covers approximately 300 acres of the permitted land. Legal descriptions of the subject parcels are included in Appendix H.

1.2.2 Location

The address for the permanent material processing plant and office is 12865 Mule Canyon Road, Grass Valley, California. The operation is located within the remote Greenhorn Creek streambed, north and south of the You Bet Road at the Greenhorn Creek Crossing, in the You Bet – Red Dog Gold District of Nevada County, California. The southerly end of the surface mining operation is located at the point where Greenhorn Creek enters Rollins Reservoir and the operation area extends north past the Red Dog Road at Greenhorn Creek Crossing and a location known as the Red Dog Narrows to the southern boundary of the Tahoe National Forest. The stream bed alignment included in the surface mining and reclamation area encompasses approximately 5.5 miles of Greenhorn Creek along with adjacent tributary stream beds. Vicinity Maps are provided in Figure 1a, 1b, 2a, and 2b.

1.2.3 Access

Access to the facility is provided by traveling on State Route 174 to You Bet Road. Travel east on You Bet Road to the Greenhorn Creek Bridge. To access portions of the operation located south of You Bet Road, there is a gravel access road located just east of the bridge. To access portions of the operation located north of You Bet Road, travel north on the paved road just east of the bridge to the permanent material processing plant (Plant). From the Plant, there are typically haul roads to access each operational activity area. The gravel roads are constructed on the dry sand bars in the stream bed and therefore are commonly washed out by winter storms and reconstructed to access active harvesting areas each year.

Depending on site conditions, the operational areas may also be accessed from Red Dog Road. The Red Dog Road crossing of Greenhorn Creek is a ford. Historically, and at present, vehicles must wait until storm flows subside before crossing the stream. The stream crossing process will continue unchanged throughout the mining and reclamation duration and following reclamation.

1.2.4 Mineral Commodity to be Mined

The material to be surface mined consists of placer diggings, placer digging fragments, and other minor components. The aggregate material to be mined is the resultant deposit from historic upstream hydraulic mining activities. Aggregate material that consists of a range of large cobble to fine sand is harvested from dry sand bars and transported to the Plant. The width of the aggregate deposit varies from approximately 40 feet wide to approximately 600 feet wide throughout the length of the streambed in the operational area.
1.2.5 Reference Numbers

California Mine Identification Number: 91-29-0006
Reclamation Plan Number: RP93-001 (Appendix A)
Amended Reclamation Plan Number: RP15-001 (Appendix A)
First Use Permit Number: U82-220 (#1195) which was an amendment to U75-3 and U78-13 (Appendix D)
Second Use Permit Number: U93-063 (Appendix D)
Amended Use Permit Number: U15-008 (Appendix D)
Lake and Streambed Alteration Agreement: 1600-2007-142-R2 (Appendix J)
Waste Discharge Requirements Order Number: 98-185 which was a replacement of 85-078 (Appendix I)
Industrial Stormwater Waste Discharge Identification Number: 5S29I002778 (Appendix I)

1.2.6 Lead Agency

County of Nevada
Community Development Agency
Planning Department
950 Maidu Avenue, Suite 170
Nevada City, CA 95959-8617
(530) 265-1222

1.2.7 Operator

Hansen Bros. Enterprises
Jeff Hansen, President
P.O. Box 1599
Grass Valley, CA 95945
(530) 273-3381

1.2.8 Agent

BTConsulting, Inc.
Alicia Brenner, President
5460 Merchant Circle, Suite A
Placerville, CA 95667
(530) 919-6955

1.2.9 Property Owners

Hansen Bros. Enterprises
P.O. Box 1599
Grass Valley, CA 95945
(530) 273-3381

12
1.2.10 Mineral Rights Owners

Hansen Bros. Enterprises
P.O. Box 1599
Grass Valley, CA 95945
(530) 273-3381

Nevada Irrigation District
1036 West Main Street
Grass Valley, CA 95945
(530) 273-6185

1.2.11 Lessee

HBE leases the Greenhorn Creek area from Rollins Reservoir to You Bet Road from Nevada Irrigation District (NID). The lease grants HBE the exclusive right to process and remove sands, gravels, and aggregate materials from the removal area. The lease area includes APN: 12-710-64; 12-710-65; 12-710-67; 12-710-68; 12-740-43; 12-740-44; 12-750-41; 12-750-42, and a portion of 28-150-72. The lease agreement is included in Appendix E of this Plan.

1.3 Site Description

1.3.1 Topography

The operation is located in the western Sierra Nevada Foothills at elevations between 2,120 and 2,600 feet above mean sea level. The operation is sited in the stream bed of Greenhorn Creek. Greenhorn Creek has formed a narrow, steep-sided canyon that trends northeast-southwest.

The numerous ridges rising from the canyon reach elevations over 3,000 feet above mean sea level. The canyon has heavily wooded sides rising hundreds of feet to rounded ridge tops.

With the exception of the Plant, stream crossing culverts, Red Dog Road, and the You Bet Road Bridge, there are no known man made features on the subject properties. A topographic map is included in Figure 1a.

1.3.2 Geologic Description and Soils

The regional geologic setting includes rocks of the Pliocene volcanic unit, Eocene non-marine unit, Jura-Trias metavolcanic unit and the Paleozoic marine unit. Important rock types within these units are andesite, Eocene auriferous gravel deposits, amphibolite, slate, and chert. The Soil Conservation Service indicates that the site is covered with mine tailings. Mine tailings are
composed of stones, cobblestones, silt/sand, and gravel. A soil survey is included for reference in Appendix G.

The gravel found in Greenhorn Creek is the remains of course gravels and boulders that were originally deposited in a tertiary channel of the Yuba River. These tertiary gravels were 30 to 40 feet thick and capped by finer gravels, clay, and sand up to 350 feet thick. The gravels contain a high concentration of quartz. Later in geologic time, the downcutting of Greenhorn Creek exposed the tertiary gravels. The tertiary gravels with high quartz content were known to contain gold by the early miners. The outwash from the hydraulically mined gravel now indicates the Greenhorn Creek streamed. Most of the finer materials in the original gravels have been lost, leaving only poorly sorted gravels, cobbles, and boulders. When Greenhorn Creek floods during the winter rainy season, the stream is able to move large amounts of gravel ultimately into Rollins Reservoir, causing a loss of water storage capacity.

Though mining of bedrock is not a part of the surface mining operation at this location, rock underlying the stream canyon is meta-sediment according to the Chico Sheet Geology Map by the State Division of Mines. There are several other soil types in the vicinity of the operation including: Horseshoe; Josephine; Mariposa; and Maymen soils but the Placer diggings are the only material expected to be disturbed as a result of the surface mining, material processing, and reclamation operations.

The operation is located in the You Bet – Red Dog Gold District and the major hydraulic mines in the District included Red Dog – You Bet Diggings, Buckeye Diggings, and Little York Diggings. An estimated 20 million yards of gravel remain at Red Dog at the head of Missouri Canyon, a tributary of Greenhorn Creek.

Due to the historic gold mining nature of the deposit and the proximity to the Starr Tunnel portal aggregate sampling and mercury analysis was performed in 2015 at the direction of the Nevada County Planning Department. The results of the analysis were compared to Human Health Screening Levels developed by the United States Environmental Protection Agency (USEPA) and the California Department of Toxic Substances Control (DTSC). The total mercury concentrations detected in the four samples were all below 0.1 milligrams per kilogram (mg/kg), which is typical of river-run sand and gravel in Nevada County and well below the screening levels. The results of the sampling and analysis are included in Appendix L.

1.3.3 Vegetation and Wildlife

The operation is centered on Greenhorn Creek above Rollins Reservoir and located in the Sierra Nevada transitional life zone. The vegetative cover in the area is generally either disturbed or relatively in-tact and can be divided into the following three primary categories:

- streambed
- riparian
- upland

To describe the habitat types and identify associated wildlife resources, a botanist and wildlife biologist conducted reconnaissance-level field surveys of the Expansion Area Biological Survey
Area (BSA). The BSA encompasses and is larger than the proposed mining expansion area. The biological resource assessment included a vegetation field method that characterizes habitats by documenting the dominant naturally occurring community. Specifically, the California Native Plant Society (CNPS) Relevé Protocol was applied to determine baseline biological composition of native overstory. Subsequently, to quantitatively define baseline conditions, stratified random sampling methods including line intercept and quadrat-based assessments were applied to gather more exact baseline data and define restoration success criteria, as described in Sections 3.5 through 3.7 below.

**Streambed**
The in-tact streambed of Greenhorn Creek consists primarily of cobble and gravel and is highly mobile. The stream channel is mostly devoid of vegetation due to the highly mobile bedload, except for locations along the channel bank where it transitions to riparian habitat. The disturbed streambed, located within the existing mining area is also generally devoid of vegetation likely due to natural channel movement and mining activities.

Within the proposed expansion area BSA, the cobble and gravel dominated Greenhorn Creek channel, devoid of overstory vegetation is approximately 66 acres (Appendix B, Figure 3).

**Riparian Habitat**
The riparian habitat is dominated primarily by willow (Salix spp) and alder (Alnus spp) species, and based on the CNPS Relevé protocol, is considered a mix white alder (Alnus rhombifolia) Forest Alliance. The riparian community present within the project expansion area is sparse, somewhat fractured, and often isolated to narrow stretches along the edges of the Greenhorn Creek channel, where slopes are moderate and not as consolidated as the upland areas.

Potential factors influencing the sparse distribution of riparian habitat along the stream banks in un-mined areas include, a naturally shifting channel location (highly mobile bedload through riparian habitat during high flows), general public use (i.e. off road vehicles), and associated increased erosion along the channel banks. In previously mined areas, riparian habitat also persists in some locations and is relatively devoid in others.

A total of approximately 3.10 acres of this riparian biological community was identified and mapped within the proposed expansion Biological Study Area (BSA) (Appendix B, Figure 3).

**Upland Habitat**
The upland habitat is generally comprised of mixed coniferous and oak vegetation. It is dominated by Douglas fir (Pseudotsuga menziesii), ponderosa pine (Pinus ponderosa), black oak (Quercus kelloggii), canyon live oak (Quercus chrysolepis), and interior live oak (Quercus wislizeni) and thus characterized as a Douglas Fir Forest Alliance (Sawyer 2009). Generally, this upland community is located along Greenhorn Creek approximately 50 to 200 feet upslope from the top of bank. The upland community of a Douglas-fir Forest Alliance is relatively intact and in good overall health. However, some upland tree mortality was evident, likely due to logging, fires, and bark beetle disease.
A total of approximately 19.7 acres of this upland biological community was identified and mapped within the BSA (Appendix B- Figure 3). The biological survey area encompasses and is more extensive than the proposed mining expansion area.

**Special Status Botanical Species**

There are no known occurrences of special status plants in the mining area (i.e. the currently mined and proposed expansion area) (CNDBB, 2016). Additionally, based on the site-specific reconnaissance-level habitat assessment the proposed expansion area within the BSA does not contain potential habitat for federally listed species (Appendix B). One State listed species, Scadden Flat checkerbloom (State listed as endangered), has a moderate potential to occur in wetlands, moist riparian areas, and spring-fed mountain marshes, if found on site. This species is known to occur within five miles of the project area.

Special-status plants are not listed under the Federal or State Endangered Species Acts; however, are considered rare or endangered by the California Native Plant Society, and thus may be protected under the California Environmental Quality Act and are listed in Appendix B, Table 1. The key species that have a high or moderate potential to occur in or near the operation area include: the Brandegee’s clarkia (Clarkia biloba ssp. brandegeeanae), brownish beaked-rush (Rhynechospora capitellata), Butte County fritillary (Fritillaria eastwoodiae), Cedar Crest popcorn-flower (Plagiobothrys glyptocarpus var. modestus), clustered lady’s-slipper (Cypripedium fasciculatum), elongate copper moss (Mielichhoferia elongata), finger rush (Juncus digitatus), giant checkerbloom (Sidalcea gigantea), inundated bog club-moss (Lycopodiella inundata), long-fruit jewel-flower (Steptanthis longisiliquus), Sierra blue grass (Poa sierra), Sierra foothills brodiaea (Brodiaea sierra), tripod buckwheat (Eriogonum tripodium), and Van Zuuk’s morning-glory (Calystegia vanzuukiae). Protective measures are included in the Biological Inventory, Appendix B. These measures would facilitate avoidance, minimization, and mitigation for potential special-status flora impacts.

**Wildlife Habitat**

The streambed, riparian, and upland area along Greenhorn Creek exhibit suitable wildlife habitat in most areas. Common wildlife species that have been observed (or signs of presence such as tracks/scat) in the operation and proposed expansion area include species such as the foothill yellow-legged frog (FYLF) (Rana boylii), California newt (Taricha torosa), garter snake (Thamnophis sirtalis), Pacific treefrog (Pseudac regilla), mule deer (Odocoileus hemionus), raccoon (Procyon lotor), black bear (Ursus americanus), common raven (Corvus corax), osprey (Pandion haliaetus), and great blue heron (Ardea Herodias). Greenhorn Creek also contains fish species such as rainbow (Oncorhynchus spp.) and brown trout (Salmo spp.) upstream from Rollins Reservoir to approximately the You Bet Road Bridge.
Special Status Wildlife Species

There are no known occurrences of Federal or State listed species within the project area (Appendix B, Figure 4; CNDDB, 2016). However, foothill yellow-legged frog (FYLF) (Rana boylii), a State species of special concern being considered for State listing, does occur on site and mitigation measures are in place in accordance with California Department of Fish and Wildlife (CDFW), to facilitate protections for this species during operations (Appendix J). The project operation and expansion area also contain habitat that has a moderate potential to support the horned lizard (Phrynosoma coronatum), also a State species of special concern. This species can be found in open sandy areas, scattered low bushes, chaparral, and oak woodlands and the nearest known occurrence is from 1995 and is four miles southeast of the project area near Highway 80.

Relative to avian species, the project area contains potential habitat for Migratory Bird Treaty Act (MBTA) – protected, tree and ground nesting migratory birds.

There are no listed fish species in the operation or proposed expansion area. Campfar West Reservoir, downstream, prevents state and federally listed anadromous fish passage.

1.3.4 Surface Water

The project is astride Greenhorn Creek. During the winter, Greenhorn Creek moves large amounts of gravel with large flows of water. The dry summer months cause the creek to flow under the gravels and in poorly defined braided channels. The creek may flow over any part of its streambed and not have a clearly defined long standing channel.

The 50-year peak flow in the creek could amount to an estimated 4,800 cubic feet per second (cfs). The flow down Greenhorn Creek during a 25-year storm at the south end of Section 25 is estimated at 1,800 cfs which would provide flowing water about 1+ foot deep. The average annual peak flow is 360 cfs.

Greenhorn Creek flows into and forms the northwestern arm of Rollins Reservoir. Important tributaries of Greenhorn Creek are Little Greenhorn Creek and Missouri Canyon. The existing beneficial uses of Greenhorn Creek, Rollins Reservoir, and the Bear River downstream of the discharge are municipal and agricultural supply; industrial supply; water contact and noncontact recreation; esthetic enjoyment; groundwater recharge; fresh water replenishment; and preservation and enhancement of fish, wildlife, and other aquatic resources.

The water quality of Greenhorn Creek is probably typical of surface water flows in the foothill area. Hardrock and surface mines, not related to this operation, may contribute water with higher than usual concentration of iron, arsenic, manganese, and hydrogen sulfide. The water is of sufficient quality to be used for dust control and gravel washing.
1.3.5 Groundwater

Other than the water supply to the bathrooms, inside the office/maintenance building and scale house, from an onsite well, groundwater resources will not be used by this operation. This operation should not have an affect groundwater. The Water Supply Assessment is provided in Appendix F. Groundwater elevation is usually from zero to five feet below the surface of the gravel bars from which the sand/gravel is harvested. In stormy periods of the winter, the gravel bars are flooded and the harvesting of sand and gravel is suspended until the water table subsides enough to allow heavy equipment to operate. The beneficial uses of the underlying groundwater are municipal, industrial service, industrial process, and agricultural supply.

1.3.6 Climate

The National Oceanic and Atmospheric Administration (NOAA) weather station nearest to the operation is at Secret Town (SETC1), at Latitude 39.183833, Longitude -120.884422 which is about three miles east of the facility. The mean annual temperature at the site is 48-63 degrees Fahrenheit, and the seasonal precipitation ranges from 20 to 60 inches. Most of the precipitation falls in the winter as rain and snow; the summers are warm and dry.

1.3.7 Land Use

Lands at the operation site are used as a source of aggregate to be crushed or hauled offsite uncashed along with forest land on the banks of the canyon. The processing plant is located on-site. Surrounding land uses include timber/forest land, low density single family homes, and recreational uses at Rollins Reservoir and Greenhorn Creek. The Tahoe National Forest is located immediately north of the operation area. Several active and/or historic mine sites are location within the vicinity of the operation.

The land in which the operation is located is zoned Forest or Agricultural with Mineral Extraction combined zoning designation. The Mineral Management Element of the County General Plan contains goals and policies designated to document the importance of mineral deposits and the need to protect them from urban encroachment so they can continue to supply the minerals (in this case: aggregates) as needed for the citizens of the County far into the future.

All land surrounding the operation property is zoned agricultural, forest, or timber. Some surrounding parcels have combined mineral extraction zoning.

Most of the operation area has been designated as a Mineral Resource Zone (MRZ-2) by the California Department of Conservation, Division of Mines and Geology, Mineral Land Classification Map of Western Nevada County as shown in Figure 3.

County zoning precludes further subdivision of the surrounding parcels; thus increased urbanization through subdivision of the area is unlikely. Additionally, the operation does not have a growth inducing effect on the surrounding community and does not alter the location
distribution, or displacement of the area’s population. The operation is not expected to create any new permanent residences nor create a demand for any additional housing.

1.4 Mining Operations

Operations at the facility include aggregate material harvesting, processing, and storage along with associated ancillary operations and maintenance. At the time of preparation of this Plan, the operation is developed and operational. Aggregate material is harvested from sand bars in the Greenhorn Creek streambed, then, harvested material is transported to the Plant where it is processed. Processing includes screening, washing and/or crushing, and stockpiling. Off-site material is not transported to the facility for processing.

An office, maintenance shop, fuel building, scale, scale house, caretaker’s residence, water tank, sheds, and other ancillary structures are located adjacent to the Plant. Restrooms for the facility are located inside the office/maintenance shop and inside the scale house which utilize a septic system and leach field for waste disposal. Unused and aged equipment is stored in a designated area near the Plant for future use or to supply parts for actively used equipment. The plant is powered by an electrical service and therefore the operation is unlikely to result in any negative impacts with respect to smoke, ash, odor, fumes, or air movement. The operation is not active at night and therefore light and glare impacts are not a concern.

The operation does not utilize herbicides, pesticides, or radiation in any facility processes. Materials with explosive risk and potential risk of release of hazardous substances are limited to fuel, lubricants, and other operational fluids.

The operation does not utilize any portals, shafts, tunnels, or other surface openings that would create a public entry hazard or threat to public safety. The operation does not have any drill holes, unused water wells, or monitoring wells within the operational area that would need to be completed or abandoned.

The operation will not result in a need for additional or altered governmental services, including but not limited to: fire protection; law enforcement; schools; recreation facilities; social services; solid waste facilities; or medical facilities. The operations will not require increased energy or public utility services from those available at the time of preparation of this Plan.

The operation is located in a remote area and therefore the number of individuals who are able to view the operation is extremely limited and therefore aesthetic impacts are negligible. The change of scenic views for the limited number of viewers will change very gradually as the aggregate deposit becomes lower over decades of time. Residents within view of the operation can be educated to the concept that the aggregate deposit is a valuable building material for the County and surrounding communities which is located in an area determined by nature and past mining impacts.

As described in the Noise Assessment prepared by j.c. brennan & associates, dated November 5, 2015, and located in Appendix C, the operation is expected to comply with California
Environmental Quality Act (CEQA) and the Nevada County noise level standards. Additionally, no vibration impacts are expected to occur.

Buried historical, archaeological, or paleontological resources may be discovered as the aggregate deposit is removed. Operations are not expected to have an adverse effect on any discovered resources.

1.5 **Applicable Regulations**

1.5.1 *California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1, Article 1.*

The purpose of this regulation is to establish State policy for the reclamation of mined lands and the conduct of surface mining operations in accord with the general provisions of the Surface Mining and Reclamation Act of 1975 as amended by Statutes of 1980.

1.5.2 *California Code of Regulations, Title 14, Division 2, Chapter 8, Subchapter 1, Article 9.*

The purpose of this regulation is to establish implementation standards for the reclamation of mined lands.

1.5.3 *California Code of Regulations, Title 27, Division 2, Subdivision 1, Chapter 7, Subchapter 1, Article 1.*

The purpose of this regulation is to establish mining waste management regulations.

1.5.4 *California Public Resources Code, Division 2, Chapter 9.*

This regulation is also known as the Surface Mining and Reclamation Act of 1975. The act was intended to create and maintain an effective and comprehensive surface mining and reclamation policy with regulation of surface mining operations so as to assure that:

- Adverse environmental effects are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses;

- The production and conservation of minerals are encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment; and

- Residual hazards to the public health and safety are eliminated.

1.5.5 *Nevada County Code, Title 3, Chapter II, Article 2.7.3.*

This section of the zoning code provides the permitted uses, special uses, procedures and standards for mineral extraction districts.
1.5.6 Nevada County Code, Title 3, Chapter II, Article 3.22.

This section of the zoning code provides regulations for surface mining permits and reclamation plans including the process for permitting, standards for mining and reclamation, reporting, inspections, and fees. Mine development is encouraged in compatible areas as shown in the County's General Plan before encroachment of conflicting uses. Mineral resource areas that have been classified by the State Department of Conservation's Division of Mines and Geology or designated by the State Mining and Geology Board, as well as existing surface mining operations that remain in compliance with the provisions of the Section, are to be protected from intrusion by incompatible land uses that may impede or preclude mineral extraction or processing, to the extent possible consistent with the County's General Plan.

1.5.7 Nevada County General Plan, Chapter 1: Land Use Element.

Goal 1.3 and the associated policies indicate that the Red Dog/You Bet Rural Place shall maintain and enhance the County's pastoral character, existing land use patterns, rural lifestyle, and economy in their natural setting and to reflect and recognize its mountain agricultural and mining community character.

1.5.8 Nevada County General Plan, Chapter 17.

This chapter of the General Plan has been designated to provide goals, objectives, and policies for mineral management. The Mineral Management Chapter acknowledges the importance of the role of mining in Nevada County. Mine development is encouraged in compatible areas.

1.5.9 State Water Resources Control Board - Industrial General Permit.

This facility is subject to the State Water Resources Control Board (SWRCB), General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial General Permit) under the provisions of the federal Clean Water Act, National Pollutant Discharge Elimination System (NPDES). The Industrial General Permit regulates operators of facilities that discharge storm water associated with industrial activity.
2 Mining Procedures

Surface mining relevant to this operation is all, or any part of, the process involved in the mining of minerals on mined lands by removing overburden and mining directly from the mineral deposits, open-pit mining of minerals naturally exposed, and surface work incident to the mine.

2.1 Description of Mining Operations

Operations at the facility include aggregate material harvesting, processing, and storage along with associated ancillary operations and maintenance. Aggregate material is harvested from sand bars in the Greenhorn Creek streambed, then, harvested material is transported to the Plant where it is processed. Processing includes screening, washing and/or crushing, and stockpiling.

The aggregate material that is harvested is the deposited waste from historic up-gradient hydraulic mining. Historic hydraulic mining operations used high-pressure jets of water to dislodge and move rock and sediment from nearby hillsides. The water-sediment slurry was directed through sluice boxes to capture gold. The aggregate waste was moved into the Greenhorn Creek streambed as the sand and gravel deposit that exists currently.

This operation will not have phases. In stormy periods of the winter, the gravel bars are flooded and the harvesting of sand and gravel is suspended until the water table subsides enough to allow heavy equipment to operate. The Plant operates continuously throughout the year and portable aggregate processing plants may be utilized on a seasonal basis. Use of processing equipment is prohibited in Section 25.

2.2 Proposed Duration

The facility has been in operation since 1973 and is expected to have an estimated operational life of 200 years. Though the Special Use Permits previously issued by Nevada County do not have expiration dates, HBE is currently pursuing a 30-year approval via an amendment to expand the harvesting area. Therefore, the current termination date is December 31, 2046 with the anticipation of extending the operation well beyond the current termination date. The duration could vary based on the market for the aggregate material and the weather. As the deposit is excavated, storms bring additional sand and gravel downstream into the operational area.

2.3 Anticipated Production

The annual anticipated production of aggregate to be mined and processed is expected to range from 200,000 to 600,000 tons per year. The quantity of aggregate material varies substantially based on the current market demand. This operation mines negligible quantities of overburden or waste material and therefore does not require permanent waste piles or dumps.
Mineral commodities to be removed are estimated at 30 to 50 million tons over the 200 years and the maximum anticipated depth of aggregate material to be removed is approximately 70 feet. The estimated ratio of tons per cubic yard of material being mined is 1.4 to 1.8 tons per cubic yard.

2.4 Mining Methods

This operation is an aggregate material removal and processing operation. Heavy equipment, typically paddle wheel scrapers, remove sand and gravel from sandbars within the streambed. The material is transported to the Plant for screening, washing, and/or crushing. Raw and processed material is stockpiled at the Plant.

Prior to commencement of extraction activities, berms of gravel material are installed to divert braided channels into one main stream channel. Dry diversion channels are also carefully constructed starting at the bottom of the new channel, then working upstream to channelize flows between meanders that would otherwise exchange flows from side to side in the floodplain. Once construction of the channel is complete, water is introduced into the channel. Temporary crossing culverts are installed for repeated crossings of large equipment. Sand and gravel is not harvested from within the flowing portion of Greenhorn Creek. As required by the CDFW, a pre-extraction plan is required to be provided to the Department prior to the onset of extraction activities each season. The plan specifies the locations of the extraction areas for that season, a map of the season's access roads and stream crossings, and a delineation of the low flow channel for the upcoming year's operation.

Crushed aggregate material that is mined from the facility's operation is crushed on-site with a jaw and cone rock crusher. There is no rock waste resulting from this operation. All crushed and uncrushed rock material is sold and hauled off-site. Processed material is stockpiled on-site and loaded into trucks with heavy equipment located at the facility.

Water for material washing, processing activities, and dust control is diverted from Greenhorn Creek. The operation is permitted by the California Water Quality Control Board under Waste Discharge Order No. 98-185 to draw a maximum of 528,000 gallons per day of water from Greenhorn Creek. As permitted by the CDFW, Lake or Streambed Alteration Agreement Notification No. 1600-2007-0142-R2, the operation is prohibited from drafting more than 20% of the flow in Greenhorn Creek as measured immediately upstream of the diversion point and at no time shall the diversion cause flows to go below 2 cfs below the diversion point. Raw water is conveyed from Greenhorn Creek into a pond where it is then pumped to the appropriate location for plant processes. The Waste Discharge Requirements are provided in Appendix I and the Streambed Alteration Agreement is included in Appendix J.

A water tanker truck hauls water to be sprayed over the site to control dust on access roads and the crushing sites.

A Water Supply Assessment was conducted in 2015 and the results determined that the surface water and groundwater supply are sufficient to meet the demands of the operation given
normal historical rainfall distribution, including consideration of both single and multiple dry years. The assessment is included in Appendix F.

Mineral exploration is not required for this operation as the material to be harvested, processed, and sold was deposited in the creek canyon and is visible without further exploration.

The average number of daily one-way haul trips to the Plant is approximately 120 with 12 to 15 trips per hour during peak hours and 720 trips per week. An estimated 4,000 tons of material is hauled to the plant daily and varies substantially based on the current market demand. Trip turnaround time for each piece of equipment is approximately ten minutes.

2.5 Process Water Management

Process water is only utilized at the Plant. Process water is discharged on-site to unlined settling ponds adjacent to Greenhorn Creek. Discharge of waste to surface waters or surface water drainage courses is prohibited.

The settling pond levees are constructed and are maintained to prevent scouring and failure due to elevated flows in Greenhorn Creek. A two foot freeboard is maintained in the settling ponds at all times. The ponds are managed to prevent the breeding of mosquitoes and to minimize weeds, algae, and vegetation. The ponds are monitored for dissolved oxygen and pH.

Process water that is removed from the ponds is transferred to an on-site evaporation pond. Sludge or solids that are removed from the ponds are transferred to an on-site drying pond.

2.6 Storm Water Management

The operation will not result in increased of run-off. Storm water within the aggregate material harvesting area is permitted to flow into Greenhorn Creek. Though the surface of the streambed is continuously changing, the operation removes layers of sand and gravel which only expose lower levels of sand and gravel and therefore storm water is conveyed to the creek in a way that is substantially similar to the original flow.

Erosion caused by storm water and storm water discharges are minimal at this facility due to the nature of the sand and gravel material that forms the operational areas, roads, and surface around the Plant. Most runoff infiltrates in a short period of time.

Storm water from around the Plant is conveyed to a settling/infiltration pond which occasionally discharges to Greenhorn Creek. Storm water from the stockpiles south of the Plant, drain via surface flow to an underground storm drain pipe that discharges to Greenhorn Creek. Storm water from the stockpiles north of the Plant, drains via surface flow to Greenhorn Creek and/or the freshwater intake channel. Storm water discharges are permitted and monitored under the California General Permit for Storm Water Discharges Associated with Industrial Activities
(Industrial General Permit) for which the facility has obtained coverage and maintains a Storm Water Pollution Prevention Plan (SWPPP). The Notice of Intent (NOI) is included in Appendix I.

The operation has constructed an on-site stormwater settling/infiltration pond which receives run-off from the southern portion of the Plant area. The watershed that drains to the stormwater pond is used to store piles of processed material, load trucks for the off hauling of processed materials, and access roads. The pond provides for the settling of material that is suspended in the storm water runoff. The outlet of the pond is stabilized with native aggregate material. The pond is maintained by removing settled material as needed, typically in the dryer seasons of the year when the pond contains minimal stormwater. The stormwater pond is expected to have a significant benefit to water quality. There are also several diversion swales at the Plant which serve the purpose of conveying process water, stormwater, and run-on to designated locations. Provided that the material at the site is mainly aggregate, maintenance of the swales is minimal.

2.7 Mine Operation Schedule

Plant operation, gravel harvest, material hauling, truck loading, and hauling is limited to the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except for plant repairs which may take place beyond that time. Exceptions to the time and day limitations for emergency operations can be authorized by the Nevada County Planning Director if life and property are in danger as determined by a public agency. Exceptions to the time and day limitations for Saturday operation, also limited to the hours of 7:00 a.m. to 6:00 p.m., may be made in writing to the Nevada County Planning Director. In no case is Saturday or Sunday operation authorized in the area lying south of the You Bet Road Bridge over Greenhorn Creek.

2.8 Effect on Future Mining

Provided that the purpose of the operation exists to remove a sand and gravel deposit that was created by historic hydraulic gold mining, the removal of the aggregate material will return the canyon to a setting similar to the pre-hydraulic mining nature and therefore the potential for future mining is not applicable to this operation.
3 Reclamation

Reclamation is the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations. Mined lands are required to be reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety.

3.1 Reclamation Measures

Reclamation of the site occurs by removing the aggregate waste material, which was deposited by historic hydraulic mining activities, from the streambed except for a layer approximately 18 inches deep on average. The absence of the accumulation of sand and gravel allows the natural propagation of alder, willow, and other riparian vegetation species. The layer of sand and gravel that remains on the slopes slowly erodes down the bank of the canyon, allowing native species to multiply naturally. The aggregate left in place will lie in pockets in the bedrock where it will be somewhat protected from storm flows. In essence, the mining operation actually is a reclamation effort which also minimizes the area of disturbance. The ultimate condition will be a natural streambed with riparian plants along the edges of the stream and other species further outside the area of frequent flooding.

Reclamation of the site is concurrent with operations but is often impacted due to the nature of the deposit. Each mining season the project lowers the streambed gravels. Each wet season, the flooding water from the creek moves in more material. Depending on the weather, the amount of material moved may be less than, equal to, or greater than the amount of material in the streambed the prior year. Occasionally, large parts of the upstream deposit cover over or scour out reclaimed areas and the natural revegetation process begins again. Removal of the aggregate material is necessary for reclamation can take place. Removing the sand and gravel in itself is reclaiming the channel of Greenhorn Creek.

When the operation is nearing completion, the crushers, screens, scales, buildings, drainage structures, and all other plant related equipment will be removed in order to remove the aggregate material in which they are sited on. Buildings and other facility appurtenances may be left on-site if there is a potential to provide a benefit or purpose for a specific future use. When operations are complete, any excess materials, waste, or debris will be removed from the work area. Prior to closure, all access roads, haul roads, and other temporary traffic routes will be reclaimed by removing any road base material. All former roads are expected to be left in their operational condition, on a layer of sand and gravel.

When nearly all the aggregate material is removed, the ground should be deliberately contoured into a "V" shaped channel, which conforms to the surrounding topography, with Greenhorn Creek flowing in the "V". The stream profile will be cut to the proper angle of repose. The stream channel will be made to be of sufficient size to pass the 100 year peak flow which cannot take place until all or most of the gravel is removed. Final slope of the streambed,
under the gravel, is unknown because the bedrock contour has not been explored. The bedrock contour is assumed to follow the pattern of the streambed cross section and will have a slope of less than 35 percent. If canyon walls under the deposit are less than 35 percent, no adjustments to the slope are planned. Sand and gravel will be left against slopes that are steeper than 35 percent.

A blanket of gravel should be left to cover the stream banks and streambed. Any soil encountered under the gravel will be left alone.

If natural seeding does not occur, planting of native species above the approximate line of the 25-year storm will be initiated as described in the revegetation section below (Section 3.5).

Backfilling is not anticipated to be necessary and the operation does not create any waste dumps or tailings piles and therefore stabilization of backfill areas, waste dumps, or tailings piles would not be necessary. The pre-mining drainage system of the main channel is clogged with sand and gravel transported to the site from upstream deposits by the erosive force of storm runoff. The mining is for the purpose of removing this sand and gravel. Rehabilitation of the post mining drainage channel will be to leave a layer of gravel as slope stabilization.

Reclamation Maps are provided in Figures 4a through 4g.

3.2 Potential Use of the Reclamation Area

Mining and reclamation of the site as indicated in this Plan will end mining for sand and gravel in the streambed of Greenhorn Creek. Mining in the surrounding area will be unaffected by reclaiming this site. Removal of the non-native sand and gravel deposit provides additional use options that are not available with the aggregate deposit in place.

The potential use of the reclaimed streambed would be for the channel of Greenhorn Creek. The reclaimed channel could be developed into a recreational fishing area. The proposed uses of the surrounding reclaimed lands are for recreational use, watershed, and the stream channel of Greenhorn Creek. Any alternate reclaimed site conditions should also return the channel of Greenhorn Creek to its pre-mining era channel characteristic condition. Any alternate uses of the reclaimed site, other than those described in this section, could have negative impacts on the FYLF species, FYLF habitat, and water quality.

The current zoning designations for operation area include forest and agricultural designations in combination with the mineral extraction designation. The reclamation plan for the site is consistent with current and surrounding zoning and land use designations. It is not known if the area will retain its present zoning and land use classifications for the long duration of the operation.

Provided that the operator of the facility is also the owner of the majority of the land, the land owner is apprised of potential uses of the land after reclamation. The other land within the operation is owned by NID who operates their downstream land, Rollins Reservoir, as a
recreational area, and therefore it would be natural to utilize the adjacent property for the same use after mining and reclamation are complete.

3.3 Soil Salvage Plan

The operational area of the site is covered with aggregate waste and therefore salvageable topsoil that would be suitable for revegetation is nonexistent. The mined aggregate material contains little to no soil and therefore no soil salvage plan is applicable to this operation. Additionally, resoiling would not be practical since the operation is located in an active flowing dynamic stream. Efforts will be made to leave any soil that may be encountered in place.

3.4 Erosion Control/Winterization

Provided that the surface of the operation area was sand and gravel prior to operational activities, the surface continues to be covered with sand and gravel during the operation, and the surface will remain covered with sand and gravel when the operation is complete, erosion control and winterization measures are minimal.

Temporary stream crossing culverts are required to be removed prior to the winter and/or prior to significant rain events unless the crossing devices have been designed to pass the expected flows without impounding water upstream of the crossing or impacting the integrity of the watercourse.

Structures and associated materials not designed to withstand high seasonal flows are required to be moved to areas above the high water mark before such flows occur.

The blanket of aggregate material that remains on the banks of the channel provides a natural form of rip-rap which assists in protecting the banks from soil erosion. No increase in wind or water erosion, on-site or off-site, will occur as a result of the operation. In fact the only anticipated offsite effect is a reduction in the gravel inputs into the NID operated downstream water storage reservoir (Rollins), thereby helping to maintain the downstream lacustrine habitat and reservoir capacity over time.

This facility is regulated by the Industrial General Permit and therefore the site is required to implement and maintain the following erosion and sediment control best management practices, to the extent feasible: implement effective wind erosion controls; provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to a forecasted storm event; maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site; divert run-on and storm water generated from within the facility away from all erodible materials; and, implement and maintain any advanced best management practices necessary to reduce or prevent discharges of pollutants in its storm water discharge.
3.5 Revegetation Plan

Typical site operations consist of removing layers of sand and gravel from the current stream bed at the bottom of the canyon, which results in the exposure of the native walls of the canyon. Therefore, on-going revegetation by natural and/or augmented processes will occur as the native walls are exposed.

The operation at the facility has been active for over 40 years and natural revegetation of the riparian zone along the slopes of the canyon, which were previously covered with aggregate waste, has proven to be effective. Vegetation at a density that is substantially similar to native surrounding areas, with various native species, develops unassisted and stabilizes the slopes. The vegetative cover proposed for the end use is anticipated to be self-regenerating without continued dependence on irrigation, soil amendments, or fertilizer.

Baseline Conditions Assessment

In order to develop a revegetation plan with specific criteria to inform adaptive management and target success, pre-disturbance representative baseline conditions were documented. Specifically, as a follow up to the reconnaissance-level wildlife and vegetative habitat assessments conducted in accordance with County Biological Inventory requirements, a site-specific quantitative baseline study was implemented in accordance with OMR-recommended protocols. Specifically, HBE developed a stratified random sampling study plan and submitted it for review and approval by OMR. Subsequently an ecologist and botanist familiar with flora in the area conducted sampling to quantitatively document percent cover, density and species richness in the two vegetated habitat types on site, upland and riparian habitats. Baseline sampling was conducted on October 11, 2016 in accordance with the OMR approved sampling plan (Appendix B). During the survey perennial vegetation was still identifiable (i.e. leaves or above-ground parts were present).

Sampling locations within each habitat type were generated in GIS by randomly selecting GPS points (Appendix B). The direction of the transects were also randomly determined by selecting a number between 1 and 360, representing the degree of the angle from north. The transect lengths were selected such that they could fit into the habitat fragments within accessible property lines. Data along fourteen transects per habitat type were collected to attain an 80% confidence level that the results are representative of the broader native habitat (Newton and Claassen, 2003).

Field Data Collection

Quantitative field data were collected using transect and plot-based methods approved by OMR (Appendix B) and included:

- Percent Cover Estimates
- Density Quantification
- Species Richness
Data Analysis

Upon completion of data collection, statistics summarizing the sample size, mean, variance, and standard deviation were quantified by habitat type for the following metrics:

- **Cover**: Percent cover of native perennials
- **Density**: Native perennial stems per plot and per square meter.
- **Richness**: Total native perennial species richness per plot and per square meter.

These data were checked to verify a minimum 80% confidence interval.

Baseline Study Results

The baseline study results are detailed in Appendix B and summarized below.

Riparian Reference Area

The dominant cover in the riparian areas is white alder (*Alnus rhombifolia*) with an average of 27.6%, Douglas fir (*Pseudotsuga menziesii*) with an average of 15.7% cover, and pink honey suckle (*Lonicera hispidula*) with 11.4% cover. Average vegetation density in the riparian zone was 4.1 native perennial stems per meter squared.

Upland Reference Area

The dominant cover in the upland areas is ponderosa pine (*Pinus ponderosa*) with an average of 21.1%, canyon live oak (*Quercus chrysolepis*) with an average of 15.1% cover, and incense cedar (*Pseudotsuga menziesii*) with an average of 13.9%. Note, Scotch Broom (*Cytisus scoparius*), a non-native species had an average cover of 16.7%; however, future restoration targets (as described in subsequent sections) will not include non-native species. Average vegetation density in the upland zone was 1.3 native perennial stems per meter squared. The species richness ranged from 0-6 species per 20 meter² plot, with an average richness of 3.4 species. The upland data collected included transects in a variety of pre-mining locations on site, (Appendix B).

Revegetation Methods

Success Criteria

The permanence and sustainability of the revegetated communities will be determined annually after their initial seeding for a period of five years. Initial seeding will occur as each phase of mining is completed. Annual assessments of the revegetation area will be conducted by a qualified botanist to determine the success of the revegetation effort and apply adaptive management if necessary. Interim success criteria may be used to facilitate success at the end of five years. Successful revegetation at the end of five years period would be achieved at 50% of baseline cover, species richness, and density (Table 2).
Table 2: Revegetation Success Criteria

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Standard Deviation</th>
<th>Success Standard (% of baseline)</th>
<th>Success Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Riparian Vegetation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Cover %</td>
<td>65.2</td>
<td>(±52.8)</td>
<td>50%</td>
<td>32.6</td>
</tr>
<tr>
<td>Mean Density</td>
<td>44.1</td>
<td>(±6.9)</td>
<td>50%</td>
<td>22.1</td>
</tr>
<tr>
<td>(5x2m² transect)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Species Richness</td>
<td>2.9</td>
<td>(±1.7)</td>
<td>50%</td>
<td>1.5</td>
</tr>
<tr>
<td>(5x2m² transect)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Upland Vegetation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Cover %</td>
<td>94.7</td>
<td>(±44.3)</td>
<td>50%</td>
<td>47.4</td>
</tr>
<tr>
<td>Mean Density</td>
<td>26.4</td>
<td>(±19.5)</td>
<td>50%</td>
<td>13.2</td>
</tr>
<tr>
<td>(10x2m² transect)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean Species Richness</td>
<td>3.6</td>
<td>(±1.6)</td>
<td>50%</td>
<td>1.8</td>
</tr>
<tr>
<td>(10x2m² transect)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Revegetation Plan Phases

Test Plots – Phase 1

HBE will utilize a test plot method in areas previously disturbed to test revegetation method success and identify potential issues during a two year period, prior to implementing restoration. Specifically, to facilitate successful vegetation, the areas best suited for Test Plot Sites were identified and delineated within each of the following communities of the mined Greenhorn Creek channel and surroundings: 1) riparian, 2) upland, (Appendix B, Figures 3.0-3.2 – Note: Test plots are not needed in the channel bed, as the naturally mobile bedload will likely preempt successful revegetation). Test Plot Sites are within the project expansion area, and have been subject to mining activities. Therefore, intact vegetation communities at these sites are not currently present and testing can begin once mining is abandoned in these areas. The purpose of the Test Plot Sites is to experiment with proposed revegetation techniques on a small scale prior to large scale revegetation implementation, to determine the most effective approach to restore these communities. Locations for test plots were selected based on access, substrate (i.e., soil, sand, and exposed soil presence) and general lack of invasive species presence.

Each Test Plot Site identified was broadly surveyed (i.e., test plot survey area). An area of approximately 10 meters squared (i.e. 5 m x 2 m) in size is recommended for each Test Plot physical revegetation strategy. Test Plot Sites will be established as soon as feasible to support concurrent reclamation and to evaluate the best planting procedures to efficiently address the varying degrees of revegetation required within the riparian and upland habitats. Within each habitat type (riparian and upland) HBE will conduct and monitor revegetation in the following three test plot types:

1) Riparian Zone:
A. Passive/natural revegetation on post-mining on exposed soil
B. Active/Augmented revegetation on post-mining exposed soil

2) Upland Zone:
   A. Passive/natural revegetation on post-mining on exposed soil
   B. Active/Augmented revegetation on post-mining exposed soil

In general passive revegetation entails defining a 10 meter squared (i.e. 5 m x 2 m) cleared test plot and monitoring natural revegetation over two years. Active revegetation will entail directed revegetation combination of for example, locally sourced cuttings (i.e. willows), alder seeds, and container grown plants, for riparian areas. Within the riparian and upland test plot revegetation, onsite cuttings and locally sourced seed-based planting will be tested alongside container plantings to inform the recommended source materials for the site. Methods for revegetation, whether it be in test plots or area-wide are included in the Revegetation Methods section below.

The results of these efforts will be used to establish the appropriate methods for required revegetation within the entire project area. Each test plot area will be delineated 10 meters squared. This is equivalent to the plot sizes assessed in the baseline riparian data collection and exactly 50% of the plot area assessed in the baseline upland data collection. This test plot size will facilitate direct comparison to the baseline reference data.

Test Plot Study Duration
The study duration and timing for the Test Plot studies is 2 years and to be completed prior to the initiation of the entire project area revegetation efforts. The two year test plot study duration is to document the success of natural revegetation it typically requires the completion of two floristic bloom periods for plants to reestablish an area.

The revegetation guidelines to be tested in the Test Plots and then adapted and applied to the entire area during reclamation are detailed in the Revegetation Section below.

Test Plot Success Criteria
If at the end of two years revegetation is successful in the passive/natural restoration plots; if the percent cover, density, and diversity meets the success criteria defined in Table 2, then this method will be implemented at the landscape scale throughout the site.

If at the end of two years the passive revegetation does not meet the success but the active restoration test plots does meet the criteria in Table 2, than active or augmented restoration will be implemented at the landscape scale throughout the site.

If at the end of two years, neither test plot type meet the success criteria in Table 2, then adaptive management will be implemented and additional testing of augmented replanting methods necessary. During this time, the passive plots will continue to be monitored to verify, if a longer study period facilitates meeting the passive success criteria.

Landscape-Level Restoration – Phase 2
The landscape level restoration will entail the application of the successful restoration techniques defined through the test plot study in riparian and upland habitats throughout the reclamation site.

If passive revegetation was successful in the test plots they will be applied throughout the site. Passive revegetation methods have been successful in the past and may be viable at this site.

Within each habitat type (riparian and upland) passive OR active restoration will be applied, based on the results of the test plot studies.

Passive landscape-level revegetation means the reclamation site will be left alone after the stream bed, bank, and upland areas are recontoured. The site is then expected to revegetate passively through natural propagation of riparian and upland species, much as it has in downstream areas previously mined by HBE.

Active landscape-level revegetation will entail a directed revegetation planting palette as described in the revegetation methods section below and based on the results of the test plots. The goal is to have the planting pallet primarily depend on locally sourced cuttings.

Landscape-Level Revegetation Study Duration
The study duration and timing for the landscape level restoration is five years to be implemented upon completion of mining activities and site recontouring.

Landscape-Level Success Criteria
Success of revegetation shall be judged based upon the effectiveness of the vegetation to establish and by comparing the cover, density, and species-richness of the reclaimed mined-lands to the success criteria outlined in Table 2. These are the same success criteria applied to the test plots and can only be amended based on updated field conditions in coordination with OMR.

If plant replacements are needed to achieve the 50 percent success rate, the establishment will be considered complete if the replacements survive two years. Survivorship of less than 50 percent is only appropriate if approved by the OMR.

The landscape level success criteria are generally defined as 50% of baseline conditions five years post construction. These criteria were defined in conjunction with OMR and are generally acceptable because at this site, passive revegetation with no replanting generally results in successful revegetation, therefore it is expected that once 50% of baseline is established revegetation will likely continue to occur naturally.

During the five year monitoring period, intermittent verification of restoration success is recommended to facilitate adaptive management, if necessary.

If at the end of five years revegetation is successful, no further action is necessary.

If at the end of five years, revegetation does not meet the success criteria, consultations with OMR are recommended to determine the appropriate path forward, which could entail adaptive management and two additional years of monitoring.
Revegetation Methods

Upon completion of mining activities and the test plot study, larger scale revegetation will begin. The methods described below will first apply to the test plots to be monitored for two years and then depending on the results, will apply area wide to be monitored for five years.

**Passive, natural restoration**, can be achieved by following the site recontouring methods defined in the reclamation section above and allowing for natural revegetation to occur. This method has proven successful in other areas of the mine, especially in the riparian zone. Passive restoration will be monitored for two years in the Test Plots and then if successful, the measured metrics meet the criteria set forth in Table 2 then this method will be applied throughout the site.

**Active or Augmented Restoration** will entail first hydroseeding or hand seeding exposed soil with the native seed plant mix (Table 3) to reduce weed proliferation, control erosion, and mitigate native and non-native plant competition. In addition, augmented Revegetation Plan methods will be supported and adapted based on the results of revegetation at each of the Test Plots for a given community.

The following guidelines will be utilized for vegetation by seeding.

- Broadcast seeds by hand operated canister feeders or hydro-seeding.
- Lightly burry seeds to assure seed placement depth of ¼ to ½ inch, if possible.
- Broadcast seeding shall not occur under conditions that would allow the seed to become wind-blown.
- Secure seed in place with a tackifying agent (i.e., non-growth or germination inhibiting) and cover exposed soils with hydraulic mulch.
- Seed rates are specified on a pure live seed basis and may be modified based on growth conditions.
- Soil compaction is not expected to be an impact of mining activities and therefore ripping, diskng, or other means of soil de-compaction is not expected to be necessary to establish a suitable root zone for seeding.
- If water is available, water may be applied to assist with seed germination and growth. Ensure water application does not cause erosion.
- Broadcast seed at an initial rate of 40 pounds of Pure Live Seed (PLS) per acre with a relatively even mixture of seed species.
- Do not apply fertilizer or soil amendments as it can promote proliferation of weedy, non-native species and can enter the ground and/or surface water.

A seed mixture will generally contain the species listed in the Table 3. Approximate total 40 pounds of PLS mix per acre will be broadcast planted as detailed above. Seed establishment and production rates vary based on annual precipitation and underlying substrate. Based on the results from the Test Plot Site(s) total pounds per acre will be revised and defined for final restoration along the Greenhorn Creek channel if needed.
Table 3: Native Revegetation Seed Mix

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>California brome</td>
<td>Bromus carinatus</td>
</tr>
<tr>
<td>Bentgrass</td>
<td>Agrostis exarata</td>
</tr>
<tr>
<td>Blue wildrye</td>
<td>Elymus glaucus</td>
</tr>
<tr>
<td>California melic</td>
<td>Melica californica</td>
</tr>
<tr>
<td>Coyote brush</td>
<td>Baccharis pilularis</td>
</tr>
<tr>
<td>Mugwort</td>
<td>Artemisia douglasiana</td>
</tr>
<tr>
<td>Sky lupine</td>
<td>Lupinus nanus</td>
</tr>
<tr>
<td>Spanish lotus</td>
<td>Acmispon americanus</td>
</tr>
</tbody>
</table>

Table 3 above, Native Revegetation Seed Mix, is a CNPS local recommended plant palette for reseeding the understory of native vegetation communities in the region. A complete list of observed vegetation species within the project area, including species nativity, has been provided in the Biological Inventory Report (Appendix B) to further provide a complete spectrum of baseline plant biodiversity at the site, and to further allow flexibility in seed mix based on what is available from a local nursery.

In addition to native plant hydoseeding, the active/augmented revegetation will include container grown shrubs and tree plantings. Planting locations, methods, and densities will be determined following Test Plot Site results and on-site evaluations of the natural revegetation process. Revegetation success will be measured against the baseline criteria detailed in Tables 1-4 and defined in the Success Criteria in Table 5.

Generally, to facilitate plant survivorship, riparian areas are to be planted at a standard 3:1 ratio and upland areas at a upland areas at a 1:1 ratio and, which can be computed from the perennial stem densities in Tables 2 and 4. Riparian replanting of species such as willows can be conducted using on site cuttings. Slower growing plants can either be supplied by a local nursery or propagated on site in containers. All planting stock should be grown for a period of at least one year, or as long as the pot size described below is full and hardening off has occurred. Container plants should be free of weeds and invasive species before transport to the revegetation site. Specifications pertaining to the total plantings per acre are detailed in the planting palette in Table 4. The following guidelines will be utilized for vegetation planting:

- Planting locations will be sited in the field at the time of planting.
- Conduct planting between October and December.
- Dig planting holes large and deep enough to accommodate the entire root mass with adequate area to replace soil easily.
- Loosen soil in the bottoms and along the sides of the planting holes.
- Remove plants from the containers and set vertically in the centers of the holes such that the crown of the plant will be level with the existing grade following backfilling.
- Replace soil around the plant and pack firmly to eliminate air pockets.
- Plants shall not be allowed to dry out before, or while being planted.
• Keep roots moist during planting and not expose to air except while being planted in the ground.
• Thoroughly water each plant following planting.
• Plants will be properly acclimated, in healthy, disease-free, and vigorous condition.
• If grazing, trampling, herbivory, and/or other causes threaten the success of the revegetation, fencing or plant protection measures (e.g., plant cages) will be installed and maintained until revegetation efforts are successfully complete.

Native container grown plants and planting ratios are listed in Table 4 below (to be calculated from baseline stem densities in Appendix B). Based on the results to be provided from the Test Plot Site revegetation, replanting ratios may be adjusted.

Table 4: Native Revegetation Container Plants

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Community Planting Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>arroyo willow</td>
<td>Salix lasiolepis</td>
<td>Riparian 3:1</td>
</tr>
<tr>
<td>black oak</td>
<td>Quercus kelloggii</td>
<td>Upland 1:1</td>
</tr>
<tr>
<td>interior live oak</td>
<td>Quercus wislizeni</td>
<td>Upland 1:1</td>
</tr>
<tr>
<td>mulefat</td>
<td>Baccharis salicifolia</td>
<td>Riparian 3:1</td>
</tr>
<tr>
<td>Pacific dogwood</td>
<td>Cornus nuttallii</td>
<td>Upland 1:1</td>
</tr>
<tr>
<td>sandbar willow</td>
<td>Salix exigua</td>
<td>Riparian 3:1</td>
</tr>
<tr>
<td>seep monkey flower</td>
<td>Mimulus guttatus</td>
<td>Riparian 3:1</td>
</tr>
<tr>
<td>tall flat sedge</td>
<td>Cyperus eragrostis</td>
<td>Riparian 3:1</td>
</tr>
<tr>
<td>white alder</td>
<td>Alnus rhombicarpa</td>
<td>Riparian 3:1</td>
</tr>
<tr>
<td>white leaf manzanita</td>
<td>Arctostaphylos viscida</td>
<td>Upland 1:1</td>
</tr>
</tbody>
</table>

Size of containers is also dependent on the following and will be considered when planting Test Plot Sites to ensure the best method for container pot revegetation at the site: plant species, the desired revegetation coverage, location within the upland and/or riparian vicinity of the project area, and the size of container plants available. Container pot sizes are driven by seasonality and local nursery availability. Generally, the size and shape of the container chosen will be similar to the plant root structure, and have a good root to shoot ratio (e.g. deep rooted plants will be grown in tall, linear pots, and short shallow roots may need to be grown in standard one gallon pots). Smaller container pots, or plugs, for herbaceous species are to be utilized (e.g., minimum of one to two inches in diameter). For tree and shrub species, larger container plants can be utilized. OMR recommends 14-inch deep pots for typical tree and shrub replanting.

Spacing of container plants also vary by species. For the given region, and composite of intact vegetation communities, the following are general spacing for the listed container plants:

1) tree species will be planted at a distance of approximately 3 to 7 meters apart,
2) shrub species approximately 2 to 3 meters apart, and
3) herbaceous species up to a maximum of 2 meters apart.

Note: The final total amount of plantings needed for revegetation in a given area will be determined based on the results and methods obtained during the Test Plot Site revegetation process.

Weed Control Program
The site is potentially subject to invasive species, noxious weeds, and/or non-native plant species. Weed control will be conducted throughout the mining area both during operation and reclamation. Weeds will also be managed when they threaten success of revegetation. Invasive species, such as Scotch broom has been identified on the site. Scotch broom is already abundant in the area. The presence of these types of plants can threaten native plant establishment and overall site diversity. Noxious weeds could spread to nearby areas and may need to be managed to eliminate any associated fire hazards. Invasive species, noxious weeds, and non-native plant species shall be monitored during test plot studies and during final restoration. Management methods may include hand-pulling, application of chemicals at the specified application rates, or a combination of both methods. Management methods shall be determined after the discovery and based on the species, extent of growth, and latest scientific information available.

A complete list of species, including non-native, invasive, and noxious vegetation species has been provided (Appendix B- Table 3).

Revegetation Monitoring
Success of revegetation shall be judged based upon the effectiveness of the vegetation to establish and by comparing the cover, density, and species-richness of the reclaimed mined-lands to the Revegetation Success Criteria in Table 2. These are the same success criteria applied to the Test Plots and can only be amended based on updated field conditions in coordination with OMR. If plant replacements are needed to achieve the 50 percent success rate, the establishment will be considered complete if the replacements survive two years. Survivorship of less than 50 percent is only appropriate if approved by the OMR.

Annual monitoring can facilitate adaptive management if needed. It will aid in assessing if revegetation has progressed to restoration or enhancement of the vegetative cover and composition. Monitoring will evaluate this progress and additional measures will be provided should initial growth not progress as desired. Annual monitoring should occur in the late spring in order to capture the vegetative community during the height of its growth. Monitoring will seek to identify and evaluate two aspects of the restored area vegetative communities in order to judge the success of restorative efforts - 1) vegetative cover and 2) vegetative composition (density and richness). These two parameters will be measured against the baseline data (and replicate site, if desired).

Monitoring of Test Plots will be for two years and for the final site restoration for five years.
3.6 Reclamation Plan Monitoring

The Reclamation Plan is required to be reviewed by the Nevada County Planning Commission once every five years; continuing throughout the life of the Use Permit.

The Nevada County Planning Department is required to inspect surface mining operations to determine whether the operation is in compliance with the approved Use Permit, Reclamation Plan, and State regulations. Inspections are required to be conducted at least once per calendar year. Inspections are to be conducted by a state-registered geologist, state-registered civil engineer, state-licensed landscape architect, or state-registered forester, who is experienced in land reclamation, or other qualified specialists, as selected by the Nevada County Planning Director. All inspections are required to be conducted using a form approved and provided by the State Mining and Geology Board.

Changes to the channel elevations and bank erosion are required to be evaluated annually using records of annual extraction quantities and benchmarked annual cross sections and/or sequential aerial photographs to determine appropriate extraction locations and rates.

While the operation is active, facility personnel will monitor the progress of the revegetation process during regular operational activities. Once mining operations are complete, the operator, or individuals representing the operator, will monitor the progress of the revegetation process on a quarterly basis.

The annual monitoring program report will include a discussion of the success of the previous year's revegetation.

If natural revegetation and augmented revegetation proves unsuccessful, additional Test Plot Sites and/or studies will be conducted to determine adaptive planting procedures.

3.7 Ultimate Results of the Reclamation Plan

The ultimate goal and the expected result of the reclamation plan is to leave the site in a state that is environmentally beneficial for water quality, aquatic and wildlife habitat, flooding, and erosion by returning the channel to a more natural environment. After mining operation and reclamation tasks are complete, no additional public health and safety exposure is expected than was present before the mining and reclamation operations.
4 Environmental Mitigation Measures

The environmental mitigation measures described in this section are based on the permits, applications, requirements, and regulations that were in effect at the time of the preparation of this Plan. Permits, requirements, and regulations for the operation are subject to change. Any changes to the permits, requirements, and regulations that are applicable to the operation are assumed to be revised in, or incorporated into, this section.

4.1 Air Quality

Particulate emissions are controlled by requiring the crushing rock to be kept moist with water sprayers. Water is required to be applied by nozzles mounted above the conveyor belts that automatically apply a fine spray over the rock material to reduce dust emissions.

The plant site, stockpiles, and private access roads are required to be watered to control dust.

All extraction areas are required to be kept watered as needed to prevent emission of fugitive dust.

The water source for dust control is the existing settling ponds adjacent to the Plant.

4.2 Hydrology/Water Quality

Surface and groundwater is required to be protected from siltation and pollutants which may diminish water quality. Surface mining and reclamation activities are required to be conducted to protect on-site and downstream beneficial uses of water.

Dirty water is not permitted to enter Greenhorn Creek. Waste and/or waste water is prohibited from being discharged into surface waters, drainage courses, or wetlands. By-pass or overflow of untreated or partially treated waste is prohibited.

Waste discharges are prohibited from causing underlying groundwater degradation.

The operation can draw a maximum of 528,000 gallons per day of water from Greenhorn Creek and the operation is prohibited from drafting more than 20% of the flow in Greenhorn Creek as measured immediately upstream of the diversion point and at no time shall the diversion cause flows to go below 2 cfs below the diversion point. Water drafting activities are required to be monitored to ensure compliance. Intake valves for water drafting are required to be screened to prevent the entrapment of amphibians and all age classes of fish, including eggs. Structures implemented to facilitate diversion or drafting of water are prohibited from impeding the passage of fish at any time. Turbid water from drafting activities is not allowed to enter the stream.

Erosion and sedimentation is required to be controlled during all phases of construction, operation, reclamation, and closure of the mining operation to minimize siltation of lakes and
watercourses. The operation is required to ensure that surrounding land and water resources are protected from erosion, gullying, sedimentation, and contamination.

Precautions to minimize turbidity and siltation are required to be taken into account during operations and adequate erosion and siltation controls measures are required to be used to prevent turbid or silt-laden water from entering the stream. Any topsoil and/or vegetation removal that is necessary will not precede mining activities by more than one year, unless approved by the Lead Agency.

The stormwater pond and diversion swales are required to be maintained.

The operation is required to implement procedures to minimize spills and leaks and spilled or leaked industrial materials are to be cleaned promptly and disposed properly.

During the fall season of each year, in Section 25, an inspection of the mined areas shall be performed. All eroded creek banks identified during the inspection shall be back-filled with 2:1 gravel fill slope and, if necessary, revegetated to stabilize those areas. Should the revegetation become necessary, the success of the revegetation will be documented in the annual report.

Soils to be mined are limited to the Placer Diggings.

In Section 25, at least two surveyed cross sections within the creek bed gravel extraction area and immediately adjacent terrace/slope surfaces are required at five year intervals.

The Water Supply Assessment is provided in Appendix F.

4.2.1 Settling Ponds

Settling ponds have been constructed to entrap fine particles emitted from on-site washing operations. The settling ponds are required to be maintained on a regular basis. At no time shall the silt in the settling ponds be allowed to reach the overflow pipe. All levees shall remain compacted. Vegetation shall be allowed to grow as much as possible to maintain levee strength and support. Settling pond levees are required to be constructed and maintained to prevent scouring and failure due to elevated flows in Greenhorn Creek.

Dissolved oxygen content in the upper zone of the wastewater in the settling ponds shall not be less than 1.0 mg/l. The settling ponds are prohibited from having a pH less than 6.5 or greater than 8.5. A two foot freeboard is to be maintained in the settling ponds at all times and ponds shall be managed to prevent breeding of mosquitoes. Public contact with wastewater is required to be precluded through such means as fences, signs, and other acceptable alternatives. Sludge or solids removed from liquid waste are required to be disposed of in a manner that is consistent with Title 27. Any proposed change in sludge or solids disposal practice from a previously approved practice shall be reported to the Regional Water Quality Control Board prior to the change. The settling ponds are required to be routinely monitored for flow, pH, specific conductance, and freeboard. The monitoring data is required to be reported to the Regional Water Quality Control Board annually.
4.2.2 Stream Zone

Extraction of sand and gravel from the channel is regulated to control channel degradation in order to prevent undermining of bridge supports, exposure of pipelines or other structures buried within the channel, loss of spawning habitat, lowering of groundwater levels, destruction of riparian vegetation, and increased stream bank erosion (except as specified in this Plan).

Heavy equipment cannot be operated in the live stream in the course of gravel extraction. Heavy equipment is authorized for occasional stream crossings, in locations where the stream channel is free of sediment. Operations are prohibited from resulting in the increased sedimentation of Greenhorn Creek or influx of sediment-laden water in Greenhorn Creek.

Stream relocation is prohibited from being implemented in a manner which causes damage to adjacent properties during periods of high water. The installed berms along the channel are required to be at a height that is the lowest possible to contain the creek. Before the winter period, the berms are required to be lowered to a height that will allow the channel to meander. Temporary stream channels are required to be built in clean gravels and not excavated in silts or soils.

Gravel extraction is prohibited within 25 feet of the main channel of Greenhorn Creek to prevent dewatering of the creek channel. If the 25-foot distance results in dewatering of the channel, the distance shall be increased. Monitoring of extraction activities is required to prevent or cease any action that may result in dewatering of the creek.

Features that will allow for the ponding of water or entrainment of aquatic species in a location separate from the main channel during high flows are prohibited. Natural wetland features are prohibited from being backfilled. If present, wetland habitat is required to be avoided or mitigated if disturbed or destroyed.

Temporary stream crossings are required to have culverts installed for repeated crossings of large equipment. The culverts are required to be of sufficient size and placed in clean gravel. The crossing may be topped with a driving cap of gravel road base or earth. The bottoms of the culverts are required to be placed below stream grade and shall not impede the passage of fish at any time. When entering the flowing water to install temporary crossings, water quality levels are prohibited from being exceeded for than 50 feet downstream of project activities. If there is a thirty percent chance of rainfall over ½ inch, all temporary crossings are required to be removed, unless the crossing devices have been designed to pass the expected flow without impounding water or impacting the integrity of the watercourse. All temporary culverts and the top 6-inches (or depth as necessary) of gravel is required to be removed when two inches (or more) of rain is forecasted in a 24-hour period. When no longer needed to achieve the purpose for which they were authorized, all temporary stream channel diversions are required to be removed and the affected land reclaimed.

Structures and associated materials not designed to withstand high season flows are required to be removed to areas above the high water mark before such flows occur.
Tributaries to Greenhorn Creek shall be allowed to flow into Greenhorn Creek until the tributaries dry up.

The time period for mining within Greenhorn Creek is restricted to periods of low stream flow and dry weather and shall be confined to the period of April 1st to December 31st of the same calendar year. Mining activities are required to be timed with awareness of precipitation forecasts and likely increases in stream flow. Mining activities within the floodplain are required to cease until all reasonable erosion control measures, inside and outside of the floodplain, have been implemented prior to all storm events. Work is prohibited when there has been two inches of rain (or more) in a 24-hour period ( revegetation, restoration, and erosion control work is not confined to this period). Work period modifications are possible upon request to the Department of Fish and Wildlife.

4.3 Biological Resources

All reasonable measures are required to be taken to protect the habitat of fish and wildlife.

Vegetation removal is limited to areas which must be cleared for operational purposes. The removal of vegetation in advance of mining is required to be kept to a minimum. Established Riparian Zones are prohibited from being disturbed in Section 25.

The operation is responsible for restoring any fish and wildlife habitat which was impaired or damaged either directly or, incidentally to the project, as a result of failure to properly implement or complete documented requirements.

All workers are required to receive worker environmental awareness training that instructs workers to recognize FYLF, their habitat(s), and the nature and purpose of protection measures.

Before starting work, the work area and environmentally sensitive areas are required to be clearly delineated. Work is required to be restricted to the delineated, mapped, and approved boundaries.

An approved biological monitor shall be on-site during relocation of stranded aquatic life and is responsible for monitoring all activities related to channelizing the stream. The biological monitor has the authority to immediately stop any non-compliant activity and/or to order any reasonable measure to avoid or minimize impacts to fish and wildlife resources. If any sensitive State listed Species of Special Concern, or threatened or endangered species are found, the biologist is required to inform the Department of Fish and Wildlife. If there is a threat of harm to any sensitive species, or other aquatic wildlife, the biologist will halt construction and notify the Department of Fish and Wildlife immediately.

The operation is required to ensure that aquatic life is not stranded in dewatered areas and reasonable efforts are to be made to capture and move all stranded aquatic life observed in the dewatered areas. Captured aquatic life is required to be released immediately within the main
channel closest to the work site. The operation is prohibited from the take or disturbance of any State or federally listed species.

The operation is responsible for having a survey for FYLF (including egg masses, tadpoles, sub-adults, and adults) conducted by the biological monitor at an appropriate time. A report of the survey results is required to be submitted to the Department of Fish and Wildlife before beginning work.

If FYLF egg masses and/or amplexing adults are found during the egg mass surveys, the operation must work with the Department of Fish and Wildlife to revise the project to avoid negative impacts to the breeding area(s), including, but not limited to the installation of exclusionary or high visibility fencing and a breeding area avoidance plan must be submitted to demonstrate how the project will be altered or redesigned to avoid negative impacts to breeding areas.

4.4 Transportation/Traffic

Plant operation, gravel harvest, truck loading, and truck hauling is limited to the hours of 7:00 a.m. and 6:00 p.m., Monday through Friday, except for plant repairs which may take place beyond that time. Time and date exceptions may be made for emergency operations.

The operation has paid for improvements to You Bet Road and continues to contribute funds for repair of all road damage attributable to truck traffic associated with the operations. The operation contributed $30,000 for the improvement of You Bet Road which was paid over a five year period in the late 1970’s and early 1980’s.

Maintenance for the Red Dog Road stream crossing and approaches in a passable condition is required during the current seasonal period of the mining operation (when the operation is in the vicinity of the Red Dog Road stream crossing).

For monitoring purposes, a maximum daily cap of 492 truck trips is established which shall not be exceeded for more than thirty days in any calendar year.

The Section 25 operation is required to contribute $0.005 per ton to a maximum of $49,000 (1994 dollars, to be adjusted annually) toward road widening improvements.

4.5 Noise

The primary receptors in the region of the noise from the operation are residents of single family dwellings. All of the residences are located far enough away and there is enough topographic relief and vegetation to significantly reduce noise levels from the operation.

The operation is required to provide mufflers which meet the standards of the California Highway Patrol on all trucks belonging to the operator and used on public roadways. The operation is required to install mufflers which meet the requirements of the California Occupational Safety and Health Act on all other equipment associated with the use.
The operation is required to provide noise and vibration insulation at all metal-to-metal contact points where feasible. Any rock hoppers or bins shall be rubberized or insulated to reduce noise vibration.

The operation is required to provide ear protection to employees.

Stationary gravel processing facilities are prohibited from being located closer than 150 feet from any neighboring property.

Aggregate gathering for processing is prohibited within 20 feet from any neighboring property.

Noise emissions from the plant site at any property line are prohibited from exceeding 65 decibels (dBA’s).

Noise levels associated with the operation in Section 25 shall not exceed 55 dBA (Leq) and 75 dBA (Lmax) at the adjacent building site locations.

When paddle-wheel scrapers are used for excavation in Section 25, no more than two shall be permitted to operate. Scrapers shall be staggered to avoid simultaneous operation.

Retail sales and rock processing is not permitted in Section 25.

Blasting associated with the mining operation is prohibited.

Noise Studies are provided in Appendix C.

4.6 Cultural/Historical Resources

Any archaeological artifacts found in the operational area are required to be examined by a qualified archaeologist and/or historian.

If archaeological sites are encountered during excavation, all activity is required to cease within a 50 foot radius until a qualified archaeologist surveys the site and additional measures to protect the site can be determined, if deemed necessary.

All metal debris and non-metallic objects (glass, wood, etc.) discovered, which may be of historical significance, shall be stored for later inspection by an official representative of the Nevada County Historical Society (NCHS).

Official representatives of the NCHS are required to visit the Section 25 site at least once per year to inspect the finds. If the NCHS representatives determine any artifacts should be salvaged, the NCHS shall arrange for a reasonably prompt removal from the property.

The California Historical Resources Letter is available in Appendix K.
4.7 Recreation

The operator cannot impede pedestrian or vehicular traffic across Greenhorn Creek on routes already established by prescriptive use or other legal methods.

Operations cannot be conducted in a manner which prevents lawful recreational access or use of Greenhorn Creek.

4.8 Hazards, Hazardous Materials, and Waste

Storage and/or use of hazardous material is required to comply with Chapter XI of the Nevada County Land Use and Development Code.

Industrial type wastes are prohibited from being disposed of on-site, unless a specific method of disposal and design has been approved by the Nevada County Department of Environmental Health, in compliance with Chapter 6.5 of the California Health and Safety Code, Hazardous Waste Control.

Staging/storage areas for equipment, materials, fuels, lubricants, and solvents are required to be located outside of the stream’s high water channel. Stationary equipment such as motors, pumps, generators, compressors, and welders located in the dry portion of the stream channel or adjacent to the stream are required to be positioned over drip-pan.

Vehicles are required to be moved a minimum of 50 feet from the flowing water of the stream prior to refueling and lubricating.

The operation is prohibited from dumping any litter or construction debris within the stream zone and preventing disposal of any rinse/wash waters or industrial materials into the storm water conveyance system.

Industrial waste disposal containers and industrial material storage containers that contain industrial materials are required to be covered when not in use. All waste shall be disposed of in accordance with state and local health and safety ordinances.

Equipment is required to be monitored for conditions that could result in the development of leaks and an appropriate schedule for prompt maintenance of equipment is required to be established. Spill and leak minimization procedures are required to be established along with spill and leak response procedures. Spilled and leaked industrial materials are required to be cleaned promptly and disposed of properly.

If leaks or spills occur from harvesting or operational equipment, the loader from the Plant, or other appropriate equipment, will be dispatched to collect the contaminated aggregate and dispose of the material at an appropriate facility.

The facility maintains and implements a Spill Prevention, Control, and Countermeasure (SPCC) Plan as required by the U.S. Code of Federal Regulations, Title 40, Part 112 and is required to be
submitted to the County of Nevada Environmental Health Department by the Aboveground Petroleum Storage Act (Assembly Bill 1130).
Figure 1

Vicinity Maps
Figure 2

Site Maps
Figure 3

Mineral Resources Map
Figure 4

Reclamation Maps
NOTE
EXISTING CONTOURS AT FIVE FOOT INTERVALS ARE INTERPOLATED FROM USGS CHICAGO PARK QUADRANGLE, 7.5-MINUTE SERIES, DATED 2012

LEGEND
A  ZONE OF UNDISTURBED UPLAND VEGETATION
B  ZONE OF MIXED UPLAND AND RIPARIAN VEGETATION FROM NATURAL RESEEDING OR PLANTING IF REQUIRED
C  STREAM THREAD - BEDROCK

SECTION A - A
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"= 50'

SECTION B - B
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"= 50'
NOTE
EXISTING CONTOURS AT FIVE FOOT INTERVALS ARE INTERPOLATED FROM USGS CHICAGO PARK QUADRANGLE, 7.5-MINUTE SERIES, DATED 2012

LEGEND
A  ZONE OF UNDISTURBED UPLAND VEGETATION
B  ZONE OF MIXED UPLAND AND RIPARIAN VEGETATION FROM NATURAL RESEEDING OR PLANTING IF REQUIRED
C  STREAM THREAD - BEDROCK

SECTION C - C
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=50'

SECTION D - D
HORIZONTAL SCALE: 1"=100'
VERTICAL SCALE: 1"=50'
Figure 4f

Reclamation Cross Section A-A'

Legend:

A. Zone of disturbed upland vegetation
B. Zone of mixed upland and riparian vegetation from natural reseeding or planting if required.
C. 50% Story zone vegetation will consist of natural vegetation of riparian species on all areas above low 50-year flow. Planting will be assisted if required.

Notes:

D. Ground slopes in area "B" are actually estimated and plotted at 86-85%. 
E. Shape of channel bottom inferred from similar areas where gravel has been excavated.

Date Prepared: 5/16/85
Financial Assurance Guidelines

State of California

DEPARTMENT OF CONSERVATION
Financial Assurance Cost Estimate
Form OMR-23  (New 09/99)

APPENDIX A-1
[EXAMPLE]

FINANCIAL ASSURANCE COST ESTIMATE

FOR

Greenhorn Gravel Plan Expansion

CA MINE ID # 91-290006

Prepared by:

Jeff Hansen

Date: February 10, 2017

Note: This worksheet was developed by the Office of Mine Reclamation to assist lead agencies and operators prepare a reclamation cost estimate and determine an appropriate amount for the financial assurance in conformance with Section 2773.1 of SMARA. It should be used in conjunction with the Financial Assurance Guidelines adopted by the State Mining and Geology Board.
Instructions

The worksheet is divided into seven sections to simplify the cost analysis process. Below is a list of instructions for each section. Please read them carefully before filling out the form. If a section is not applicable, please indicate so with a brief statement. An equipment list is provided after Section 7 for summarizing equipment used for reclamation. In addition, a page is provided at the end of the form for notes and calculations. Copies of supporting documentation such as contractor estimates should also be attached.

Section I - Primary Reclamation Activities

This section should be used to calculate direct costs associated with primary reclamation activities. These activities include, but are not limited to: establishing final slopes on all cuts and fills, removal of haul/access roads, constructing drainage/erosion controls, compacting staging/stockpile areas, demolition and disposal of building foundations and other debris as well as underground structures (i.e. storage tanks and septic systems), cleanup of barren areas, well closure, topsoil replacement/redistribution, finish grading, remediation of any soil contamination, and establishing access restrictions.

Refer to the approved reclamation plan to determine the various tasks required to reclaim the site. If the reclamation plan is not specific enough to provide this information, the lead agency should be consulted to help determine your reclamation requirements. Using the form provided, estimate the costs for each task by: 1) briefly describing the reclamation task to be performed and the methods to be implemented; 2) completing the calculation tables; and 3) adding the results at the bottom of the page. It may make it easier to break large mine sites into smaller areas and address each area separately. If this is done, make copies of the worksheet page and fill them out for each reclamation task and area. Page numbers were intentionally left off for this purpose so be sure to number the pages as they are completed.

Section II - Revegetation

This section should be used to calculate direct costs associated with revegetating disturbed areas. Revegetation activities include, but are not limited to: soil preparation/amendment, mulching, installation of irrigation systems, custom seed/plant collection, nursery services, hydoseeding, seed/plant installation, plant protection, and remediation.

Refer to the approved reclamation plan or revegetation program to determine the various tasks and materials required to revegetate the site. Follow the procedures discussed in Section I to estimate the costs for each task. Be sure to provide the unit of measure (i.e. pallet, pound, ton) in the materials table for the type of material to be used.

Section III - Plant Structures and Equipment Removal

This section should be used to calculate the costs associated with dismantling and removal of plant structures and equipment. The Financial Assurance Guidelines adopted by the State Mining and Geology Board provide that the cost to reclaim the plant site may be net of the surplus/salvage value of the facilities to be reclaimed. Please note however, that the value of mined material stockpiles located within the plant site area cannot be used to offset the cost of their removal. This reclamation cost should be provided in the primary reclamation activities section.
Financial Assurance Guidelines

EXAMPLE

Refer to the approved reclamation plan to determine the tasks required to reclaim and remove the plant structures and equipment. Estimate these costs using the tables provided. To establish the salvage value of the plant site an estimate, bid or cost calculation from an impartial company or contractor which provides industrial dismantling or equipment salvage services, or is in the business of buying and selling scrap metals or similar products, must be provided. The estimate, bid or cost calculation should contain the following information:

a. Name & location of company or contractor  e. Cost of such work
b. Statement of qualifications and experience  f. Net salvage value of equipment/material
c. Location of mine site & California Mine ID#  g. Effective period of estimate or bid
d. Description of work to be done  h. Signature of responsible party

Follow the directions provided in subsection E to determine if the cost to remove the plant equipment may be offset by its salvage value.

Section IV - Miscellaneous Costs

This section should be used to list any miscellaneous costs for materials, labor or services required to complete final reclamation and closure of the site (i.e. plant decommissioning, lead agency final inspections, reclamation mitigation measures, etc.). Using the table provided, list the item or service needed, the quantity, its unit cost (if appropriate) and total cost. Indicate the sum of these costs at the bottom of the page.

Section V - Monitoring

This section should be used to list the costs associated with any required monitoring of the site once initial reclamation has been completed. This could include monitoring for successful revegetation and habitat establishment, slope stability, erosion control, access controls, or site remediation (i.e. process reagents/hydrocarbons). Monitoring required by other agencies (i.e. California Regional Water Quality Control Board) and covered under a separate financial assurance need not be listed. Using the table provided, list the monitoring task, the cost per site visit, the number of site visits per year, the number of monitoring years and total cost. Indicate the sum of these costs in the space provided below the table. If a consultant will be conducting the monitoring, provide a copy of his/her estimate or contract.

Section VI - Supervision / Profit & Overhead / Contingencies / Mobilization

This section includes the costs associated with supervision of reclamation activities, profit and overhead, contingencies (unforeseen costs) and mobilization (the cost of moving equipment to and from the site). These costs are based on a percentage of the total direct costs and normally decline as the value of the operation increases. Refer to Graph 1 and Graph 2 to determine the percentage rates to be used.

Section VII - Summary of Costs

This section should be used to determine the total cost of reclamation and the amount of the financial assurance. Add all the cost sheets from each section together and place their totals in the spaces provided. The lead agency should determine how much, if any, administrative cost is to be added.
I. PRIMARY RECLAMATION ACTIVITIES

Description of Task: Reclamation occurs by removing the aggregate material from the streambed, leaving a blanket of gravel on the surface, returning the canyon to a more natural state, similar to before the historic hydraulic mining. When nearly all the material is removed, the ground is deliberately contoured into a "V" shaped channel, cut to the angle of repose.

Methods to be Used:
Heavily equipment removes sand and gravel from sandbars within Greenhorn Creek and transports the material to the material storage and processing location.

Miscellaneous Information:

<table>
<thead>
<tr>
<th>Overburden (cubic yards): 75</th>
<th>Topsoil (cubic yards): N/A</th>
<th>Acres: 1.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Rate (cubic yards/hour):</td>
<td>N/A</td>
<td>2.</td>
</tr>
<tr>
<td>Haul Distance (feet): 1. N/A</td>
<td>2.</td>
<td>3.</td>
</tr>
</tbody>
</table>

A. Equipment - List all equipment required to complete identified task. For large reclamation jobs separate mine areas for ease of accounting.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
<th>$/Hour</th>
<th># of Hours</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-8 R Dozer</td>
<td>1</td>
<td>179.71</td>
<td>3</td>
<td>539.13</td>
</tr>
<tr>
<td>120-M Grader</td>
<td>1</td>
<td>66.40</td>
<td>3</td>
<td>199.20</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Equipment Cost for this Task $ 738.33

B. Labor - List all labor categories to complete identified task.

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Quantity</th>
<th>$/Hour</th>
<th># of Hours</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equipment Operator</td>
<td>2</td>
<td>68.87</td>
<td>6</td>
<td>413.22</td>
</tr>
</tbody>
</table>

Total Labor Cost for this Task $ 413.22

C. Materials - List all materials required to complete identified task (include disposal costs).

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>$/Unit</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Materials Cost for this Task $ 0.00

D. Direct Cost for this Task

Equipment Cost + Labor Cost + Materials Cost = $ 1,151.55
II. REVEGETATION

Description of Task:
The absence of sand and gravel allows the natural propagation of vegetation. If natural revegetation does not occur, augmented revegetation will be initiated by hydroseeding or hand seeding exposed soil with a native seed mix, cuttings, and container plants. Revegetation cover, density, and species richness will be based on a baseline study by Stantec Consulting.

Methods to be Used:
The native seed mix species and application rate along with container plant size, quantity, and species will be as described in the Mining and Reclamation Plan. Planting/seeding will be conducted between October and December and as directed in the Mining and Reclamation Plan. Seeds, plants, and cuttings will be locally sourced.

A. Equipment - List all equipment required to complete identified task.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
<th>$/Hour</th>
<th># of Hours</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Equipment Cost for this Task $ 0.00

B. Labor - List all labor categories to complete identified task.

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Quantity</th>
<th>$/Hour</th>
<th># of Hours</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restoration Specialist</td>
<td>40 acres</td>
<td>$130</td>
<td>12 hr/ac</td>
<td>62,400.00</td>
</tr>
<tr>
<td>Field Technicians</td>
<td>40 acres</td>
<td>$25</td>
<td>56 hr/ac</td>
<td>56,000.00</td>
</tr>
</tbody>
</table>

Total Labor Cost for this Task $ 118,400.00

C. Materials - List all materials required to complete identified task.

<table>
<thead>
<tr>
<th>Item / Plant Species</th>
<th>Unit of Measure</th>
<th># of Units</th>
<th>$/Unit</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydro Mulch and Seeding</td>
<td>Acre</td>
<td>40</td>
<td>2,460.00</td>
<td>98,400.00</td>
</tr>
<tr>
<td>Topsoil</td>
<td>Acre</td>
<td>40</td>
<td>280.00</td>
<td>11,200.00</td>
</tr>
<tr>
<td>Upland Container Plants</td>
<td>Acre</td>
<td>34</td>
<td>2,490.00</td>
<td>84,660.00</td>
</tr>
<tr>
<td>Riparian Container Plants</td>
<td>Acre</td>
<td>5.6</td>
<td>1,316.00</td>
<td>7,370.00</td>
</tr>
</tbody>
</table>

Total Materials Cost for this Task $ 201,630.00

D. Direct Cost for this Task

Equipment Cost + Labor Cost + Materials Cost $ 320,030.00

Financial Assurance Cost Estimate
Page 5
Financial Assurance Guidelines

III. PLANT STRUCTURES AND EQUIPMENT REMOVAL

Description of Task:

Methods to be Used:

A. Equipment - List all equipment required to complete identified task.

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Quantity</th>
<th>$/Hour</th>
<th># of Hours</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Equipment Cost for this Task $ 0.00

B. Labor - List all labor categories to complete identified task.

<table>
<thead>
<tr>
<th>Labor Category</th>
<th>Quantity</th>
<th>$/Hour</th>
<th># of Hours</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Labor Cost for this Task $ 0.00

C. Demolition - List all structures and equipment to be dismantled or demolished.

<table>
<thead>
<tr>
<th>Structure / Equipment</th>
<th>Type of Material</th>
<th>Volume (cubic feet)</th>
<th>Unit Cost Basis</th>
<th>Disposal Cost</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Materials Cost for this Task $ 0.00

D. Direct Cost for this Task

Equipment Cost + Labor Cost + Demolition Cost = $ 0.00

Financial Assurance Cost Estimate
Page 6
E. Surplus / Salvage Value

1. Total cost to reclaim plant structures and equipment pursuant to the approved reclamation plan. $N/A$

2. Net salvage value of the plant structures and equipment.* $N/A$

3. Subtract Line 2 from Line 1 $N/A$

4. If Line 3 is greater than $0, enter this amount on the total plant structures and equipment removal cost line under Section VIII (Summary of Costs). If Line 3 is less than $0, enter $0 on the appropriate line in Section VIII.

*NOTE This is the value of plant structures, buildings and equipment on a salvage basis — e.g. after the structures and equipment have been removed for sale or use off-site. In order to include net salvage value in the financial assurance calculation, the operator must provide a letter of agreement, signed contract, bid or quote from an independent company which provides industrial dismantling or equipment salvage services, or is in the business of buying and selling scrap metals or similar products.
IV. MISCELLANEOUS COSTS

Examples of this type of cost could include temporary storage of equipment and materials off site, special one-time permits (i.e. transportation permits for extra wide or overweight loads, etc.), decommissioning a process mill (i.e. decontamination of equipment), or disposal of warehouse inventories.

<table>
<thead>
<tr>
<th>Item / Task</th>
<th>Quantity</th>
<th>$/Unit</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Other</td>
<td>1</td>
<td>Lump Sum</td>
<td>1,500.00</td>
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<td>2.</td>
<td></td>
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<td>3.</td>
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<tr>
<td>6.</td>
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<td>7.</td>
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<td>8.</td>
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<td>9.</td>
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<tr>
<td>10.</td>
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</tbody>
</table>

Total Miscellaneous Costs $ 1,500.00

V. MONITORING

<table>
<thead>
<tr>
<th>Monitoring Task</th>
<th>$/Visit</th>
<th># Visits/Year</th>
<th># of Monitoring Years</th>
<th>Cost ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Inspection</td>
<td>300.00</td>
<td>1</td>
<td>5</td>
<td>1,500.00</td>
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<tr>
<td>2.</td>
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<tr>
<td>5.</td>
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</tbody>
</table>

Total Monitoring Costs $ 1,500.00
VI. SUPERVISION/PROFIT & OVERHEAD/CONTINGENCIES/MOBILIZATION

A. Supervision - Supervision or reclamation management includes project inspection and supervision. These activities are usually performed by a consultant or staff member with experience in reclamation of disturbed lands. Reclamation management may include recommending change orders, verifying completed work, verifying compliance with project specifications, and other reclamation management oversight activities. Please refer to Graph No. 1 to determine the supervision cost factor.

B. Profit and Overhead - Where it becomes necessary for the Lead Agency or the Department of Conservation to complete reclamation of the mining site, a third party will be retained to do the actual reclamation work. Because profit and overhead costs are not included in the reclamation cost sheets, these costs must be added to the total reclamation estimate. Please refer to Graph No. 2 to determine the profit and overhead cost factor.

C. Contingencies - A contingency cost should be included in the financial assurance estimate to provide for project uncertainties and unexpected natural events. The U. S. Department of the Interior, Office of Surface Mining publishes the Handbook for Calculation of Reclamation Bond Amounts which recommends contingency percentages be based upon the level of direct costs, as shown below:

<table>
<thead>
<tr>
<th>Total Direct Cost ($)</th>
<th>Contingency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - $500,000</td>
<td>10</td>
</tr>
<tr>
<td>$500,00 - 5 million</td>
<td>7</td>
</tr>
<tr>
<td>5 million - 50 million</td>
<td>4</td>
</tr>
<tr>
<td>Greater than 50 million</td>
<td>2</td>
</tr>
</tbody>
</table>

D. Mobilization - Mobilization costs are attributed to moving equipment to the project site for reclamation purposes. These costs normally range between one and five percent of the total direct cost of the reclamation operations. These costs will vary depending upon the site location and the total value of the reclamation operations to be performed. Please insert the percentage used to estimate mobilization costs under Section VIII - Summary of Costs.
VII. SUMMARY OF COST

Total of all Primary Reclamation Activities Costs $ 1,151.55
Total of all Revegetation Costs $ 320,030.00
Total of all Plant Structures & Equipment Removal Costs $ 0.00
Total of all Miscellaneous Costs $ 1,500.00
Total of all Monitoring Costs $ 1,500.00
Total of Direct Costs $ 324,181.55

Supervision ( 6.2 %) $ 20,099.26
Profit/Overhead ( 13 %) $ 42,143.60
Contingencies ( 10 %) $ 32,418.16
Mobilization ( 13 %) $ 42,143.60
Total of Indirect Costs $ 136,804.62

Total of Direct and Indirect Costs $ 460,986.17
Lead Agency Administrative Cost* (Determined by the Lead Agency) $ 46,098.62

Total Estimated Cost of Reclamation $ 507,084.79

*NOTE  The Financial Assurance Guidelines recommend that when reviewing and approving a financial assurance cost estimate, lead agencies should include their administrative cost to draw on the financial assurance and implement the reclamation plan, should it become necessary.
Financial Assurance Guidelines

EQUIPMENT LIST

This attachment may be used to list the number and type of equipment to be used during reclamation. Write in the equipment under the general categories provided. If there is no category for the type of equipment to be used, please list it under the category entitled "Other Equipment".

<table>
<thead>
<tr>
<th>TRACTORS</th>
<th>EXCAVATORS</th>
<th>TRACTOR ATTACHMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-8 R Dozer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>120-M Grader</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOTOR GRADERS</td>
<td>ARTICULATED TRUCKS</td>
<td>OTHER EQUIPMENT</td>
</tr>
<tr>
<td>LOADERS</td>
<td>HAUL TRUCKS (Off Hwy)</td>
<td></td>
</tr>
<tr>
<td>BACKHOES</td>
<td>HAUL TRUCKS (On Hwy)</td>
<td></td>
</tr>
<tr>
<td>SCRAPPERS</td>
<td>WATER TRUCKS</td>
<td></td>
</tr>
</tbody>
</table>
## Salby's Soil Erosion Control Co. Inc.

P.O. Box 1330, Newcastle, CA 95658  
530-887-9894 Fax 530-887-8169  
CA Lic. 797658 ~ NV Lic. 0070352

### BILL TO:

Hansen Bros. Enterprises  
PO Box 1599  
Grass Valley, CA 95945

---

**INVOICE #: 7155**  
**INVOICE DATE: 03/09/16**  
**JOB: 000764**  
**Auburn Bluffs**

---

<table>
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<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>CURRENT BILLING UNITS</th>
<th>UNIT</th>
<th>UNIT BILL RATE</th>
<th>CURRENT BILLING AMOUNT</th>
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</thead>
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<td>AC</td>
<td>$1,725.00</td>
<td>$2,587.50</td>
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<tr>
<td>2</td>
<td>Move-In/Out</td>
<td>1.00</td>
<td>EA</td>
<td>$180.00</td>
<td>$180.00</td>
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**TOTAL:**  
$2,767.50

---

**NET DUE:**  
$2,767.50

---

**1500160**

708-11-220

---

**Attachment 4**
## Classification Table

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<tr>
<th>CLASSIFICATION</th>
<th>Code</th>
<th>PRODUCT</th>
<th>SIZE</th>
<th>Greenhorn per/ton</th>
<th>La Barr per/ton</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAND</td>
<td>31023</td>
<td>Masonry Sand</td>
<td>1/8&quot;</td>
<td>15.55</td>
<td>24.05</td>
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<tr>
<td></td>
<td>31201</td>
<td>Washed Sand</td>
<td>1/4&quot;</td>
<td>14.20</td>
<td>23.85</td>
</tr>
<tr>
<td></td>
<td>31900</td>
<td>Crushed Sand</td>
<td>1/4&quot;</td>
<td>11.10</td>
<td>22.40</td>
</tr>
<tr>
<td></td>
<td>31001</td>
<td>Natural Sand</td>
<td>3/8&quot;</td>
<td>11.25</td>
<td>22.45</td>
</tr>
<tr>
<td></td>
<td>31013</td>
<td>Pond Sand (some rock), Silt</td>
<td>1/16&quot;</td>
<td>3.00</td>
<td>NA</td>
</tr>
<tr>
<td></td>
<td>31003</td>
<td>Fill Sand, P.G.&amp;E. Spec.</td>
<td>1/8&quot;</td>
<td>11.80</td>
<td>21.00</td>
</tr>
<tr>
<td></td>
<td>31002</td>
<td>Road Sand</td>
<td>1/4&quot;</td>
<td>16.15</td>
<td>NA</td>
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<tr>
<td></td>
<td>31022</td>
<td>No.2 Plaster Sand, ASTM C897</td>
<td>1/8&quot; minus</td>
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<td>NA</td>
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<td>LANDSCAPE &amp; CONCRETE</td>
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<td>Landscape Rock</td>
<td>1&quot;x1-1/2&quot;</td>
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<tr>
<td>CONCRETE AGGREGATE</td>
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<td>Concrete Aggregate</td>
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<td>23.80</td>
</tr>
<tr>
<td></td>
<td>31304</td>
<td>Concrete Aggregate</td>
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<td>14.00</td>
<td>23.65</td>
</tr>
<tr>
<td></td>
<td>31010</td>
<td>Concrete Mix</td>
<td>1&quot; plus</td>
<td>15.10</td>
<td>21.75</td>
</tr>
<tr>
<td>ASPHALT MATERIALS</td>
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<td>3/16X7/16&quot; Crushed Agg. (3/8&quot; HP)</td>
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<td>15.10</td>
<td>23.95</td>
</tr>
<tr>
<td></td>
<td>31502</td>
<td>7/16&quot;X5/8&quot; Crushed Agg. (1/2&quot; HP)</td>
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<td>23.40</td>
</tr>
<tr>
<td></td>
<td>92008</td>
<td>1&quot; Recycled Base Rock</td>
<td>1&quot; minus</td>
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<td>12.00</td>
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<td></td>
<td>91045</td>
<td>Chips</td>
<td># 8 x 5/16&quot;</td>
<td>NA</td>
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</tr>
<tr>
<td></td>
<td>50030</td>
<td>Cut Back</td>
<td>3/8&quot;</td>
<td>NA</td>
<td>130.00</td>
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<tr>
<td>ROAD MATERIALS</td>
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<td>3/4&quot; Class II Aggregate Base</td>
<td>1&quot; minus</td>
<td>12.00</td>
<td>22.35</td>
</tr>
<tr>
<td></td>
<td>31007</td>
<td>3/4&quot; Road Rock</td>
<td>1&quot; minus</td>
<td>14.10</td>
<td>24.15</td>
</tr>
<tr>
<td></td>
<td>31005</td>
<td>1/2&quot; Road Rock</td>
<td>1/2&quot; minus</td>
<td>NA</td>
<td>25.55</td>
</tr>
<tr>
<td></td>
<td>21007</td>
<td>3/4&quot; Crushed Mine Rock #2</td>
<td>1&quot; minus</td>
<td>NA</td>
<td>30.75</td>
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<tr>
<td></td>
<td>21043</td>
<td>1 1/2&quot; Crushed Mine Rock</td>
<td>2&quot; minus</td>
<td>NA</td>
<td>27.85</td>
</tr>
<tr>
<td></td>
<td>91105</td>
<td>3/4&quot; Clean Crush (PB)</td>
<td>1/2&quot;X1&quot;</td>
<td>NA</td>
<td>30.75</td>
</tr>
<tr>
<td></td>
<td>22150</td>
<td>1&quot;X2&quot; Crushed Mine Rock</td>
<td>1&quot;X2&quot;</td>
<td>NA</td>
<td>27.85</td>
</tr>
<tr>
<td></td>
<td>22148</td>
<td>2&quot;X4&quot; Crushed Mine Rock</td>
<td>2&quot;X4&quot;</td>
<td>NA</td>
<td>27.85</td>
</tr>
<tr>
<td>OTHER CONSTRUCTION MATERIALS</td>
<td>91055</td>
<td>Decomposed Granite</td>
<td>1/4&quot; minus</td>
<td>NA</td>
<td>43.40</td>
</tr>
<tr>
<td></td>
<td>31027</td>
<td>Underslab</td>
<td>1/8&quot; x 1&quot;</td>
<td>12.95</td>
<td>21.65</td>
</tr>
<tr>
<td></td>
<td>31011</td>
<td>Grout Mix</td>
<td>1/2&quot; minus</td>
<td>12.70</td>
<td>22.35</td>
</tr>
<tr>
<td></td>
<td>31039</td>
<td>Permeable CL. 1 Type A (3/8&quot; H.P.)</td>
<td>3/16&quot;x7/16&quot;</td>
<td>16.10</td>
<td>23.95</td>
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<tr>
<td></td>
<td>31028</td>
<td>Drain Rock</td>
<td>1/2&quot;x2-1/2&quot;</td>
<td>14.10</td>
<td>23.45</td>
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<tr>
<td></td>
<td>31009</td>
<td>Crusher Run</td>
<td>4&quot; minus</td>
<td>10.50</td>
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<td></td>
<td>31014</td>
<td>River Run/ Quarry Run</td>
<td>N/A</td>
<td>8.10</td>
<td>NA</td>
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<td></td>
<td>91030</td>
<td>Cobbles, Random</td>
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<td>NA</td>
<td>36.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Building Stone</td>
<td>8&quot;x14&quot;</td>
<td>NA</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Rip-Rap</td>
<td>18&quot;X30&quot;</td>
<td>NA</td>
<td>call for quote</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boulders, Machine Sorted</td>
<td>N/A</td>
<td>NA</td>
<td>call for quote</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Boulders, Random</td>
<td>N/A</td>
<td>NA</td>
<td>call for quote</td>
</tr>
<tr>
<td></td>
<td>22121</td>
<td>Trench Fill, Crushed</td>
<td>3/16&quot;X5/8&quot;</td>
<td>14.60</td>
<td>NA</td>
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<tr>
<td></td>
<td>31501</td>
<td>Select Fill /Screened Dirt</td>
<td>1/2&quot; minus</td>
<td>2.00$</td>
<td>9.25$</td>
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<tr>
<td></td>
<td>92009</td>
<td>A.C. Grindings, When Available</td>
<td>N/A</td>
<td>NA</td>
<td>12.50</td>
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</tbody>
</table>

Material by pickup load @ per/ton rates with minimum charge: H.B. loaded: $25.00, Hand loaded: $20.00, $10.00

FILL DIRT: (bank run, some rocks, roots, subject to moisture conditions)

<table>
<thead>
<tr>
<th>La Barr Meadows</th>
<th>Standard Pickup</th>
<th>6 YD. Dump Truck</th>
<th>10 YD. Dump Truck</th>
<th>Semi/Transfer (approx. 20 CY)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$30.00</td>
<td>$50.00</td>
<td>$70.00</td>
<td>$100.00</td>
</tr>
</tbody>
</table>

All prices must have Sales Tax added unless Resale Number is on file!
Availability of material is not Guaranteed! Phone First!
For Special Material or Volume Quotes, call Jeff Hansen or Walt Tanner at (530) 273-3381
Greenhorn Creek Gravel
Harvest Expansion Project
Biological Inventory Report

Stantec

Prepared for:
Hansen Brothers Enterprises
Greenhorn Creek Gravel Plant
12865 Mule Canyon Rd.
Grass Valley, CA 95945

Prepared by:
Stantec Consulting Services Inc.
101 Providence Mine Road, #202
Nevada City, CA 95959

June 16, 2015
Sign-off Sheet

This document entitled Greenhorn Creek Gravel Harvest Expansion Project Biological Inventory Report was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of Hansen Brothers Enterprises (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec’s professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by __________________________ (signature)

Emily C. Eppinger, Wildlife Biologist

Prepared by __________________________ (signature)

Morgan Kennedy, Vegetation Ecologist

Reviewed by __________________________ (signature)

Bernadette Bezy, Environmental Compliance Manager, Sr. Aquatic Biologist

Stantec
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1.0 INFORMATION SUMMARY

Date report prepared: June 16, 2015

Project site location
Greenhorn Creek, Grass Valley, Nevada County, California
Sections 25 and 36, Township 16 North, Range 09 East

Assessor's Parcel Numbers
3837017, 3838015, 3838016, 38043002

Owner/Applicant Address, Phone/Fax number and email address
Hansen Brothers Enterprises
Attn: Jeff Hansen
P.O. Box 1599
Grass Valley, CA 95945
Telephone: (530) 273-3381
Fax: (530) 272-5401
jhansen@gohbe.com

Principal Investigators Address, Phone/Fax number and email address
Stantec Consulting Services Inc.
Attn: Emily C. Eppinger
101 Providence Mine Road, Suite 202
Nevada City, CA 95959
Telephone: (530) 470-0515
emily.eppinger@stantec.com

Report Summary
No special status plant species were observed within the proposed Project area.
One California Species of Special Concern was observed in the proposed Project area:
Foothill yellow-legged frog (Rana boyeri). The proposed Project is expected to have a less
than significant impact to biological resources with the implementation of avoidance and
minimization and/or mitigation measures. Please refer to Sections 4.0, 5.0, and 6.0 of this
report for further discussion regarding sensitive resources and recommendations.

Report Preparers
Emily C. Eppinger, Wildlife Biologist, Stantec Consulting Services Inc.
Morgan Kennedy, Vegetation Ecologist, Stantec Consulting Services Inc.
2.0 PROJECT AND PROPERTY DESCRIPTION

2.1 PROJECT DESCRIPTION

Stantec prepared this Biological Inventory Report upon request of Hansen Brothers Enterprises (Hansen Bros.) for the proposed Greenhorn Creek Gravel Harvest Expansion Project (Project). The purpose of the proposed Project includes removing the overburden of hydraulic mine tailings washed down from upstream Placer Diggings from the latter half of the 19th century. The operation is accelerating the movement of the artificial bed load out of the stream reach. Currently, the proposed areas of gravel harvest expansion are not permitted by Nevada County (County). As such, a land use permit is necessary from the County. In accordance with General Plan Policy 3.2-A, the County requires a Biological Inventory prior to issuing a permit.

2.2 PROPERTY DESCRIPTION

The proposed Project is located approximately five miles upstream from Rollins Reservoir. The proposed Project area primarily extends due southwest; following the course of Greenhorn Creek, however there is a portion of the proposed Project area that extends westward into Missouri Canyon. The proposed expansion area includes Greenhorn Creek and Missouri Canyon within the Assessor’s Parcel Numbers 3837017, 3838015, 3838016, and 38043002. The proposed Project gravel harvest expansion area is located in southern Nevada County in Township 16N, Range 9E, Sections 25 and 36 and in the U.S. Geological Survey (USGS) 7.5 minute Chicago Park Quadrangle (Quad) at approximately 2,500 feet (762 meters) above mean sea level (MSL) (Figure 1 Project Vicinity).

The northern extent of the proposed Project area begins along Greenhorn Creek approximately 3,500 feet (1,067 meters) south of where Buckeye Road crosses Greenhorn Creek. The proposed Project footprint follows the meandering course of Greenhorn Creek, generally running to the southwest. The northern extent of the proposed Project footprint ends at the Red Dog Narrows, where Red Dog Road crosses Greenhorn Creek. The Red Dog Narrows are a narrow bedrock confined portion of the stream that channels flows through a shallow canyon (approximately 200 feet [61 meters]) of large tiered rock formations. The northern footprint of the proposed Project area totals 21 acres and extends 3,910 linear feet (1,192 meters) (Figure 2 Project Area).

The middle extent of the proposed Project area begins approximately 300 feet (91 meters) south of the Red Dog Road and Greenhorn Creek crossing. The middle extent of the proposed Project area follows the meandering course of Greenhorn Creek, first running northwest, and then sharply turning southwest. The middle footprint of the proposed Project area totals 13 acres and extends 3,030 linear feet (924 meters) (Figure 2).
GREENHORN CREEK GRAVEL HARVEST EXPANSION PROJECT BIOLOGICAL INVENTORY REPORT

Project and Property Description
June 16, 2015

The southern extent of the proposed Project area begins approximately 500 feet (152 meters) south of the middle extent. The southern extent of the proposed Project area follows the course of Greenhorn Creek, generally running south, with little to no meanders. At Missouri Canyon, the proposed Project area extends east approximately 1,650 feet (503 meters). The southern footprint of the proposed Project area comprises areas of Greenhorn Creek and Missouri Canyon, totaling 16 acres and extending 3,740 linear feet (1,140 meters) (Figure 2).

The northern extent of the proposed Project area can be accessed from Buckeye Road, less than one mile upstream. The middle and southern extents of the proposed Project area will be accessed from Greenhorn Creek channel from the Hansen Bros. Greenhorn Creek Gravel Plant on Mule Canyon Road. The total area of the proposed Project area, including the north, middle, and south extents as described above, includes 50 acres and 10,680 linear feet (3,255 meters) (Figure 2). Descriptions of the Biological Study Area (BSA) are described in Section 3.0 Methodology, and environmental and biological descriptions of the proposed Project area are described in Section 4.0 Results below.
3.0 METHODOLOGY

Stantec conducted background research for existing biological resources and field surveys for the proposed Project area. Background research was focused on reviewing federally listed species, California State listed species, and those species identified as California State Species of Concern by California Department of Fish and Wildlife (CDFW), as well as those that have a degree of concern as defined by the California Native Plant Society (CNPS) California Rare Plant Ranking (CRPR). Background research also included a review of CNPS vegetation alliances and association, National Resources Conservation Service (NRCS) soil types, and the National Wetland Inventory (NWI) wetlands and USGS hydrology. Field surveys were conducted on May 11, 2015 within the BSA. The BSA includes all areas within the proposed Project area, as described above in Section 2.0 Project and Property Description. In some instances the BSA also includes areas outside of the proposed Project area relative to associated biological resources. The total area of the BSA is approximately 66 acres (Figure 3 Biological Study Area Overview).
3.1 Desktop Analysis

Prior to completing reconnaissance-level biological field survey on May 11, 2015, Stantec completed a desktop analysis of the general area to identify sensitive biological resources. Special status plant and wildlife species designated as sensitive by the CDFW, USFWS, and CNPS that were either known to occur and/or have the potential to occur in the proposed Project area were the primary focus of the background research. The following resources were used to identify sensitive biological resources known to occur and likely to occur in the proposed Project area and surrounding region:

- A CDFW CNDDB records search of special status species observations in the proposed Project area and in the five miles surrounding the proposed Project area (CDFW 2015a);
- The CNPS online Inventory of Rare and Endangered Plants of California for Chicago Park, Colfax, Grass Valley, Lake Comble, Forest Hill, Dutch Flat, Washington, Nevada City, and North Bloomfield USGS 7.5 minute Quads (CNPS 2015a);
- The USFWS list of the potential endangered, threatened, and candidate species that may occur within the proposed Project area and in the five miles surrounding the proposed Project area (USFWS 2015a);
- The USFWS Critical Habitat data for federally threatened and endangered species (USFWS 2015b); and
- Califlora online database for Nevada County (Calflora 2015). Califlora was used as a secondary tool for the purpose of assessing any and/or all other rare plant species that have the potential to occur within Nevada County.

Endangered, threatened, rare, and/or special status species that were identified during the background research/desktop analysis as having potential to occur within the proposed Project area and surrounding region are compiled in Table 1 of the Section 4.0 Results. For the purpose of this Biological Inventory Report, special status species are defined by the following parameters:

- Endangered Species Act (50 Code of Federal Regulations [CFR] 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register for proposed species);
- Species that are listed or proposed for listing by California as threatened or endangered under the CESA (14 CCR 670.5);
- Plants listed as rare under the California Native Plant Protection Act of 1977 (CDFG Code 1900 et seq.);

Stantec
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June 16, 2015

- Plants considered by the CNPS to be Rank 1- a) "plants presumed extirpated in California and either rare or extinct elsewhere, or b) "rare, threatened, or endangered in California and elsewhere";

- Plants considered by CNPS to be a Rank 2- a) Plants presumed extirpated in California, but common elsewhere, or b) "rare, threatened, or endangered in California and common elsewhere";

- Plants considered by CNPS to be a Rank 3- "plants about which more information is needed" and cannot be yet be excluded from review;

- Plants considered by CNPS to be a Rank 4- "plants with limited distribution";

- Species that meet the definitions of "rare" or "endangered" under CEQA Guidelines, Section 15380;

- Animal Species of Special Concern to CDFW; and

- Plant and animal species that are designated as "special animals" or "those of greatest conservation need", by CDFW through the CNDDB.

3.2 FIELD STUDIES

On May 11, 2015 a Stantec wildlife biologist and a Stantec vegetation ecologist conducted a reconnaissance-level biological survey of the proposed Project area and BSA (Figure 3). Surveys took place from approximately 11:15 until 15:15 in the afternoon. Weather conditions were partly sunny, no precipitation, a light breeze, and approximately 65 degrees Fahrenheit. Surveys were conducted on foot within the BSA walking meandering transects to identify waters of the U.S. and other wetland features, the presence of rare plants, and the presence of and/or habitat of special status wildlife species mentioned above. A list of the plant and wildlife species observed during the field surveys are compiled in Table 2 and Table 3 of the Section 4.0 Results.
GREENHORN CREEK GRAVEL HARVEST EXPANSION PROJECT BIOLOGICAL INVENTORY REPORT

Results
June 16, 2015

4.0 RESULTS

4.1 DESKTOP ANALYSIS

The purpose of the desktop analysis conducted prior to field surveys was to identify biological resources designated as sensitive by the CDFW, USFWS, and CNPS that were either known to occur and/or have the potential to occur in the proposed Project area. The resources mentioned above in Section 3.0 Methodology were used to identify those potential sensitive biological resources.

Known occurrences of USFWS designated critical habitat and special status plant and animal species within five miles of the proposed Project area are shown below in Figure 4.

In addition to Figure 4, the results of the background research yielded in the identification of 75 special status plant (65) and wildlife (10) species, not including raptors and migratory birds, which may have the potential to occur within the proposed Project region (Table 1). These results include special status plant and animal species that are known to occur within five miles of the proposed Project area and/or have the potential to occur based on background research data from the CNPS online inventory, Calflora, and USFWS list of Federal Endangered and Threatened Species.

Conclusions in Table 1 below regarding the habitat suitability and the potential for species occurrence were based on background research, database searches, and local habitat suitability. For each special status species known to occur in the Project region, the “potential for occurrence” in the Project area has been evaluated and is defined as follows:

- **Very Low to Nil**: The proposed Project area and/or immediate area do not support suitable habitat for a particular species. Proposed Project is outside the species known range.

- **Low Potential**: The proposed Project area and/or immediate area provide limited habitat for a particular species. In addition, the known range for a particular species may be outside the immediate proposed Project area.

- **Moderate Potential**: The proposed Project area and/or immediate area provide suitable habitat for a particular species, and habitat for the species may be impacted.

- **High Potential**: The proposed Project area and/or immediate area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate area and within the potential area of impact.

- **Present**: Recorded historically or observed in proposed Project area during biological surveys for the proposed Project.

Species with a moderate potential, high potential, or are known to be present in the proposed Project area are further described in the species accounts in Section 5.0, Rare, Endangered, or Sensitive Species and Habitats.

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<th>Table 1: Special Cattle and Wildlfe Species and Their Potential to Occur in the Proposed Expansion Area, Nevada County, California.</th>
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**Control Measures:**
- Table 5
- Attachment 1
- Attachment 2
- Attachment 3
- Attachment 4
- Attachment 5

**Saprobic Index:**
- High
- Medium
- Low

**Prey:**
- Small Mammals
- Fish
- Invertebrates
- Herbivores

**Predator:**
- Deer
- Elk
- Coyote
- Fox

**Habitat:**
- Special Cattle
- Wildlfe Species
- Potential to Occur
- Proposed Expansion Area
- Nevada County, California.
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<tr>
<td>Level of Project Impact</td>
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<tr>
<td>Very Low</td>
<td>1/16/15</td>
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<td>Low</td>
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<td>Medium</td>
<td>1/16/15</td>
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<tr>
<td>High</td>
<td>1/16/15</td>
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<tr>
<td>Very High</td>
<td>1/16/15</td>
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*Note: The above table provides a summary of the project's impact level and identification period. Additional information includes the specific dates and metrics related to each level of impact.*
## Greenhorn Creek Gravel Harvest Expansion Project Biological Inventory Report

**Results June 16, 2015**

<table>
<thead>
<tr>
<th>common name</th>
<th>Scientific Name</th>
<th>Federal</th>
<th>State</th>
<th>SNPS</th>
<th>Geographic distribution/Topographic province</th>
<th>Preferred habitat</th>
<th>Identification period</th>
<th>Level of potential for occurrence within Project area</th>
</tr>
</thead>
<tbody>
<tr>
<td>sylvan scorpionfish</td>
<td>Microsces sylvatica</td>
<td>-</td>
<td>S4</td>
<td>4.2</td>
<td>130-4,920 feet (45-1,500 meters)</td>
<td>Chapparal; camionate woodland; Great Basin scrub; pinyon and juniper woodland; valley and foothill grasslands; serpentine environments</td>
<td>March-June</td>
<td>Low. Limited suitable habitat in proposed Project area. No known occurrences within the proposed Project area.</td>
</tr>
<tr>
<td>thread-leaved beakseed</td>
<td>Amsinckia intermedia</td>
<td>-</td>
<td>S3.2</td>
<td>4.2</td>
<td>3,940-6,810 feet (1,199-2,075 meters)</td>
<td>lower and upper montane coniferous/yellow pine forests; meadows, seeps, wetlands, riparian</td>
<td>July-April</td>
<td>Very Low to Nil. Limited to no suitable habitat in the proposed Project area. Proposed Project area not within known species elevation ranges. No known occurrences within the proposed Project area.</td>
</tr>
<tr>
<td>tripod buckwheat</td>
<td>Eriogonum tripodum</td>
<td>-</td>
<td>S4</td>
<td>4.2</td>
<td>656-5,250 feet (200-1,600 meters)</td>
<td>Chaparral; foothill woodland; chaparral; serpentine environments</td>
<td>May-July</td>
<td>Moderate. Suitable habitat in proposed Project area. Known occurrences within the proposed Project area.</td>
</tr>
<tr>
<td>true's manzanita</td>
<td>Arctostaphylos manzanita</td>
<td>-</td>
<td>S3.3</td>
<td>4.2</td>
<td>1,395-4,560 feet (425-1,390 meters)</td>
<td>Chaparral; lower montane coniferous/yellow pine forests; roadways</td>
<td>February-July</td>
<td>Low. Limited suitable habitat in proposed Project area. No known occurrences within the proposed Project area.</td>
</tr>
<tr>
<td>Van Zwit's morning-glory</td>
<td>Calystegia vanzweeksii</td>
<td>-</td>
<td>S2</td>
<td>18.3</td>
<td>1,640-3,870 feet (500-1,180 meters)</td>
<td>Camasian woodland; chaparral; serpentine and gabbro environments</td>
<td>May-August</td>
<td>Moderate. Suitable habitat in proposed Project area. Known occurrences within the proposed Project area.</td>
</tr>
<tr>
<td>white beaksack rush</td>
<td>Rhynchospora cusickii</td>
<td>-</td>
<td>S2</td>
<td>28.3</td>
<td>195-6,690 feet (60-2,040 meters)</td>
<td>Bogs, fens, meadows, seep, marshes, swamps, freshwater</td>
<td>July-August</td>
<td>Low. Limited suitable habitat in proposed Project area. No known occurrences within the proposed Project area.</td>
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### Invertebrates

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<tr>
<th>common name</th>
<th>Scientific Name</th>
<th>Federal</th>
<th>SNPS</th>
<th>Geographic distribution/Topographic province</th>
<th>Preferred habitat</th>
<th>Identification period</th>
<th>Level of potential for occurrence within Project area</th>
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</thead>
<tbody>
<tr>
<td>vernia pool fairy shrimp</td>
<td>Branchinecta vernia</td>
<td>T</td>
<td>N/A</td>
<td>Scattered throughout Central Valley, Coast Ranges, and Southern California</td>
<td>Vernal pools</td>
<td>December-May</td>
<td>Very Low to Nil. No suitable habitat present within the proposed Project area. No known occurrences within five miles of proposed Project area.</td>
</tr>
<tr>
<td>Valley water scorpion beetle</td>
<td>Heterophylax species</td>
<td>T</td>
<td>N/A</td>
<td>California Central Valley and foothills below 3,280 feet (1,000 meters)</td>
<td>Eiderberry shrubs</td>
<td>Year-round</td>
<td>Very Low to Nil. No suitable habitat present within the proposed Project area. No known occurrences within five miles of proposed Project area.</td>
</tr>
<tr>
<td>vernia pool tadpole shrimp</td>
<td>Leptodora quinquemana</td>
<td>E</td>
<td>N/A</td>
<td>California Central Valley</td>
<td>Vernal pools containing clear to highly turbid water</td>
<td>Winter/Spring</td>
<td>Very Low to Nil. No suitable habitat present within the proposed Project area. No known occurrences within five miles of proposed Project area.</td>
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### Fish

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<th>SNPS</th>
<th>Geographic distribution/Topographic province</th>
<th>Preferred habitat</th>
<th>Identification period</th>
<th>Level of potential for occurrence within Project area</th>
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<tbody>
<tr>
<td>steelhead</td>
<td>Oncorhyncus mykiss</td>
<td>T</td>
<td>N/A</td>
<td>Sacramento and San Joaquin Rivers and their tributaries</td>
<td>Swift small streams and tributaries with cool, well-aerated water (spawning)</td>
<td>January-June (spawning)</td>
<td>Very Low to Nil. No suitable habitat within the proposed Project area. No known occurrences within five miles of the proposed Project area.</td>
</tr>
<tr>
<td>Delta smelt</td>
<td>Hypomesus transpacificus</td>
<td>T</td>
<td>E</td>
<td>From Suisun Bay upstream through the Delta in Contra Costa, Sacramento, San Joaquin, Solano, Yolo, Colusa, and Butte Counties</td>
<td>Estuaries, river channels, tidally influenced backwaters, shallow, fresh or slightly brackish water upstream of mixing zone (spawning)</td>
<td>March-June (spawning)</td>
<td>Very Low to Nil. No suitable habitat within the proposed Project area. Out of species range; no known occurrences within five miles of Project site.</td>
</tr>
<tr>
<td>Common Name</td>
<td>Scientific Name</td>
<td>Status</td>
<td>Geographic Distribution/ Phytoecological Province</td>
<td>Habitat</td>
<td>Identification Period</td>
<td>Level of Potential for Occurrence within Project Area</td>
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<tr>
<td>California red-legged frog</td>
<td>Rana draytonii</td>
<td>T, X</td>
<td>Coastal Range of California, foothills range of Sierra Nevada mountains</td>
<td>Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation</td>
<td>Year-round</td>
<td>Very Low to Nil. Limited to no suitable habitat within the proposed Project area. The closest known occurrence is from 2007 approximately 6.5 miles northwest of the proposed Project area on the east side of S tailor Flat, between the South Yuba River and Harmony Ridge. The border of designated Critical Habitat Unit NEV1 is located approximately 4.8 miles northwest from the proposed Project area, which surrounds the above observation.</td>
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<tr>
<td>coast horned lizard</td>
<td>Phrynosoma blainvillii</td>
<td>-</td>
<td>Sierra Nevada foothills and central/southern California coast</td>
<td>Open sandy areas, scattered low bushes, chaparral, Manzanita, oak woodlands</td>
<td>Year-round</td>
<td>Moderate. Suitable habitat present within the proposed Project area. Closest known occurrence in 1995 approximately 4 miles southeast of the Project site on Gold Run off I-80, in hydraulic ditches.</td>
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<tr>
<td>foot hill yellow-legged frog</td>
<td>Rana boylii</td>
<td>-</td>
<td>Found from near sea level to 6355 feet (1940 meters) in California, mostly distributed throughout the foothill portions of most drainages from the Oregon border to the San Gabriel River</td>
<td>Partly-shaded shallow streams and riffles with a rocky substrate in a variety of habitats</td>
<td>Year-round</td>
<td>Present. Ideal habitat within the proposed Project area. Known occurrences within proposed Project area.</td>
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<td>Birds</td>
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<tr>
<td>California black rail</td>
<td>Limnodromus californicus</td>
<td>-</td>
<td>Northern San Francisco Bay region, San Pablo and Suisun Bays, outer coast of Marin County, and freshwater marshes in the Sierra Nevada foothills</td>
<td>Occurs in salt marshes bordering larger bays and freshwater / brackish marshes (that are at least one acre in site and supports one inch of water). Also found in the foothills in blackberry brambles along earthen canals</td>
<td>February-September</td>
<td>Very Low to Nil. Limited to no suitable habitat within the proposed Project area. Closest known occurrence approximately 4.3 miles west of the proposed Project area between Highway 174 and Lower Colfax Road, about 1.4 miles southwest of Sontaga Hill and 2.6 miles southeast of Cedar Ridge post office, unknown date.</td>
<td></td>
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<tr>
<td>great blue heron</td>
<td>Ardea herodias</td>
<td>MSTA</td>
<td>Widespread year-round throughout much of the United States. Found in the summers in Canada and Winters in Mexico</td>
<td>Found in saltwater and freshwater marshes, sloughs, along riverbanks and lakes.</td>
<td>Year-round (nesting colony)</td>
<td>Low. Limited suitable habitat within the proposed Project area and no known/observed colony in the proposed Project area. Closest known occurrence from 2008 approximately 4 miles north of the proposed Project area on the northeast shore of Scotts Flat Reservoir, one mile north of Quaker Hill, Nevada City.</td>
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<tr>
<td>nesting raptors and other migratory birds</td>
<td></td>
<td>MSTA</td>
<td>Migrants and resident species</td>
<td>Tree, shrub, ground, and riparian vegetation (nesting)</td>
<td>February 15-August 31</td>
<td>Moderate. Suitable habitat present within the proposed Project area.</td>
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<td>Mammals</td>
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<tr>
<td>fisher</td>
<td>Martes pennanti</td>
<td>C</td>
<td>Coastal mountains from Del Norte County to Sonoma Counties, east through the Cascades to Lassen County, and south in the Sierra Nevada to Kern County</td>
<td>Late successional coniferous forests, and montane riparian habitats with a high percentage of canopy cover. Uses cavities, snags, and logs for cover and denning</td>
<td>Year-round</td>
<td>Low. Limited suitable habitat within the proposed Project area. No known occurrences within 5 miles of the proposed Project area.</td>
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<tr>
<td>Sierra Nevada red fox</td>
<td>Vulpes vulpes nevadensis</td>
<td>-</td>
<td>California and Nevada Sierra Nevada.</td>
<td>Subalpine; Remote high elevations</td>
<td>Year-round</td>
<td>Low. Limited potential suitable habitat in proposed Project area. Known occurrence from 1989 within 4.4 miles northeast of the proposed Project area, near the west end of Burlington Ridge, near the confluence of the north and south forks of Deer Creek in Tahoe National Forest.</td>
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GREENHORN CREEK GRAVEL HARVEST EXPANSION PROJECT BIOLOGICAL INVENTORY REPORT

Results
June 14, 2015

Federal (plants and wildlife)
E = listed as endangered under the Federal Endangered Species Act
T = listed as threatened under the Federal Endangered Species Act
C = candidate to become a proposed species for listing under the Federal Endangered Species Act
D = deleted under the Federal Endangered Species Act
PO = proposed for delisting
MBA = protected under the Migratory Bird Treaty Act
X = Assigned Critical Habitat
UB = under review
- = no listing

State (plants and wildlife)
E = listed as endangered under the California Endangered Species Act
T = listed as threatened under the California Endangered Species Act
B = listed as rare under the California Native Plant Protection Act
C = candidate for listing as endangered under the California Endangered Species Act
S = Species of Special Concern
F = listed as fully protected
I = state future needs life
- = no listing

California Native Plant Society
1A = Plants presumed extirpated in CA and either rare or extinct elsewhere
1B = Plants rare, threatened, or endangered in California and elsewhere
2A = Plants presumed extirpated in CA but more common elsewhere
2B = Plants rare, threatened, or endangered in California but more common elsewhere
3 = Plants about which more information is needed - a review list
4 = Plants of limited distribution - a watch list

GREENHORN CREEK GRAVEL HARVEST EXPANSION PROJECT BIOLOGICAL INVENTORY REPORT

Results
June 16, 2015

4.2 FIELD STUDIES

4.2.1 Hydrologic Setting

The proposed Project is located in Nevada County, California on the western slope of the Sierra Nevada foothills approximately seven miles southeast from Grass Valley and five miles north of Colfax of Placer County, California (Figure 1). Greenhorn Creek is a major tributary to the Bear River in the Upper Bear Watershed, feeding Rollins Reservoir. Greenhorn Creek can be classified as a meandering perennial stream that generally has continuous year-round flows during years with normal rainfall. Climate in the Sierra Nevada foothills near the proposed Project area can be classified as Mediterranean; with hot and dry summers, and wet winters. Due to continuous low precipitation over time, field surveys conducted on May 11, 2015, displayed abnormal site conditions due to lack of rainfall in the region. Thus, Greenhorn Creek exhibited low flows. The banks of Greenhorn Creek within the proposed Project area are relatively steep, confined by bedrock and mined gravel debris, and are fairly unstable and unvegetated (see Appendix A Photographic Record). Additionally, Greenhorn Creek and Missouri Canyon bed and banks were significantly scoured by current and past mining operations, both within the proposed Project area and within upstream and downstream areas. The streambed consists of a mosaic of cobble, gravel, sand, and some silt. The bedload appears highly mobile due to minimal, yet flashy, winter and spring flows; as evidenced by the scour and lack of riparian vegetation. Riparian vegetation relative to site hydrology is further discussed in Section 4.2.2 Biological Setting below.

4.2.2 Biological Setting

The proposed Project region is ecologically distinguishable, as it is located within a transitional vegetation belt where foothill Sierra species and montane species can be found in the same community associations. The upper reaches of Greenhorn Creek is a relatively steep, bedrock confined stream typical of the foothills; however, in the proposed Project area Greenhorn Creek is a meandering stream flowing from north to south, depositing sediments at the mouth of channel at Rollins Reservoir.

The CDFW and the CNPS have developed a standard classification system for floristically describing vegetation communities statewide; further translating to the National Vegetation Classification (NVC). The CDFW and CNPS system has been compiled in A Manual for California Vegetation, 2nd Edition (Sawyer et al. 2009), and has been accepted and adopted by state and federal agencies. The Manual of California Vegetation (MCV) classifications assist in defining vegetation based on quantitative based rules to distinguish between vegetation community types, local variation, ecological land classification/composition, species rarity and significance, and historical and current land management practices. The MCV defines vegetation communities by dominant and/or co-dominant species present as 1A) alliance- a broad unit of vegetation with discernable and related characteristics; 1B) provisional alliance- a temporary vegetation community and/or candidate alliance; and/or 2) association- a basic secondary unit of classification, not as broad as an alliance, with uniform composition and
conditions. The MCV classifications replace lists of vegetation types developed for the California Natural Diversity Database (CNDDDB). The biological community in the proposed Project area has been classified using MCV standards (Sawyer et al. 2009). Furthermore, the MCV classification system relates to wildlife habitat by identifying unique characteristics; thus distinguishing locals for threatened and endangered wildlife species.

The timing of baseline botanical surveys was within the early (February to April) to mid (May to July) bloom periods, and outside of the late (August to October) bloom period for the region. The overall composite of species observed within the proposed Project area during baseline botanical surveys performed on May 11, 2015 can be referenced in Table 2, Section 4.0 Results.

4.2.2.1 *Pseudotsuga menziesii* Forest Alliance

A *Pseudotsuga menziesii* Forest Alliance (Sawyer et al. 2009), or Douglas-fir Forest, comprises the vegetation community running along the western and eastern slopes of the proposed Project area, primarily outside of the Greenhorn Creek canyon. Douglas-fir Forests, sometimes also referred to as mixed conifer forest, can expand over broad ranges of topography (terraces, slopes, aspects, etc.) and elevation, and consist of a diverse assemblage of vegetation. Tree species found in mixed conifer forests exhibit a wide range of tolerance to shade and low-impact fire. Water availability is a major driver of mixed conifer forest ecosystem distributions and conditions, especially topography, soil (depth and texture), and solar insulation (Safford 2013). In moisture limited forests, uncharacteristic increases in tree density commonly facilitate bark beetle (family Scolytinae), mistletoe (*Phoradendron* spp.), and root disease mortality. Additionally, in this region, mixed conifer forests have been significantly impacted by logging, fire suppression, gold mining, and population growth (Safford 2013).

The slopes on either side of the proposed Project area range in elevation from 2,400 to 2,550 feet (730 to 777 meters) above MSL. Both eastern and western slopes of the proposed Project area display dominance of conifers, however hardwoods are intermixed throughout. *Pseudotsuga menziesii* Forest Alliance within the proposed Project area include Douglas-fir and Ponderosa pine (*Pinus ponderosa*) as the dominant species; and black oak (*Quercus kelloggii*), canyon live oak (*Quercus chrysolepis*), incense cedar (*Calocedrus decurrens*), Pacific madrone (*Arbutus menziesii*), and white fir (*Abies concolor*) as the co-dominant over-story canopy. The shrub and herbaceous layer is sparse to intermittent, consisting of species such as common mustard (*Brassica rapa*), dandelion (*Agoseris spp.*), honeysuckle (*Lonicera sp.*), poison oak (*Toxicodendron diversilobum*), and ripgut brome (*Bromus diandrus*).

A *Pseudotsuga menziesii* Forest Alliance provide a variety of food resources and shelter for wildlife species including American black bear (*Ursus americanus*), bobcat (*Lynx rufus*), western scrub-jay (*Aphelocoma californica*), acorn woodpecker (*Melanerpes formicivorus*), and western gray squirrel (*Sciurus griseus*). All of the aforementioned species are considered common, and may be found in the surrounding region of the proposed Project area.
4.2.2.2 *Alnus rhombifolia* Forest Alliance

An *Alnus rhombifolia* Forest Alliance, or White Alder Grove (Sawyer et al. 2009), is the dominant vegetation of Greenhorn Creek canyon/channel within the proposed Project area. This riparian community is associated with montane lakes, ponds, seeps, bogs and meadows as well as rivers, streams and springs; where a dependable water supply is present. Water may be permanent or ephemeral (Marcot 1979). Riparian habitats at higher elevations within given watersheds tend to maintain the same mosaic of stages. However, the location of these stages may vary as a result of periodic (torrential) flows. These riparian systems can be damaged by debris, sedimentation, or uprooting of entire plants which are redeposited further downstream (Campbell and Green 1968).

The average elevation of the Greenhorn Creek within the proposed Project area is approximately 2,500 feet (762 meters) above MSL. Greenhorn Creek Canyon is geologically comprised of matic volcanics, slate, and graywacke substrate(s). Soils are loam to stone loam. *Alnus rhombifolia* Forest Alliance species within the proposed Project area include the dominant white alder (*Alnus rhombifolia*); and other co-dominant species such as willow species (*Salix* spp.), Fremont cottonwood (*Populus fremontii*), and oak species (*Quercus* spp.). The herbaceous layer, although lacking due to disturbance, includes common sheep sorrel (*Rumex acetosella*), English plantain (*Plantago lanceolata*), mugwort (*Artemisia douglasiana*), rushes (*Juncus* spp.), and sedges (*Carex* spp.). This vegetation community appears as dominant alder bands along portions of Greenhorn Creek (Figure 5). The transition from an *Alnus rhombifolia* Forest Alliance to a *Pseudotsuga menziesii* Forest Alliance is abrupt throughout the proposed Project area; with little to no transitional areas, generally due to mining operations yielding exposed slopes with no vegetation present.

The National Wetlands Inventory (NWI) identifies the *Alnus rhombifolia* Forest Alliance and Greenhorn Creek canyon/channel as a riverine environment; comprises both riparian vegetation and aquatic environment. A riverine environment is generally characterized as the vegetation habitat which lay along banks and/or the edges of streams and rivers. Aquatic environments generally consist of inundated areas that support both aquatic and semi-aquatic vegetation and wildlife species, such as foothill yellow-legged frog (*Rana boylil*). For the proposed Project area, NWI riverine areas are identified in Figure 5, along with areas identified during reconnaissance level surveys conducted on May 11, 2015 to be specifically *Alnus rhombifolia* Forest Alliance.

Riparian forest habitats, like the *Alnus rhombifolia* Forest Alliance, are considered to be high value habitat for wildlife including birds, mammals, reptiles, amphibians, and invertebrates alike. Wildlife use this habitat during all stages of their life cycles from breeding, feeding, nesting, and/or migration (Grenfell). Edge habitat typically created by many riparian corridors is of significant importance for a variety of wildlife species including raccoon (*Procyon lotor*), common garter snake (*Thamnophis sirtalis*), song sparrow (*Melospiza melodia*), and Swainson’s thrush (*Catharus ustulatus*). Wildlife species observed within the proposed Project area during biological surveys performed on May 11, 2015 can be referenced in Table 3, Section 4.0 Results.
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All vegetation communities defined likely support wildlife movement in Nevada County within the region and proposed Project area. Mixed plant covers (e.g., over [trees] and understory [shrubs and grasses]) in association with creek or stream channels provide corridors for wildlife movement. Wildlife corridors provides migration channels seasonally (between winter and summer habitats), and provides non-migrant wildlife to move within their home range for food, cover and reproduction. Riparian habitats additionally provide water, thermal cover, and diverse nesting and feeding opportunities (Thomas 1979).

4.2.2.3 Designated Critical Habitat

The California red-legged frog (Rana draytonii, CRLF), a federally threatened species protected under the Federal Endangered Species Act (USFWS 1973), historically can be found in aquatic areas with dense, shrubby, or emergent riparian vegetation and a permanent source of deep still or slow moving water (USFWS 2002). The proposed Project area is within current range of the California red-legged frog. However, no occurrences were found or observations made of CRLF or their preferred habitat during background research or field surveys. According to CDFW, the closest known occurrence of CRLF to the proposed Project area, documented in 2007, is approximately 6.5 miles to the northwest on the east side of Sailor Flat, on the northern side of State Highway 20, between the South Yuba River and Harmony Ridge (CDFW 2015a). This observation location is Designated Critical Habitat Unit NEV-1.

NEV-1 is approximately 6,733 acres in size, including approximately 1,656 acres of federal land, 11 acres of state land, and 5,065 of privately owned land (USFWS 2006). It's located approximately 3.5 miles from Nevada City in central Nevada County. NEV-1 is one five areas of designated Critical Habitat in the Sierra Nevada (USFWS 2006) and one of seven known populations and three recent single-specimen occurrences extending from Butte County southeast about 171 miles (275 kilometers) to Mariposa County (Baryl and Fellers 2013). NEV-1 is in the easternmost area of its known historic range (USFWS 2006), and is considered highly valuable due to it contains both suitable breeding and upland habitats for the CRLF. The closest border of NEV-1 to the proposed Project area is approximately 4.8 miles to the northwest (USFWS 2015a, Figure 4).

The proposed Project is not expected to affect the CRLF or its habitat. There are no known observations or potential suitable habitat within the proposed Project area, and there are no known observations within five miles of the proposed Project area. In addition, no observations were made during the field surveys performed in May 2015.
**Table 2**  Plant Species and Associated Habitat Associations Observed During Reconnaissance-Level Biological Surveys Within the Greenhorn Creek Gravel Harvest Expansion Proposed Project Area, Nevada County, California, May 11, 2015.

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Pseudotsuga menziesii (Douglas-fir) Forest Alliance</th>
<th>Alnus rhombifolia (white alder) Forest Alliance</th>
<th>Aquatic Habitat</th>
<th>Listing or Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>American treeplant *</td>
<td><em>Adenocaulon bicolor</em></td>
<td>X</td>
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<td></td>
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<tr>
<td>arroyo willow *</td>
<td><em>Salix lasiolepis</em></td>
<td>⊗</td>
<td>x</td>
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</tr>
<tr>
<td>bentgrass species</td>
<td><em>Agrostis spp.</em></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>big leaf maple *</td>
<td><em>Acer macrophyllum</em></td>
<td>X</td>
<td></td>
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<tr>
<td>black medic</td>
<td><em>Medicago lupulina</em></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>black oak *</td>
<td><em>Quercus kelloggii</em></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>brome species *</td>
<td><em>Bromus spp.</em></td>
<td>X</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>bur clover</td>
<td><em>Medicago polymorpha</em></td>
<td>X</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bush chinquapin *</td>
<td><em>Chrysolepis sempervirens</em></td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>California cottonrose *</td>
<td><em>Logia filaginoides</em></td>
<td>X</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>California pigweed</td>
<td><em>Amaranthus californicus</em></td>
<td>X</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>canyon live oak *</td>
<td><em>Quercus chrysolepis</em></td>
<td>⊗</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>clover species</td>
<td><em>Trifolium spp.</em></td>
<td>X</td>
<td>x</td>
<td></td>
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</tr>
<tr>
<td>common manzanita *</td>
<td><em>Arctostaphylos manzanita</em></td>
<td>X</td>
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<td></td>
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<tr>
<td>common mullein</td>
<td><em>Verbascum thapsus</em></td>
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<td>x</td>
<td></td>
<td></td>
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<tr>
<td>common mustard</td>
<td><em>Brassica rapa</em></td>
<td>X</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>common sheep sorrel</td>
<td><em>Rumex acetosella</em></td>
<td>X</td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>coyote brush *</td>
<td><em>Baccharis pilularis</em></td>
<td>X</td>
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<td></td>
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</tr>
<tr>
<td>dandelion species</td>
<td><em>Agoseris spp.</em></td>
<td>X</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douglas-fir *</td>
<td><em>Pseudotsuga menziesii</em></td>
<td>⊗</td>
<td>⊗</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Greenhorn Creek Gravel Harvest Expansion Project Biological Inventory Report

## Results

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## Observed Species vs. Biological Community

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th><em>Pseudotsuga menziesii</em> (Douglas-fir) Forest Alliance</th>
<th><em>Alnus rhombifolia</em> (White Alder) Forest Alliance</th>
<th>Aquatic Habitat</th>
<th>Listing or Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dove weed</td>
<td>Croton setigerus</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>English plantain *</td>
<td>Plantago lanceolata</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiddle dock</td>
<td>Rumex pulcher</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fremont cottonwood *</td>
<td>Populus fremontii</td>
<td>X</td>
<td>☒</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hedge parsley</td>
<td>Taraxacum arvensis</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Himalayan blackberry</td>
<td>Rubus armeniacus</td>
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<td>X</td>
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<tr>
<td>Horseweed</td>
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<td>Hyssop loosestrife</td>
<td>Lythrum hyssopifolia</td>
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<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Incense cedar *</td>
<td>Calocedrus decurrens</td>
<td>☒</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interior live oak *</td>
<td>Quercus wislizenii</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lotus species</td>
<td>Acerb isipon argophyllus</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miner's lettuce *</td>
<td>Claytonia perfoliata</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Mistletoe species *</td>
<td>Phoradendron sp.</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mudwort species *</td>
<td>Limosella sp.</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mugwort *</td>
<td>Artemisia douglasiana</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mule fat; seep willow *</td>
<td>Baccharis salicifolia</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific bleeding heart *</td>
<td>Dicentra formosa</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific dogwood *</td>
<td>Cornus nuttallii</td>
<td>☒</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pink honeysuckle *</td>
<td>Lonicera hispudula</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poison hemlock</td>
<td>Coriaria maculata</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poison oak *</td>
<td>Toxicodendron diversilobum</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ponderosa pine 8</td>
<td>Pinus ponderosa</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ripgut brome</td>
<td>Bromus diandrus</td>
<td>X</td>
<td>X</td>
<td></td>
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</tbody>
</table>
### GREENHORN CREEK GRAVEL HARVEST EXPANSION PROJECT BIOLOGICAL INVENTORY REPORT

**Results**

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<table>
<thead>
<tr>
<th>OBSERVED SPECIES</th>
<th>BIOLOGICAL COMMUNITY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Common name</strong></td>
<td><strong>Pseudotsuga menziesii (Douglas-fir Forest Alliance)</strong></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>rush species *</td>
<td>Juncus spp.</td>
</tr>
<tr>
<td>sandbar willow *</td>
<td>Salix exigua</td>
</tr>
<tr>
<td>Scotch broom</td>
<td>Cytisus scoparius</td>
</tr>
<tr>
<td>sedge species *</td>
<td>Carex spp.</td>
</tr>
<tr>
<td>seep monkey flower *</td>
<td>Minulus guttatus</td>
</tr>
<tr>
<td>Sierran mountain misery *</td>
<td>Chamaebatia foliolosa</td>
</tr>
<tr>
<td>sky lupine *</td>
<td>Lupinus nanus</td>
</tr>
<tr>
<td>soft chess brome *</td>
<td>Bromus hordeaceus</td>
</tr>
<tr>
<td>spurge *</td>
<td>Euphorbia spathulata</td>
</tr>
<tr>
<td>sticky chickweed</td>
<td>Cerastium glomeratum</td>
</tr>
<tr>
<td>stork's bill species</td>
<td>Erodium spp.</td>
</tr>
<tr>
<td>tall flatsedge *</td>
<td>Cyperus eragrostis</td>
</tr>
<tr>
<td>velvetgrass</td>
<td>Holcus lanatus</td>
</tr>
<tr>
<td>vetch species</td>
<td>Vicia sp.</td>
</tr>
<tr>
<td>water miltail</td>
<td>Myriophyllum spicatum</td>
</tr>
<tr>
<td>white alder *</td>
<td>Alnus rhombifolia</td>
</tr>
<tr>
<td>white leaf manzanita *</td>
<td>Arctostaphylos viscida</td>
</tr>
<tr>
<td>willow herb species *</td>
<td>Epilobium sp.</td>
</tr>
<tr>
<td>willow species *</td>
<td>Salix sp.</td>
</tr>
</tbody>
</table>

* Vegetation Community Indicator Species (Sawyer et. al., 2009)

* Indicates native plant species
# Table 3  Wildlife Species and Associated Habitat Associations Observed During Reconnaissance-Level Biological Surveys Within the Greenhorn Creek Gravel Harvest Expansion Proposed Project Area, Nevada County, California, May 11, 2015.

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Habitat Where Individuals Were Observed</th>
<th>Evidence of Breeding and/or Nesting</th>
<th>Number of Individuals Observed</th>
<th>Listing or Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>acorn woodpecker</td>
<td>Melanerpes formicivorus</td>
<td>woodland, edge</td>
<td>no</td>
<td>4</td>
<td>MBTA</td>
</tr>
<tr>
<td>American robin</td>
<td>Turdus migratorius</td>
<td>woodland, edge</td>
<td>no</td>
<td>2</td>
<td>MBTA</td>
</tr>
<tr>
<td>black-headed grosbeak</td>
<td>Pheucticus melanocephalus</td>
<td>woodland</td>
<td>no</td>
<td>2</td>
<td>MBTA</td>
</tr>
<tr>
<td>common raven</td>
<td>Corvus corax</td>
<td>woodland</td>
<td>no</td>
<td>1</td>
<td>MBTA</td>
</tr>
<tr>
<td>dark-eyed junco</td>
<td>Junco hyemalis</td>
<td>woodland, edge</td>
<td>no</td>
<td>2</td>
<td>MBTA</td>
</tr>
<tr>
<td>downy woodpecker</td>
<td>Dryobates pubescens</td>
<td>woodland</td>
<td>no</td>
<td>1</td>
<td>MBTA</td>
</tr>
<tr>
<td>great blue heron</td>
<td>Ardea herodias</td>
<td>aquatic</td>
<td>no</td>
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<td>MBTA</td>
</tr>
<tr>
<td>northern flicker</td>
<td>Colaptes auratus</td>
<td>woodland</td>
<td>no</td>
<td>1</td>
<td>MBTA</td>
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<tr>
<td>ruby-crowned kinglet</td>
<td>Regulus calendula</td>
<td>woodland</td>
<td>no</td>
<td>1</td>
<td>MBTA</td>
</tr>
<tr>
<td>Steller's jay</td>
<td>Cyanocitta stelleri</td>
<td>woodland</td>
<td>no</td>
<td>1</td>
<td>MBTA</td>
</tr>
<tr>
<td>turkey vulture</td>
<td>Cathartes aura</td>
<td>soaring above</td>
<td>no</td>
<td>3</td>
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<tr>
<td>western scrub-jay</td>
<td>Aphelocoma californica</td>
<td>woodland, edge</td>
<td>no</td>
<td>4</td>
<td>MBTA</td>
</tr>
<tr>
<td>western tanager</td>
<td>Piranga ludoviciana</td>
<td>woodland</td>
<td>no</td>
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<td>MBTA</td>
</tr>
<tr>
<td>white-breasted nuthatch</td>
<td>Sitta caroliensis</td>
<td>woodland</td>
<td>no</td>
<td>2</td>
<td>MBTA</td>
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<tr>
<td>white-crowned sparrow</td>
<td>Zonotrichia leucophrys</td>
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<td>6</td>
<td>MBTA</td>
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<tr>
<td>yellow-rumped warbler</td>
<td>Setophaga coronata</td>
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<td>no</td>
<td>1</td>
<td>MBTA</td>
</tr>
</tbody>
</table>
### Greenhorn Creek Gravel Harvest Expansion Project Biological Inventory Report

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<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Habitat Where Individuals Were Observed</th>
<th>Evidence of Breeding and/or Nesting</th>
<th>Number of Individuals Observed</th>
<th>Listing or Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reptiles and Amphibians</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>California toad</td>
<td>Bufo boreas halophilus</td>
<td>aquatic</td>
<td>yes</td>
<td>2*</td>
<td>None</td>
</tr>
<tr>
<td>Foothill yellow-legged frog</td>
<td>Rana boylii</td>
<td>aquatic</td>
<td>yes</td>
<td>19*</td>
<td>SSC</td>
</tr>
<tr>
<td>Sierra alligator lizard</td>
<td>Eigaaria coerulea palmeri</td>
<td>edge</td>
<td>no</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Western fence lizard</td>
<td>Sceloporus occidentalis</td>
<td>edge</td>
<td>no</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td><strong>Mammals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mule deer</td>
<td>Odocoileus hemionus</td>
<td>edge</td>
<td>no</td>
<td>2 (scat)</td>
<td>None</td>
</tr>
<tr>
<td>Raccoon</td>
<td>Procyon lotor</td>
<td>edge</td>
<td>no</td>
<td>1 (tracks)</td>
<td>None</td>
</tr>
<tr>
<td>Western gray squirrel</td>
<td>Sciurus griseus</td>
<td>woodland, edge</td>
<td>no</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td><strong>Invertebrates</strong></td>
<td></td>
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<tr>
<td>Damselfly sp.</td>
<td>Aeshna sp.</td>
<td>aquatic</td>
<td>no</td>
<td>2</td>
<td>None</td>
</tr>
<tr>
<td>Flame skimmer</td>
<td>Libellula saturata</td>
<td>aquatic</td>
<td>no</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Sierra gartersnake</td>
<td>Thamnophis couchii</td>
<td>aquatic</td>
<td>no</td>
<td>1</td>
<td>None</td>
</tr>
<tr>
<td>Swallowtail species</td>
<td>Papilio sp.</td>
<td>edge, aquatic</td>
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<td>1</td>
<td>None</td>
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<tr>
<td>Water strider</td>
<td>Aquarius remigis</td>
<td>aquatic</td>
<td>no</td>
<td>100+</td>
<td>None</td>
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<tr>
<td><strong>Fish</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sacramento sucker</td>
<td>Catostomus occidentalis</td>
<td>aquatic</td>
<td>no</td>
<td>~30</td>
<td>None</td>
</tr>
</tbody>
</table>

MBTA – Migratory Bird Treaty Act (nesting)
SSC – California Species of Special Concern
*Includes adults and juvenile individuals only, not larvae or eggs
4.2.3 Plant Discussion

The plant species observed above in Table 2 during the field survey conducted on May 11, 2015 were, in general, species that are typical and/or would be expected to be observed in the proposed Project area during that particular time of year. No sensitive plant species were identified during the early to mid-year bloom period survey (Table 1).

In addition, no rare or unusual occurrences of plant species were observed during the field surveys conducted on May 11, 2015 in the proposed Project area.

4.2.4 Wildlife Discussion

The wildlife species observed during the field survey conducted on May 11, 2015 were, in general, species that are typical and/or would be expected to be observed in the proposed Project area during that particular time of year (Table 3).

Bird species in the proposed Project area will vary slightly during different times of the year (migration, breeding, and winter seasons), and although not detected during the survey on May 11, there likely may be bird species nesting within or adjacent to the proposed Project area during any given year. The invertebrates observed during the survey, such as the swallowtail and damselfly would not likely be present/observable in other times of the year when temperatures are cooler. This would also be true for most reptiles and amphibians that occur in the proposed Project area. Mammals, such as the mule deer, may be observed year round.

No rare or unusual occurrences of species were observed during the field surveys conducted on May 11, 2015 in the proposed Project area. However, a breeding population of the foothill yellow-legged frog (State Species of Special Concern) was observed within the proposed Project area and is further discussed below in Section 5.0 Rare, Endangered, or Sensitive Species and Habitats.
5.0 RARE, ENDANGERED, OR SENSITIVE SPECIES AND HABITATS

One of the resources used in the methodology (background research/desktop analysis) to determine the likelihood of a rare, endangered, or sensitive species or habitat occurring in the proposed Project area included the California Natural Diversity Database, otherwise known as CNDDDB. This program serves as a database to store locations of rare plants and wildlife species throughout the state of California. It is considered a “natural heritage program,” which provides not only locations, but natural history information to the general public. You may access CNDDDB through RareFind, where you can perform queries on certain species or specific locations to verify if rare, endangered, or sensitive species or their habitats occur within a certain area. For this type of query, spatial data is also available (CDFW 2015b). CNDDDB is an invaluable resource for the scientific community, however its relevance and whether it remains a current source is reliant on those making and submitting observations from the field, which is why submissions of sensitive resources are crucial to the CNDDDB.

This section includes a discussion of rare, endangered, or sensitive species and habitats that are known to occur and have a minimum of a moderate potential to occur in the proposed Project area (Table 1). Species discussed below were identified as being rare, endangered, or sensitive through the resources listed in Section 3.0 Methodology of this report.

5.1 SPECIAL STATUS PLANTS

A species site suitability analysis evaluating the potential to occur within and near the proposed Project area was completed for all plant species that were identified through background research prior to field surveys. This analysis weighed proposed Project area ecological characteristics and suitability with individual species suitability requisites; including vegetation community type, habitat availability, elevation, soils, and known occurrences in the Project region documented by Calflora, CDFW, CNPS, USFWS. A level of potential of occurrence within the proposed Project area was applied to each species above in Table 1. This analysis was then augmented and verified through field surveys.

Of the 65 species identified during background research, one species, Brandegee’s clarkia (Clarkia biloba ssp. brandegeeae) has a high potential to occur within or near the proposed Project area.

Fourteen species also have a moderate chance of potentially occurring in the proposed Project area. The 14 species with a moderate potential to occur within the proposed Project area include brownish beaked-rush (Rynchosporop capitellata), Butte County (Fritillaria eastwoodiae), Cedar Crest popcorn-flower (Plagiobothrys glyptocarpus var. modestus), clustered lady’s-slipper (Cypripedium fasciculatum), elongate copper moss (Mielichhoferia elongata), finger rush (Juncus digitatus), giant checkerbloom (Sidalcea gigantea), inundated

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bog club-moss (Lycopodiella inundata), long-fruit jewel-flower (Streptanthus longisiliquus),
Scadding flat checkerbloom (Sidalcea stipularis), Sierra blue grass (Poa sierree), Sierra foothills
brodiaea (Brodiaea sierra), tripod buckwheat (Eriogonum tripodium), and Van Zuuk’s morning-
glory (Calystegia vanzuukiae). Species with a moderate potential of occurrence and a
California Rare Plant Rank (CRPR) of 1A plants presumed extirpated in California and either
rare or extinct elsewhere, 1B) plants rare, threatened, or endangered in California and
elsewhere, 2A) plants presumed extirpated in California but common elsewhere, 2B) Plants rare,
threatened, or endangered in California but more common elsewhere; and/or federally or state
listed, are discussed below (reference Table 1).

None of the special status species described below that have a high or moderate potential to
occur in the proposed Project area were observed during botanical surveys conducted on May
11, 2015.

**Brandegee’s clarkia** (*Clarkia biloba* spp. *Brandegeaeae*)

Federal Status: none; State Status: apparently secure; CNPS Status: 4.2. fairly endangered

Observed in proposed Project area: NO; Potential to occur: HIGH.

Brandegee’s clarkia is an annual herb in the evening primrose family, Onagraceae. It is often
found in chaparral, cismontane woodland, and lower montane coniferous forest vegetation
communities. This species also has an affinity to road cuts (CNPS 2015b). The blooming period for
Brandegee’s clarkia is between May and July (mid bloom cycle) in regions where elevation
ranges from 246 to 3,000 feet (75 to 915 meters). Stems grow erect, measuring less than a meter
tall. The flowers have lavender petals and the leaves are lanceolate shaped. In California,
Brandegee’s clarkia is a fairly threatened species, with limited distribution (CNPS 2015b). Threats
to this species include weed control measures, encroachment by non-native plants, road
maintenance activities, fire suppression and urban development (CNPS 2015b). Brandegee’s
clarkia has a high potential to occur with ideal habitat within the proposed Project area. The
closest known occurrence of Brandegee’s clarkia is within approximately 2.6 miles southwest of
the proposed Project area in 2004, on You Bet Road, next to Greenhorn Creek Bridge and on
Arrowhead Mine Road (CDFW 2015a). No observations were made during the survey
carried out on May 11, 2015.

**Brownish beaked-rush** (*Rhynchospora capitellata*)

Federal Status: none; State Status: critically imperiled; CNPS Status: 2B.2. endangered

Observed in proposed Project area: NO; Potential to occur: MODERATE

Brownish beaked-rush, brownish beakseedge, or capitulate beaked rush, is a native perennial herb
in the Cyperaceae (carex or sedge) family. *Rhynchospora capitellata* favors wet habitats such
as marshes, swamps, meadows, and seeps. It can be found in upper and lower montane
coniferous forest vegetation communities, with an elevation ranging from 114 to 5,610 feet (35 to

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1,710 meters). Rhynchospora capitellata blooms July to August (mid to late bloom cycle) (CalFlora 2015, CNPS 2015b). Brownish beaked-rush has three blunt angled stems, with leaf blades approximately three millimeters in length. This species has dark brown inflorescences with smooth fruit that is reddish brown in color (Jepson eFlora 2015). Species threats include grazing and urban development (CNPS 2015b). Brownish beaked-rush has a moderate potential to occur with suitable habitat within the proposed Project area. The closest known occurrence of brownish beaked-rush is within approximately 1.8 miles northeast of the proposed Project area in 1978, on the north side of buckeye ridge, buckeye diggings about two miles southeast of Quakers Hill (CDFW 2015a). No observations were made during the survey conducted on May 11, 2015.

**Elongate copper moss** (*Mielichhoferia elongata*)

Federal Status: none; State Status: imperiled; CNPS Status: 2B.2. endangered

Observed in proposed Project area: NO; Potential to occur: MODERATE

Elongate copper moss is a California native moss that is part of a major bryophyte family Mniaceae. Elongate copper moss covers extensive, yet highly localized, areas on highways and road cuts. It can also be found on seasonally wet metamorphic rocks, notably rocks with a high concentration of metals (e.g., copper) (Jepson eFlora 2015). *Mielichhoferia elongata* is often found in cismontane woodland vegetation communities. This species does not have a typical bloom period, and can be found in elevation ranges approximately 1,640 to 4,265 feet (500-1,300 meters) (CalFlora 2015, CNPS 2015b). Elongate copper moss is threatened by road maintenance activities (CNPS 2015b). Elongate copper moss has a moderate potential to occur with suitable habitat within the proposed Project area. The closest known occurrence is within approximately five miles east of the proposed Project area in 2001, along Drum Powerhouse Road overlooking Bear River Creek, 2.5 miles from the junction with Main Street and about 3.5 miles from Dutch Flat (CDFW 2015a). No observations were made during the survey conducted on May 11, 2015.

**Inundated bog club-moss** (*Lycopodiella inundata*)

Federal Status: none; State Status: S1 critically imperiled; CNPS Status: 2B.2. endangered

Observed in proposed Project area: NO; Potential to occur: MODERATE

Inundated clubmoss, or Bog club moss, is a fern that is native to California and part of the core clubmoss family of primitive vascular plants known as Lycopodiaceae. It can be found in lower montane coniferous forest, marshes, seeps, bogs and fens type of vegetation communities (CNPS 2015b). Inundated bog club-moss likes coastal, mesic and lake-margin type of habitats. The fruiting time (blooming period) for Inundated bog club-moss is June through September, as an elevation range of approximately 16 to 3,280 feet (5 to 1,000 meters). The plant stem, including the leaves, ranges from 0.5 to one centimeter in width. Leaves extend from stem three
to eight millimeters and are wider at the base of the stem (Jepson eFlora 2015). Inundated bog club-moss is rare, threatened or endangered within California, but more common elsewhere. Future threats to this species include mining activities and degradation of suitable habitat (CNPS 2015b). Inundated bog club-moss has a moderate potential to occur within the proposed Project area with suitable habitat. There are known occurrences within the proposed Project region just north of North Bloomfield Road and east of Shonter Hill Campground. No observations were made during the survey conducted on May 11, 2015.

**Scadden Flat checkerbloom** (*Sidalcea stipularis*)

Federal Status: none; State Status: endangered; CNPS Status: 1B.1. endangered

Observed in proposed Project area: NO; Potential to occur: MODERATE

Scadden Flat checkerbloom is a perennial endemic California herb, which is part of a major group of angiosperms known as the Malvaceae, or mallow, plant family. This species occurs in montane freshwater vegetation communities, with an affinity to marshes, swamps, and other natural occurring wetland habitats. Scadden Flat checkerbloom blooms July to August in elevation ranges of 2,296 to 2,395 feet (700 to 730 meters) (CalFlora 2015, CNPS 2015b). Plant leaves are ovate and generally grow uniformly along the bristly stem. Flowers are pink, grow sparsely yet densely, and are approximately eight millimeters wide (Jepson eFlora 2015). This species is threatened due to grazing, mowing, encroachment by non-native plants, and water diversion activities (CNPS 2015b). Scadden Flat checkerbloom has a moderate potential to occur within the proposed Project area with suitable habitat. There are known occurrences near Idaho Maryland Road and near Nevada County Fairgrounds. No observations were made during the survey conducted on May 11, 2015.

**Sierra blue grass** (*Poa sierrae*)

Federal Status: none; State Status: imperiled, vulnerable; CNPS Status: 1B.3. endangered

Observed in proposed Project area: NO; Potential to occur: MODERATE

Sierra blue grass is a perennial endemic California herb, which is part of a flowering grass family known as Poaceae. This species occurs in open lower montane coniferous forests. Sierra blue grass blooms April to June in elevation ranges of 1,200 to 4,921 feet (365 to 1,500 meters) (CNPS 2015b). Plant leaves are ovate and flowers are approximately two to four millimeters (Jepson eFlora 2015). This species is threatened by road maintenance (CNPS 2015b). Sierra blue grass has a moderate potential to occur within the proposed Project area with suitable habitat. There are known occurrences within approximately 4.3 miles west of the proposed Project area from 1940, one mile west of Baxter. No observations were made during the survey conducted on May 11, 2015.
Van Zuuk's morning-glory (Calystegia vanzuukiae)

Federal Status: none; State Status: imperiled; CNPS Status: 1B.3, endangered

Observed in proposed Project area: NO; Potential to occur: MODERATE

Van Zuuk's morning-glory is a perennial endemic California herb and part of the Convolvulaceae family. This species occurs in chaparral and cismontane woodland habitats. Scaddan Flat checkerbloom blooms May to August in elevation ranges of 1,640 to 3,870 feet (500 to 1,180 meters) (CNPS 2015b). This plant is known only from the Central Sierra Nevada foothills. Threats include non-native plants, vehicles, and mining (CNPS 2015b). Van Zuuk's morning-glory has a moderate potential to occur within the proposed Project area with suitable habitat. There are known occurrences within the USGS Dutch Flat Quad, just east of the proposed Project area. No observations were made during the survey conducted on May 11, 2015.

5.2 SPECIAL STATUS WILDLIFE

Based on the results of the reconnaissance-level biological survey conducted by Stantec biologist and desktop research using various resources, including those listed above in Section 3.0 Methodology, ten special status wildlife species were identified through background research as having the potential to occur in the proposed Project region or have been known to occur within five miles of the proposed Project area (Table 1). Nesting raptors and other migratory birds were also considered special status due to their protection under the MBTA and DFG Code. The proposed Project area was surveyed and evaluated to determine habitat suitability and the level of potential occurrence for each special status wildlife species. Based on desktop analysis, habitat assessment, and field surveys completed May 11, 2015, eight special status species were found to have either a low or a low to nil potential to occur within the proposed Project area (Table 1). Those special status species that have a moderate potential, high potential, or are present within the Project area include the coast horned lizard (Phrynosoma blainvillii), foothill yellow-legged frog (Rana boylii), and nesting raptors and migratory birds and are discussed below.

The special status species observed during the May 11, 2015 survey include the foothill yellow-legged frog and a variety of birds protected under the MBTA were observed during the field survey (Table 3).

Coast horned lizard (Phrynosoma blainvillii)

Federal Status: none; California Status: species of special concern

Observed in proposed Project area: NO; Potential to occur: MODERATE

The coast horned lizard occurs in valley-fothill hardwood, conifer and riparian habitats, as well as in pine-cypress, juniper and annual grassland habitats. It is found in the Sierra Nevada foothills.
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from Butte County to Kern County and throughout the central and southern California coast. Coast horned lizards forage on the ground in open area, usually between shrubs and often near ant nests. The species relies on camouflage for protection. Predators and extreme heat are avoided by burrowing into loose soil. Periods of inactivity and winter hibernation are spent burrowed in the soil under surface objects such as logs or rocks, in mammal burrows, or in crevices (Zeiner et al. 2000). They inhabit mostly open country, especially sandy areas, washes, flood plains and wind-blown deposits in a wide variety of habitats, and can be found at elevations up to 8,000 feet (2,438 meters) (CaliforniaHerps 2015).

There is potential suitable habitat in the Project area and within the historic range of the coast horned lizard. Thus, there is a moderate potential for the coast horned lizard to occur within the Project area. Although there is suitable habitat present, the coast horned lizard may not inhabit the proposed Project area due to the fragmented condition of its historical range and habitat, as well as its inability to thrive in areas of human development. No coast horned lizards were observed during the May 11, 2015 field survey, and the closest known observation, recorded in 1995, occurred approximately four miles southeast of the proposed Project area (CDFW 2015a, Figure 5).

**Foothill yellow-legged frog** (*Rana boylii*)

Federal Status: none; California Status: species of special concern

Observed in proposed Project area: YES; Potential to occur: PRESENT

The foothill yellow-legged frog (FYLF) is endemic to the coast ranges from the Oregon border to the Transverse Mountains in Los Angeles County, in most of northern California west of the Cascade Crest, and along the western flank of the southern Sierra to Kern County (Zeiner et al. 2000). They range in elevation from sea level up to approximately 5,000 feet (1,524 meters) (Nafis 2000-2013). Foothill yellow-legged frog habitat includes streams and rivers, with rocky substrate and open, sunny banks in forests, chaparral, and woodlands. They occasionally occupy isolated pools, vegetated backwaters, and deep, shaded, spring-fed pools (Jennings and Hayes 1994). Mating and egg-laying occurs in streams and rivers from April until early July, after streams have slowed from winter runoff. Egg masses are generally laid in the downstream side of submerged rocks, pebbles, or vegetation, where water is shallow and slow-moving. Eggs hatch within 5 to 37 days, depending on water temperature (Nafis 2000-2013). FYLF typically stay within a few feet of aquatic habitat.

All life forms of the foothill yellow-legged frog (adult, sub-adult, tadpole, and egg mass) were observed in Greenhorn Creek during the field survey performed on May 11, 2015. Approximately 12 adults, 7 juveniles, 18 egg masses (at 13 locations), as well as many groups of hatched/hatching tadpoles were observed (see Figure 5 and Appendix A Photographic Record).
Nesting raptors and other migratory bird species

Federal Status: protected under MBTA; State Status: protected under CDFG Code Sections 3503, 3503.5, and 3800

Observed in proposed Project area: NO (nesting); Potential to occur: MODERATE

The areas adjacent to and the proposed Project area possess potential suitable nesting habitat for bird species protected under the Migratory Bird Treaty Act (USWS 1918), including (but not limited to) cavity-nesting species such as the northern flicker (Colaptes auratus) and the white-breasted nuthatch (Sitta carolinensis); tree-nesting species such as black-headed grosbeak (Pheucticus melanoccephalus); and ground nesting species such as the spotted towhee (Pipilo maculatus) and killdeer (Charadrius vociferus). Raptors that may potentially nest in or directly adjacent to the proposed Project area may include red-tailed hawk (Buteo jamaicensis) or Cooper’s hawk (Accipiter cooperii). Therefore, there is a moderate potential for nesting raptors and other migratory birds species to occur within or adjacent to the proposed Project area. Although surveys were conducted during the appropriate nesting season (typically March 1 through August 31), no nesting raptors or other migratory birds were observed nesting in the proposed Project area during field surveys conducted on May 11, 2015. However, a variety of bird species protected under the MBTA (non-nesting) were observed during field surveys (Table 3).
6.0 IMPACTS AND RECOMMENDATIONS

The cumulative biological impacts associated to the proposed Project are estimated to be less than significant with the implementation of minimization and avoidance measures and/or mitigation to avoid impacts to the potential sensitive biological resources present within the proposed Project area.

To assist Hansen Bros. and the regulatory agencies determine the level of permitting and environmental compliance that will be required for the proposed Project, below are potential impacts and/or mitigation measures that may be of consideration. These measures are based on Hansen Bros. coordination with the County and CDFW regarding current operations in the area.

6.1 PRE-CONSTRUCTION ENVIRONMENTAL AWARENESS TRAINING

Special status species and biologically sensitive habitats were observed during the biological field surveys performed on May 11, 2015. Beginning in 2014, Hansen Bros. began implementing a pre-construction environmental awareness training and will continue to do this for should Project personnel. The training was developed and recorded in the form of a power point presentation with recorded audio. It was developed by a qualified biologist and is to be given prior to any activity in the proposed Project area each year of work. The purpose of the training would be to brief construction personnel on how to recognize foothill yellow-legged frog, which are known to occur in the area.

6.2 AVOID OR MINIMIZE IMPACTS ON SPECIAL STATUS PLANT POPULATIONS

No federally or state-listed endangered, threatened, rare or candidate plant species were detected in the proposed Project area during the May 11, 2015 biological field survey; however, Brandegee’s clarkia was observed close to the You Bet Bridge next to the Greenhorn Creek Bridge in 2004, approximately three miles downstream from the proposed Project area (CDFW 2015a). Therefore, this year late bloom surveys should also be conducted. If no listed species are encountered no further mitigation is required. If special status species are encountered in the area then avoidance measures and annual pre-construction surveys and avoidance measures shall be implemented as follows.

Pre-construction botanical surveys for special status plants should be conducted in the appropriate blooming periods, and should be performed by a qualified botanist following CDFW and CNPS protocols for surveying special status native plants.

1. If special status plants are determined to have no presence in the proposed Project site, then no further mitigation is required.

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2. If special status plants are determined present within the proposed Project area during pre-construction field surveys, Project activities should be reduced and minimized to avoid impact by:

- Mapping the population and placing flagging to identify the population location. Install environmentally sensitive exclusion fencing and appropriate signage at an appropriate buffer distance, starting from the edge of the special status plant and/or plant population. Signage should indicate the area is environmentally sensitive and not to be disturbed;

- Adjust proposed Project activities away from special status plants to the extent feasible. The Project work area will be confined to the existing ROW and previously disturbed areas; therefore minimizing any potential impact to special status plant species if observed during pre-construction surveys; and

- Supervision, guidance, and verification of the implementation of these measures shall be achieved by Hansen Bros. and an agency approved biological monitor (i.e., a qualified biologist or botanist approved by CDFW and/or USFWS).

3. If special status plants are determined present in the proposed Project site during pre-construction field surveys and direct or unavoidable impacts to special status plants will result from proposed Project activities, then consultation with appropriate agencies (i.e., CDFW and/or USFWS) should be required to develop acceptable mitigation (e.g., agency recommended mitigation may include translocation of individual plants, rectification of impact by seed collecting and stockpiling for replanting/replacement, mitigation fees, and/or permitting).

6.3 AVOID DISTURBANCE OF FOOTHILL YELLOW-LEGGED FROG

Breeding foothill yellow-legged frogs have been observed and are known to occur in the proposed Project area in Greenhorn Creek. The following are potential mitigation measures to avoid or minimize the disturbance of FYLF. These measures have been reviewed and approved by CDFW for current operations in the area.

1. **Work Period.** The time of proposed Project activities should be restricted to periods of low stream flow and dry weather and periods shall be defined by CDFW. Within the permitted work period, no work shall occur during wet weather. Wet weather is defined as when there has been 2 inches of rain (or more) in a 24-hour period.

2. **Egg Mass Surveys.** Hansen Bros. shall be responsible for having a survey for FYLF (including egg masses, tadpoles, sub-adult, and adults) conducted by a qualified biologist to determine if and where FYLF are breeding in the proposed Project Area. If FYLF egg masses and/or amplexing adults are found during the egg mass surveys,
Hansen Bros. should work with CDFW to revise the proposed Project to avoid negative
impacts to the breeding area(s).

3. Stranded Aquatic Life. Hansen Bros. shall ensure that aquatic life is not stranded in
dewatered areas. All reasonable efforts shall be made to capture and move all stranded
aquatic life observed in the dewatered areas. Capture methods shall be conducted by
a qualified biologist and may include fish landing nets, dip nets, buckets and by hand.
Captured aquatic life shall be released immediately within the main channel closest to
the work site. This condition does not allow for the take or disturbance of any state or
federally listed species.

4. Biological Monitor. A qualified biologist should be onsite during any relocation of
stranded aquatic life. The qualified biologist/monitor shall be responsible for monitoring
all activities related to working in Greenhorn Creek. The qualified biological should have
the authority to immediately stop any proposed Project activities that are not in
compliance and/or if there is a threat of harm to any sensitive species or other aquatic
wildlife.

6.4 AVOID DISTURBANCE OF SPECIAL STATUS BIRD SPECIES, NESTING
RAPTORS, AND OTHER MIGRATORY BIRDS PROTECTED UNDER THE
MBTA

No special status or nesting raptors and migratory birds were observed nesting during the
biological survey on May 11, 2015. However, suitable nesting habitat exists within/adjacent to
the proposed Project area and 16 bird species protected under the MBTA were observed within
or adjacent to the proposed Project area (Table 3). Hansen Bros. should implement one of the
following measures, depending on the specific construction timeframe, to avoid disturbance to
ground, tree, and other nesting special status birds and non-special status migratory birds:

1. If construction activities are scheduled to occur during the nesting season
(approximately March 1 through August 31) pre-construction nesting surveys shall be
conducted by Hansen Bros staff within the proposed Project area and within an
approximate 100 foot buffer:

- Surveys shall be conducted within the proposed Project area and all potential
  nesting habitat within approximately 100 feet of this area;

- The surveys should be conducted within one week before initiation of construction
  activities at any time between March 1 and August 31. If no active nests are
detected, then no additional mitigation is required; or

- If surveys indicate that migratory bird nests are found in any areas that would be
  directly affected by construction activities, a no-disturbance buffer shall be
  established around the site to avoid disturbance or destruction of the nest site until
after the breeding season or after a wildlife biologist determines that the young have fledged (typically late June to mid-July). The extent of these buffers shall be determined by a qualified biologist and shall depend on the special status species present, the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors should be analyzed to make an appropriate decision on buffer distances.

- If construction activities begin outside the breeding season (approximately September 1 through February 28) then Project activities may proceed until it is determined that an active migratory bird nest would be subject to abandonment as a result of construction activities. Optimally, all necessary vegetation removal shall be conducted before the breeding season so that nesting birds would not be present in the construction area during construction activities. If any bird nests are in the proposed Project area under pre-existing construction conditions, then it is assumed that they are habituated (or will habituate) to the construction activities. Under this scenario, the pre-construction survey described previously should still be conducted on or after March 1 to identify any active nests in the vicinity. Active sites should be monitored periodically until after the breeding season or after the young have fledged (typically late June to mid-July).

6.5 AVOIDANCE AND MINIMIZATION OF IMPACTS TO WATERS OF THE U.S. AND WATERS OF THE STATE

The proposed Project area is within the floodplain of Greenhorn Creek and the site excavation areas are below the ordinary high water mark of the creek. Currently, the permitted areas of Greenhorn Creek (south of the proposed Project area) is covered under a CDFW Streambed Alteration Agreement, which if it doesn’t already, would be extended to cover the proposed Project expansion. Although the Corps regulates the placement of dredge and fill material in waters of the U.S., they do not regulate “clean excavation”, meaning excavation with no incidental fall back or fill placement. As such, Hansens Bros. operates without Clean Water Act Section 404 permits from the Corps.

6.6 AVOID AND MINIMIZE IMPACTS TO RIPARIAN SPECIES

Riparian trees exist along the low flow channel and in the floodplain of Greenhorn Creek. During the design phase of the Project, Hansen Bros. should plan to avoid and minimize potential impacts to riparian habitat to the extent feasible and/or impacts to riparian habitat that cannot be avoided should be mitigated in accordance with specifications in the CDFW Streambed Alteration Agreement (SAA; CDFW Code Section 1600) for the Project area.
7.0 REFERENCES


GREENHORN CREEK GRAVEL HARVEST EXPANSION PROJECT BIOLOGICAL INVENTORY REPORT

References
June 16, 2015


APPENDIX A PHOTOGRAPHIC RECORD

Greenhorn Creek Gravel Harvest Expansion Project – Biological Inventory Survey
May 11, 2015

1.0
Southwest aspect. Greenhorn Creek, north of Red Dog Road and east of Benedict Canyon Road.

2.0
North aspect. Greenhorn Creek, north of Red Dog Road and east of Benedict Canyon Road.

3.0
Southwest aspect. Greenhorn Creek, gravel roads, and previous creek channels. Greenhorn Road to the south and Meadow Way/Fritillary Way to the east.

4.0
Southwest aspect. Greenhorn Creek, Red Dog Road on both east and west sides. Just north of the Red Dog Narrows.
Greenhorn Creek bed consists of cobbles, very coarse gravel, coarse gravel, medium gravel, and coarse sand.

South aspect. The Red Dog Narrows on Greenhorn Creek.

North aspect. The Red Dog Narrows on Greenhorn Creek.

Southeast aspect. Greenhorn Creek banks are typically sloped and lack vegetation, with coarse gravel and sand, interspersed with some larger cobbles.
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<td>South aspect. Greenhorn Creek running along the east side of canyon with road on the west. Riparian vegetation dominating slope up to Greenhorn Creek channel.</td>
<td>Southwest aspect. Potential canyon/tributary feature just south of Missouri Canyon on the west side of Greenhorn Creek.</td>
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<td>Southeast aspect. Greenhorn Creek running along the west side of the canyon, with the road on east. Red Dog Road runs to the east here, and terminates into the Greenhorn Creek canyon.</td>
<td>Southwest aspect. Greenhorn Creek lies to the west. This location is just north of the Red Dog Narrows.</td>
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</table>
Northeast aspect. Greenhorn Creek canyon. Slopes are unconsolidated and lack vegetation.

Southeast aspect. Entrance to Missouri Canyon.

Southeast aspect. Missouri Canyon entrance from Greenhorn Creek.

Northeast aspect. Location is approximately 800 feet up Missouri Canyon from Greenhorn Creek.
Northwest aspect. Northwest slope of Missouri Canyon, approximately 800 feet up from the inlet to Greenhorn Creek. Riparian vegetation is present along the slopes, with an abrupt shift to coniferous forest at the slope crest.

Southeast aspect Missouri Canyon at the end of the BSA.

California toads (Bufo boreas halophilus) in amplexus (mating) and laying eggs (long dark strand). Arrow: both male and female adults.

Two foothill yellow-legged frog (Rana boylii) egg masses covered in light layer of silt on downstream side of cobble, Greenhorn Creek.
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<td>Pre-hatch, developing foothill yellow-legged frog egg mass. Greenhorn Creek.</td>
<td>Foothill yellow-legged frog egg mass and group of newly hatched tadpoles. Missouri Canyon, tributary to Greenhorn Creek. Arrows: egg mass above, tadpoles below.</td>
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<td><img src="image1" alt="Adult foothill yellow-legged frog. Missouri canyon, tributary to Greenhorn Creek." /></td>
<td><img src="image2" alt="Adult foothill yellow-legged frog. Missouri Canyon, tributary to Greenhorn Creek." /></td>
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**Attachment 5**
Hello Jessica,

Bernadette forwarded me the mitigation measures for the late-bloom special-status plant surveys and the nesting bird surveys. Please see my attached input/edits. Feel free to accept/reject any of my changes.

In addition, here is a little extra information regarding the coast horned lizard and its potential to occur in the project site. I don't believe that any additional mitigation is necessary for this species.

Although habitats within the proposed Project area may be considered suitable for the coast horned lizard, a Species of Special Concern, the likelihood of this species occurring in proposed Project area (Greenhorn Creek) is low due to the annual flows and inconsistencies of the hydrological processes on the creek. In addition, its historical range is generally very fragmented and coast horned lizard are not well adapted to highly disturbed areas. Stantec biologists have been conducting various surveys and monitoring within Greenhorn Creek regularly since 2013, and the coast horned lizard has never been observed within the creek bed or along the banks of Greenhorn creek.

Also, I checked with our botanist and she provided the following information regarding surveys completed for vegetation in the Hansen's Expansion Area:

- Restoration- Only vegetation within test-plot areas was recorded. Additional vegetation was added to the mid-bloom plant list from the Biological Inventory. April 2016 (EARLY BLOOM)
- Restoration- Quantitative Baseline Conditions for specific transects within the recovery area. Only vegetation within the transect plots was assessed. Additional vegetation species from this baseline for restoration was added to the existing plant list from the Biological Inventory updated list. October 11, 2016 (LATE BLOOM PERIOD)

Please let Bernadette or I know if you have any additional questions.

Have a great weekend!

Emily C. Eppinger
Wildlife Biologist
Stantec
Phone: 530.470.0515
Cell: 916.606.0406
eEmily.eppinger@stantec.com

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LAKE AND STREAMBED ALTERATION AGREEMENT
Notification 1600-2007-142-R2

THIS AGREEMENT, entered into between the State of California, Department of Fish and Game, hereinafter called the Department, and Ron Miner representing Hansen Bros. Enterprises, of Grass Valley, State of California, hereafter called the Operator, is as follows:

WHEREAS, pursuant to Division 2, Chapter 6 of California Fish and Game Code, the Operator, notified the Department that he intends to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed or lakebed of, the following water: Greenhorn Creek, in the County of Nevada, State of California, Section 3, Township 15N, Range 9E; Sections 2 and 11, T15N, R9E; and Sections 25, 35, and 36, T16N, R9E.

Whereas, the Department has determined that such operations may substantially adversely affect existing fish and wildlife resources including: fish, amphibians, and other aquatic and terrestrial plant and wildlife species.

THEREFORE, the Department hereby proposes measures to protect fish and wildlife during the Operator's work. The Operator hereby agrees to accept the following conditions as part of his work:

Project Description: This agreement pertains to the extraction of sand and gravel from an ongoing operation on Greenhorn Creek, upstream of Rollins Lake. The project shall include the installation of temporary culvert crossings on Greenhorn where heavy equipment will cross the creek. The project may include a diversion channel between the meanders of the stream. The diversion channel(s) will be installed by first creating a dry channel between meanders. The channel will be created from starting at the bottom of the new channel and shall be installed in an upstream direction. The temporary channel will be built in clean gravels and will not be excavated in fine silts or soil. Berms around the channel shall be installed at a height that is the lowest possible to contain the creek. Before the winter period, the berms will be lowered to height that will allow the channel to meander. The culverts and top 6 inches (or the depth necessary) of road base or earth driving cap shall be removed by October 15.

Conditions:
The following provisions, including any additional project features resulting from the above, constitute the limit of activity agreed to and resolved by this Agreement. The signing of the Agreement does not imply that the operator is precluded from doing other activities at the site. However, activities not specifically agreed to and resolved by this Agreement are subject to separate notification pursuant to Section 1601 or 1603.
Stream Zone Defined: The stream zone is that portion of the stream channel that restricts lateral movement of water. The stream zone is delineated at the top of the bank or the outer edge of any riparian vegetation, whichever is more landward.

1. Prior to commencement of extraction activities, the Operator is authorized to install sandbags or berms of gravel material to divert any braided channels into one main stream channel. Berms along the channel shall be installed at a height that is the lowest possible to contain the creek. Before the winter period, the berms will be lowered to height that will allow the channel to meander.

2. The Operator is allowed to carefully construct dry channels between meander bends of the main channel as flows exchange from side to side in the floodplain. The diversion channel shall be installed by first creating a dry channel between meanders. The channel will be created from starting at the bottom of the new channel and shall be installed in an upstream direction. The temporary channel shall be built in clean gravels and will not be excavated in fine silts or soil. This will create a situation where a portion of the channel shall be maintained in a wet condition at all times.

3. Gravel extraction shall not occur within 25 feet of the main channel of Greenhorn Creek at any time to prevent dewatering of the creek channel. Where the 25-foot distance results in dewatering of the channel; the distance shall be increased to prevent dewatering of the creek. The Operator shall be responsible for monitoring extraction activities to prevent or cease any action that may result in dewatering of the creek.

4. Operations shall not result in the increased sedimentation of Greenhorn Creek or influx of sediment-laden water in Greenhorn Creek.

5. Operations shall not result in a feature that will allow for the ponding of water or entrainment of aquatic species in a location separate from the main channel during high flows. Natural wetland features will not be backfilled.

6. No heavy equipment shall operate in the live stream, except for occasional stream crossings that are authorized in locations where the stream channel is free of sediment.

7. All temporary stream crossings shall have a culvert installed for repeated crossings of large equipment.

8. A temporary culvert of sufficient size to handle the flow in the stream may be placed on the stream bottom. The temporary crossing shall be constructed with a layer of clean river gravel 6" to 12" above water level. The crossing may be topped with a driving cap of gravel road base or earth.

9. The bottom of the culvert shall be placed below stream grade.
10. Pursuant to Fish and Game Code Section 5901, the temporary culverts shall not impede the passage of fish at any time. Culverts shall be of sufficient size to pass the high flows without impounding water upstream of the culvert.

11. The Operator is allowed to enter the flowing water of Greenhorn Creek to install the temporary crossings. The Operator shall implement all Best Management Practices (BMP's). The Regional Water Quality Control Board Basin Plan water quality levels shall not be exceeded for more than 50 feet downstream of project activities.

12 Precautions to minimize turbidity and siltation shall be taken into account during operations. Adequate erosion and siltation control measures shall be used to prevent turbid or silt-laden water from entering the stream.

13. The culverts and top 6 inches (or the depth necessary) of road base or earth driving cap shall be removed by October 15. Clean river gravel may be left in the stream.

14. If there is a thirty (30) percent chance of rainfall over ½ inch, as forecasted by the U. S. Weather Service or other reliable source, all temporary crossings shall be removed prior to the rain event, unless the crossing devices have been designed to pass the expected flow(s) without impounding water upstream of the crossing or impacting the integrity of the watercourse. Temporary crossings may be replaced when the rainfall ceases and flows will not be impounded upstream of such structures when they are returned to the streambed.

15. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.

16. Tributaries to Greenhorn Creek shall be allowed to flow into Greenhorn Creek until the tributaries dry up.

17. If water is drafted from Greenhorn Creek, the Operator shall not divert more than 20% of the flow as measured immediately upstream of the diversion point. At no time shall the diversion cause flows to go below 2 cfs (cubic feet per second) below the diversion point. Water drafting activities shall be actively monitored to insure compliance.

18. Intake valves for water drafting activities shall be screened to prevent the entrainment of amphibians and all age classes of fish, including eggs.

19. Structures implemented to facilitate diversion and drafting of water shall not impede the passage of fish at any time.
20. Turbid water inadvertently generated from water drafting activities shall not be allowed to enter the stream.

21. No debris, soil, silt, sand, rubbish, cement or concrete or washings thereof, oil, petroleum products, or other organic or inorganic material from any construction or associated activity of whatever nature shall be allowed to enter into, or placed where it may be washed by rainfall or runoff into, waters of the State. When operations are completed, any excess materials or debris shall be removed from the work area.

21. Staging/storage areas for equipment, materials, fuels, lubricants and solvents will be located outside of the stream's high water channel. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream will be positioned over drip-pans.

22. Vehicles will be moved a minimum of 50 feet from the flowing water of the stream prior to refueling and lubricating.

23. The contractor shall not dump any litter or construction debris within the stream zone. All construction debris and associated materials shall be removed from the work site upon completion of this project.

24. The Operator, Contractor, subcontractors, agents and employees shall not litter or pollute the area affected by this Agreement in violation of state or federal law.

25. To the extent that the provisions of this Agreement provide for the diversion of water, it is the Department's understanding that the Operator possesses the right to divert such water. In the absence of such right, provisions of this Agreement pertaining to the diversion of water are void.

26. The notification, together with all supporting documents (project descriptions and drawings) submitted with the notification, are hereby incorporated into this agreement to describe the location and features of the proposed project. Operator agrees that all work shall be done as described in the notification and supporting documents, incorporating all project modifications, wildlife resource protection features, mitigation measures, and provisions as described in this agreement. The Operator further agrees to notify the Department of any modifications made to the project plans submitted to the Department. At the discretion of the Department, minor plan modifications may require an amendment to this agreement. At the discretion of the Department, if substantial modifications are made to the original plans, this agreement becomes void and the Operator must submit a new application. Failure to notify the Department of changes to the original plans or subsequent amendments to this agreement may result in the Department suspending or canceling this agreement. The Operator must then submit a new notification.
27. The Operator shall notify the Department where conflicts exist between the provisions of this agreement and those imposed by other regulatory agencies. Unless otherwise notified, the Operator shall comply with the provision that offers the greatest protection to water quality, species of special concern and/or critical habitat.

28. Department personnel shall be allowed into the work site at any time during the period covered by this Agreement for the purposes of establishing compliance with this Agreement.

29. The Operator assumes responsibility for the restoration of any fish and wildlife habitat which may be impaired or damaged either directly or, incidentally to the project, as a result of failure to properly implement or complete the provisions of this Agreement.

30. It is understood that the Department enters into this Agreement for purposes of establishing protective features for fish and wildlife in the event that a project is implemented. The decision to proceed with the project is the sole responsibility of the Operator. The Operator agrees to hold harmless and defend the State of California and the Department of Fish and Game against any related claim made by any party or parties for personal injury or other damage.

31. The Agreement expires on December 31, 2011. If you wish to RENEW this Agreement, renewals shall be requested in writing and will not be processed unless received with payment of the current renewal fee. Send the renewal request and fee to Attn.: Environmental Services (1600 Renewal), California Department of Fish and Game, Region II, 1701 Nimbus Road, Rancho Cordova, CA 95670. Reference your current Agreement number when requesting a renewal.

32. This Agreement is not valid until signed by the Department's representative. You may not begin your proposed project or activity covered under the Lake or Streambed Alteration Agreement until the Department executes (signs) the Agreement. The Department may not execute the agreement; however, until the project as described in the draft agreement is reviewed pursuant to CEQA, unless it is otherwise exempt from CEQA review. For information on the CEQA review refer to the "Lake and Streambed Alteration Program Questions and Answers" information you received with your initial notification package.

SUSPENSION AND CANCELLATION

33. The Department may suspend or cancel this agreement if the Department determines that circumstances warrant suspension or cancellation. The circumstances that might warrant suspension or cancellation include, but are not limited to, the following: (A) Failure by Operator, or his employees, agents, representatives, contractors, and/or subcontractors, to comply with any of the terms and conditions of this agreement. (B) The Department determines that the information Operator provided to the Department to develop this agreement, or the information contained in a notification, is incomplete or inaccurate. (C) The Department obtains new information that shows the
work authorized by this agreement could substantially adversely affect fish and wildlife resources, notwithstanding Operators compliance with the agreement. (D) The Department determines that measures to protect fish and wildlife resources different from those included in this agreement are necessary to protect those resources. (E) There is a substantial change in conditions. For purposes of this agreement, a substantial change in conditions shall mean one or more of the following: 1) the work described in this agreement is substantially changed; 2) conditions affecting fish and wildlife resources substantially change; and/or 3) the work conducted under this agreement have adversely affected, or will adversely affect, fish and wildlife resources, notwithstanding that Operator has complied, or will comply with, the terms and conditions of this agreement.

Scope of Suspension: At the discretion of the Department, any action to suspend this agreement may be limited in scope to address the specific problem or problems resulting in the suspension. Hence, the Department may limit the suspension to specified work or specified areas. The Department shall notify Operator of any suspension of the agreement, or any part thereof, in writing. Any suspension shall take effect immediately upon receipt of such notice by Operator, or in accordance with the instructions contained in the notice. Such notice will identify the reason or reasons for the suspension, the actions necessary to correct the problem, and the scope of the suspension.

Reinstatement Following Suspension: The Department may lift any suspension when it has determined that Operator has adequately addressed the problem or problems resulting in the suspension and that reinstatement of the agreement will not cause harm to fish and wildlife resources.

Any violation of the terms of this Agreement may result in the project being stopped, a citation being issued, or charges being filed with the District Attorney. Contractors and subcontractors may also be liable for violating the conditions of this agreement.
The Operator, as designated by the signature on this agreement, shall be responsible for the execution of all elements of this agreement. A copy of this agreement must be provided to contractor and subcontractors and must be in their possession at the work site.

Failure to comply with the provisions of this agreement and with other pertinent Code Sections, including but not limited to Fish and Game Code Sections 5650, 5652 and 5948, may result in prosecution.

Nothing in this agreement authorizes the Operator to trespass on any land or property, nor does it relieve the Operator of responsibility for compliance with applicable federal, state, or local laws or ordinances.

THIS AGREEMENT IS NOT INTENDED AS AN APPROVAL OF A PROJECT OR OF SPECIFIC PROJECT FEATURES BY THE DEPARTMENT OF FISH AND GAME. INDEPENDENT REVIEW AND RECOMMENDATIONS WILL BE PROVIDED BY THE DEPARTMENT AS APPROPRIATE ON THOSE PROJECTS WHERE LOCAL, STATE, OR FEDERAL PERMITS OR OTHER ENVIRONMENTAL REPORTS ARE REQUIRED.

This agreement becomes effective on receipt of signed agreement by all parties. This agreement terminates on December 31, 2011, for project construction activities only. This agreement shall remain in effect for that time necessary to satisfy the terms/conditions of the agreement including mitigation measures.

This agreement is not valid and work may not begin until the agreement is signed by a representative of the Department of Fish & Game.

Operator: [Signature] [Print Name] 
Title: [Title] Date: [Date]
Organization: [Organization]

Contractor: [Signature] [Print Name] 
Title: [Title] Date: [Date]
Organization: [Organization]

Department Representative: [Signature] [Print Name] Date: [Date]
May 2, 2012

Orson B. Hansen
Hansen Brothers Enterprises
P.O. Box 1599
Grass Valley, CA 95945

Subject: Extension of Streambed Alteration Agreement
Notification 1600-2007-0142-R2
Hansen Bros Enterprises

Dear Mr. Hansen:

On April 23, 2012, Staff Environmental Scientist Julie Newman met with you and Ron Miner at the Greenhorn Creek Gravel Extraction operation in Nevada County to view the project and discuss measures set forth in a letter from the Department dated December 21, 2011. The letter had been written in response to your November 15, 2011 request for a renewal of the agreement pursuant to California Fish and Game Code Section 1605 (b). On January 11, 2012 you had requested a site visit to discuss the added measures.

The Greenhorn Creek project involves removal of the overburden of hydraulic mine tailings washed down from upstream placer diggings from the latter half of the 19th century. The operation is accelerating the movement of the artificial bed load out of the stream reach.

This letter supersedes the December 21, 2011 letter. The measures set forth in that letter are altered as follows. Measure 1 (Legal Entitlements) is unchanged. Measure 2 (Pre-Extraction Plan), Measure 3 (Production Data Report) and Measure 4 (Transects) are altered as found below. Measure 5 (Water Surface Elevation) shall not be required, as described below. Please note that there are three reporting requirements that must be met prior to initiating work this season (underlined below).

The Department has determined that an extension will require modifications to the Agreement because the measures contained in the Agreement no longer protects the fish and wildlife resources that the activity may substantially adversely affect. The Department hereby agrees to extend the term of the agreement to December 31, 2016 with additions of the following measures to protect fish and wildlife resources.

Measure 1 (Legal Entitlements). This Agreement provides for the removal of gravel from the channel of Greenhorn Creek for commercial purposes. The Operator shall

Conserving California’s Wildlife Since 1870
Hansen Brothers Enterprises  
May 2, 2012  
Page 2 of 4  

remove gravel only from those areas where the Operator has secured legal entitlement to such gravel. For the purposes of this Agreement, the term "legal entitlement" is defined as all the project conditions, methods, place of operation, and project descriptions contained within the project's conditional use permit and reclamation plan that have been approved by Nevada County. All work shall be as specified in the Operator's notification, pre-extraction plan, and supporting environmental documents, except as otherwise indicated in the Project Conditions of the Agreement. The Department will only issue an agreement for amounts less than or equal to the maximum identified quantity described in the Surface and Mining and Reclamation Act (SMARA) reclamation plans. The Department will only issue an agreement for those extraction methods as described in the SMARA reclamation plans.

Measure 2 (Pre-Extraction Plan). Prior to onset of extraction activities each season, the Operator shall provide the Department a Pre-extraction Plan that specifies:

1. The locations of the extraction areas for that season.
2. A map that shows the season's access roads and stream crossings
3. A delineation of the low flow channel for the upcoming year's operation, as shown on photographs, a map. Hand-held GPS technology may be used for this delineation.

The Operator shall notify the Department in writing (letter or email) if locations of extraction areas change over the course of the season.

Measure 3 (Production Data Report). Prior to the onset of extraction activities each season, the Operator shall provide the Department with a Production Data Report. Production data are disclosed in order to track cumulative extraction volumes from a stream channel reach or watershed. Knowledge of the mined volume of aggregate and the volumetric change in the channel from cross section data will allow a basic evaluation of channel trends and the implication of future extraction activities. The report shall include the following:

1. A one-time initial submittal of extraction volumes since 2007 from the reach of stream. The record should show a year by year account of extracted material for the project area
2. The extraction volume mined in the previous year in cubic yards shall be provided along with the truckload calculations and any cross sections used to develop this information (see Measure 4 below).
3. Extraction volume data should include the California Mine Identification Number that corresponds to the specific material borrow site.

Measure 4 (Transects). Prior to the onset of extraction activities, the Permittee shall provide the Department with the results of all past transects required as part of the Nevada County Conditional Use Permit. Copies of all transects conducted during the term of this agreement shall be provided to the Department. Additional transects are
not required as part of this Agreement, as the operation is removing an overburden of placer tailings, and the measures in the existing agreement currently provide adequate protection to fish and wildlife resources.

Measure 5 (Water Surface Elevation). This measure is not required as a condition of amendment. Staking of the high water mark is not required due to the fact that the area is confined by steep canyon walls and is not accessible during flood events. Staking of low water surface elevations is not necessary since the location of each years- low water channel is clearly visible during operations, and the location will be provided to the Department using maps, photographs and/or hand-held GPS technology as part of Measure 2 (above). The Permittee is authorized to remove gravel within the Project Area and in the manner required in Agreement 1600-2007-0142-R2.

Please also provide a copy of any Nevada County Use Permit amendments that have been issued since your original notification package was submitted in April 2007.

All terms and conditions in the Agreement remain in effect unless otherwise noted herein.

Please sign and return one copy of this letter to acknowledge the extension and additional measures to protect fish and wildlife resources. Copies of the Agreement and this extension must be readily available at project work sites and must be presented when requested by a Department representative or agency with inspection authority.

Please reference Streambed Alteration Agreement #1600-2007-0142-R2 on any correspondence regarding this project.

If you have any questions regarding this matter, please contact Julie Newman, Staff Environmental Scientist at (530) 283-6866 or lnewman@dfg.ca.gov

Sincerely,

Isabel Baer
Lake and Streambed Alteration Program Supervisor

c: Julie Newman
lnewman@dfg.ca.gov

Orson Hansen
ochansen@gohbe.com

Ron Miner
rminer@gohbe.com
Hansen Brothers Enterprises
May 2, 2012
Page 4 of 4

ACKNOWLEDGEMENT

I hereby agree to the above-referenced amendment.

Print Name: ___________________________ Date: __________________

Signature: ____________________________
Date

Orson B. Hansen
Hansen Brothers Enterprises
P.O. Box 1599
Grass Valley, CA 95945
ohansen@gohbe.com

Subject: Amendment and Re-instatement of Lake or Streambed Alteration Agreement
Notification No. 1600-2007-0142-R2
Greenhorn Creek

Dear Mr. Hansen:

This letter supersedes the amendment of Lake or Streambed Alteration Agreement No. 1600-2007-0142-R2, dated March 27, 2014, and reflects the agreed upon changes to the avoidance measures as proposed. On November 1, 2013, the California Department of Fish and Wildlife (Department) suspended all work authorized by Streambed Alteration Agreement No. 1600-2007-0142-R2 (Agreement) downstream of the You Bet Bridge, due to new information that showed the work authorized by the Agreement could substantially adversely affect fish and wildlife resources. The Department has determined that additional measures are needed in order to protect the foothill yellow-legged frog (Rana boylii; FYLF). The Department hereby amends the Agreement with the addition of the following avoidance measures:

1) Workers Environmental Awareness Program. All workers shall receive worker environmental awareness training (WEAP) conducted by a qualified biologist or an environmentally trained foreman. WEAP may also be conducted through a video created by a qualified biologist specifically for this project. WEAP shall instruct workers to recognize FYLF, their habitat(s), and the nature and purpose of the protection measures in the Agreement.

2) Delineation of Project and Habitat Areas. Before starting work, the Operator shall clearly delineate the boundaries, including the upstream and downstream ends of the work area. Before starting work, the Operator shall clearly delineate all environmental sensitive areas. The Operator shall restrict all work to within the delineated boundaries. Delineation of work boundaries and environmentally sensitive areas may be in the form of a Department approved map and must be on site at all times.

3) Work Period. The time period for mining within Greenhorn Creek shall be restricted to periods of low stream flow and dry weather and shall be confined to the period of April 1st to December 31st of the same calendar year for the term of this Agreement. Mining activities shall be timet with awareness of precipitation forecasts and likely

Conserving California’s Wildlife Since 1870
increases in stream flow. Mining activities within the floodplain shall cease until all reasonable erosion control measures, inside and outside of the floodplain, have been implemented prior to all storm events. No work shall occur during wet weather. Wet weather is defined as when there has been 2 inches of rain (or more) in a 24-hour period. Revegetation, restoration and erosion control work is not confined to this time period.

4) Work Period Modification. If the Operator needs more time to complete the project activity, the work may be permitted outside of the work period by the Department representative who reviewed the project, or if unavailable, through contact with the Regional office at (916) 358-2800. The Operator shall submit a written request for a work period variance to the Department. The work period variance request shall: 1) describe the extent of work already completed; 2) detail the activities that remain to be completed; 3) detail the time required to complete each of the remaining activities; and 4) provide photographs of both the current work completed and the proposed site for continued work. The work period variance request should consider the effects of increased stream flows, rain delays, and limited access due to saturated ground conditions. Work period variances are issued at the discretion of the Department. The Department will review the written request to work outside of the established work period. The Department reserves the right to require additional measures to protect fish and wildlife resources as a condition for granting the variance. The Department will have ten (10) calendar days to review the proposed work period variance.

5) Biological Monitor On-site with Stop work Authorization. A biological monitor shall be on site during relocation of stranded aquatic life. The biological monitor shall be responsible for monitoring all activities related to channelizing the stream. The biological monitor shall have the authority to immediately stop any activity that is not in compliance with the Agreement and/or to order any reasonable measure to avoid or minimize impacts to fish and wildlife resources. If any sensitive State listed Species of Special Concern, or threatened or endangered species are found, the biologist shall inform the Department. If there is a threat of harm to any sensitive species, or other aquatic wildlife the biologist shall halt construction and notify the Department immediately.

a. Biological Monitor. A biological monitor is an individual experienced with construction level biological monitoring and who is able to recognize species in the project area and who is familiar with the habits and behavior of those species. Biological monitors shall have academic and professional experience in biological sciences and related resource management activities as it pertains to this project. All biological monitors for the project shall be approved by the Department, and will obtain any necessary authorizations prior to handling or relocating wildlife.

6) Stranded Aquatic Life. The Operator shall insure that aquatic life is not stranded in dewatered areas. All reasonable efforts shall be made to capture and move all stranded aquatic life observed in the dewatered areas. Capture methods shall be conducted by the Biological Monitor and may include fish landing nets, dip nets,
buckets and by hand. Captured aquatic life shall be released immediately within the main channel closest to the work site. This condition does not allow for the take or disturbance of any State or federally listed species.

7) Egg Mass Surveys. The Operator shall be responsible for having a survey for FYLF (including egg masses, tadpoles, sub-adult and adults) conducted by the Biological Monitor at an appropriate time to be determined by Department. The purpose of the survey shall be to determine if and where FYLF are breeding in the Project Area. The Operator shall prepare and submit to the Department for review a written report of the survey results before beginning work.

8) Breeding Area Avoidance. If FYLF egg masses and/or amplexing adults are found during the egg mass surveys, the Operator shall work with the Department to revise the Project to avoid negative impacts to the breeding area(s), including, but not limited to the installation of exclusionary or high visibility fencing. If FYLF egg masses and/or amplexing adults are found during the breeding surveys, the Operator shall submit a breeding area avoidance plan to the Department for approval 30 days prior to initiation of mining in the vicinity of the breeding area. The plan shall demonstrate how the Project shall be altered or redesigned to avoid negative impacts to breeding areas.

Additionally, the last sentence of the Project Description and Condition 13 of the Agreement is altered as follows:

All temporary culverts and the top 6-inches (or depth necessary) of gravel shall be removed when 2 inches (or more) of rain is forecasted in a 24 hour period.

All other conditions in the Agreement remain in effect unless otherwise noted herein. Please sign and return one copy of this letter to acknowledge the amendment. All work authorized by the Agreement may recommence once the Department receives a signed copy of this letter. Copies of the Agreement and this amendment must be readily available at project worksites and must be presented when requested by a Department representative or agency with inspection authority.

If you have any questions regarding this matter, please contact Tanya Sheya, Environmental Scientist at (916) 358-2953 or Tanya.Sheya@wildlife.ca.gov.

Sincerely,

[Signature]
Tina Bartlett
Regional Manager

cc: Tanya Sheya, Environmental Scientist
    Tanya.Sheya@wildlife.ca.gov

    Angela Calderaro, Senior Environmental Scientist
    Angela.Calderaro@wildlife.ca.gov
ACKNOWLEDGEMENT

I hereby agree to the above-referenced amendment to Agreement No 1600-2007-0142-R2.

Print Name: Jeff Hansen  Date: 6/23/2014

Signature: [Signature]
Hansen Bros. Enterprises (HBE) proposes to change the zoning designation of four parcels in rural Nevada County, located adjacent to their existing sand and gravel harvesting operation at Greenhorn Creek. Three of the four parcels, Assessor’s Parcel Numbers 38-430-02, 38-380-15, and 38-380-16, are located along the sides of the existing approved sand and gravel mining operation area and are proposed to be rezoned because the slopes of the existing harvesting area extend into the subject adjacent parcels. The fourth parcel, Assessor’s Parcel Number 38-370-17, is located upstream of the existing operation and would be used to extend the operation further upstream to provide sustainability of the industry.

All four parcels are currently zoned Forest 40 Acres (FR-40) which is designated for the protection, production, and management of timber, timber support uses, including but not limited to equipment storage and temporary offices, low intensity recreational uses, and open space.

HBE proposes to change the zoning designation of all four parcels to combined Forest/Mineral Extraction 40 Acres (FR-40-ME). The purpose of the ME zoning is to allow for surface mining and to provide for public awareness of the potential surface mining to occur where adequate information indicates that significant mineral deposits are likely present. This zoning is only to be used on those lands that are within any of the compatible Nevada County General Plan designations and which are not in a residential zone. All four parcels, along with the surrounding area, have the General Plan land use designation of FOR-40. Creation of an ME District requires the land to either be designated as Mineral Resource Zone-2 (MRZ-2) or clearly demonstrate that significant mineral deposits are likely present. The land that is proposed to carry the ME designation is both MRZ-2 as shown on the Mineral Resource Map in Appendix A of this application and has significant mineral deposits as shown in the photos in Appendix B.

The four parcels that are proposed to be rezoned from FR-40 to FR-40-ME are part of a steep stream canyon with heavily wooded sides and a large sand and gravel deposit in the stream bed as a result of historic hydraulic mining. The combined zoning would allow for the continuation of the FR zoning in the forested areas while providing the appropriate zoning in the sand and gravel deposit areas where forested land does not exist. Additionally, the proposed operation would allow for the continuation of the removal of the unnatural deposit and return the streambed to a state that is similar to the native condition.

The change of zoning is consistent with surrounding land uses in numerous ways. The land downstream and adjacent to the proposed rezone parcels is currently zoned FR-40-ME with an approved mining permit. Surrounding forested lands are zoned FR or Timberland Production Zone (TPZ). A substantial area around the historic area of You Bet, located immediately east of some portions of the existing mining area, is zoned FR-40-ME. Several other active or former mining operations are located within the general vicinity. Provided that the surrounding land uses include National Forest, zoning and land use densities not less than twenty acres, and no residential designations, densification and increased residential disturbance is not a concern.

Hansen Bros. Enterprises – Greenhorn
Changing of the zoning of the subject parcels would allow for the permitting of additional surface mining area to allow for the expansion of HBE’s Greenhorn Plant. The Greenhorn Plant and surface mining operation is a locally owned and operation business that has employed Nevada County residents since it was purchased in 1973. HBE is not planning to increase the scope of their existing operation but to permit additional area with the intent to continue the operation in its current/historic capacities.

HBE’s mining and plant operation is a necessary industry that provides aggregate to a wide variety of local and regional users. Products that are processed or manufactured from the sand and gravel deposit are used for: construction projects; roads; trails; residential and commercial landscaping; drainage improvements; septic systems and leach fields; concrete; stucco; mortar; utility trench backfill; and sand for arenas, sandboxes, and icy or snowy roads.

An additional benefit of removing the sand and gravel deposit comes from the nature of the operation. Sand and gravel that was exposed by historic hydraulic mining is transported downstream by the runoff of storms. If the material is not excavated, processed, and sold, the material continues to travel downstream into Rollins Reservoir reducing the water storage capacity in the lake. Rollins Reservoir is a water storage facility utilized by the Nevada Irrigation District and has various beneficial uses. Greenhorn Creek and Rollins Reservoir have been identified by the State of California as beneficial for drinking water supply, municipal and domestic water supply, and irrigation and therefore maintaining the capacity of the reservoir is critical. Nevada Irrigation District has even considered raising the dam height to increase the storage capacity at Rollins Reservoir.

All of the aforementioned information indicates the circumstances that justify rezoning the subject parcels and also meets the Counties objectives of fostering a rural quality of life by providing a local industry that utilizes a local material, sustains a quality environment by removing existing material that is then processed and provided as a product, sustains a local business that is strong and economical, and provides a planned land use that is appropriate to the character of the environment and does not require additional public services.
August 24, 2015

Regulatory Division SPK-2011-01092

Attn: Ms. Jessica Hankins
Nevada County Planning Department
950 Maidu Avenue, Suite 170
Nevada City, CA. 95959-8617

Dear Ms. Hankins:

We are responding to your August 17, 2015 request for comments on the Greenhorn Creek Placer Exploration project. The Nevada County Planning Department project identification numbers are U15-008, RP15-001, EIS 15-014, and Z15-004. The approximately 38-acre project site is located adjacent to Greenhorn Creek immediately north and south of the Red Dog Road creek Crossing, Latitude 39.23290°, Longitude -120.90437°, Nevada County, California.

The Corps of Engineers' jurisdiction within the study area is under the authority of Section 404 of the Clean Water Act for the discharge of dredged or fill material into waters of the United States. Waters of the United States include, but are not limited to, rivers, perennial or intermittent streams, lakes, ponds, wetlands, vernal pools, marshes, wet meadows, and seeps. Project features that result in the discharge of dredged or fill material into waters of the United States will require Department of the Army authorization prior to starting work.

To ascertain the extent of waters on the project site, the applicant should prepare a wetland delineation, in accordance with the "Minimum Standards for Acceptance of Preliminary Wetlands Delineations" and "Final Map and Drawing Standards for the South Pacific Division Regulatory Program" under "Jurisdiction" on our website at the address below, and submit it to this office for verification. A list of consultants that prepare wetland delineations and permit application documents is also available on our website at the same location.

The range of alternatives considered for this project should include alternatives that avoid impacts to wetlands or other waters of the United States. Every effort should be made to avoid project features which require the discharge of dredged or fill material into waters of the United States. In the event it can be clearly demonstrated there are no practicable alternatives to filling waters of the United States, mitigation plans should be developed to compensate for the unavoidable losses resulting from project implementation.
Please refer to identification number SPK-2011-01092 in any correspondence concerning this project. If you have any questions, please contact Kaitlyn Pascus at the California North Branch Office, 1325 J Street, Room 1350, Sacramento, CA 95814, by email at Kaitlyn.A.Pascus@usace.army.mil, or telephone at 916-557-7247. For more information regarding our program, please visit our website at www.spk.usace.army.mil/Missions/Regulatory.aspx.

Sincerely,

Nancy A. Haley
Chief, California North Branch
Regulatory Division

cc:
Jeff Hansen, Hansen Bros. Enterprises, P.O. Box 1599, Grass Valley, CA. 95945
My concern is the expansion of aggregate excavation and the amount of sand that is allowed to run off into Rollins Lake. For decades I have been watching the sand bar expand at the Greenhorn Creek inlet to Rollins Lake. It seems a study may need to be done to see if expanded excavation is going to cause it to increase. We are in a drought and need all the water storage we can get. If gravel operations are jeopardizing this, maybe we should place restrictions on them, as have been done on other ways of mining, by making them install settling ponds to keep it from flowing downstream. Hansen Brothers should be responsible for cleaning the sediments from the lake that their operations have caused before they are granted new rights.
Memorandum

DATE: September 1, 2015

TO: Jessica Hankins, Nevada County Planning Department

FROM: Zander Karim, Environmental Health Specialist III

SUBJECT: U 15-008; APNs 38-370-17, 38-380-15 and -16, and 38-430-02; Hansen Bros. Enterprises; Greenhorn Creek – north and south of Red Dog Road creek crossing

BACKGROUND

This is a Use Permit application proposing: to expand existing sand and gravel mine operation in and on the banks of Greenhorn Creek, to portion of APNs 38-370-17, 38-380-15 and -16, and 38-430-02 totaling approximately 38 acres; a reclamation plan, and rezoning of these parcels to FR-40-ME.

As a proposed expansion of operations, amenities for any employees working on these acreages, i.e. potable water, sanitary sewage disposal, etc., are available (per the assessment) at the existing plant site located at 12490 Mule Canyon Road/16444 You Bet Road, on parcels 12-800-04 and -05.

Risk of Upset/Health Hazard

The department has no record of hazardous materials storage or unauthorized release for the subject parcels.

Per (applicant’s) Assessment “small amounts of oil, fuel or other equipment related fluids could potentially be released in the event of a spill, leak, tank rupture, line break, etc. The applicant attests that ‘spills that may occur would be addressed immediately and appropriately with the facility’s equipment. Spill clean-up material is available at the existing processing plant.

A permitted well, located on parcel 38-430-02, should be surveyed, and fully protected as necessary from any impact of these proposed new activities.

CONCLUSIONS

Environmental Health has no objection with the subject project as proposed.
September 1, 2015

Jessica Hankins, Senior Planner
Nevada County Planning Department
950 Maidu Ave. Suite 170
Nevada City, Ca. 95959

Permit: U15-008; RP15-001; EIS15-014; Z15-004
APN 38-370-17; 38-380-15, 16; 38-430-02

Jessica,

I have reviewed the plans to expand the existing sand and gravel mine operation in and on the banks of Greenhorn Creek. This facility is located in a predominately Very High Fire Hazard Severity Zone (FHSZ). The California Department of Forestry and Fire Protection (CAL FIRE) provides wildland fire protection in the un-incorporated State Responsibility Areas (SRA) of Nevada County. The following conditions of the Fire Marshal’s Office shall apply.

Fire Apparatus Access Roads

1. Roads within the facility shall meet a minimum of 20’ in width. California Fire Code Section 503.2.1

2. Roads shall be designed and maintained to support the imposed loads of Fire Apparatus, California Fire Code Section 503.2.3

3. Dead end roads in excess of 150’ shall be provided with an approved area for turning around fire apparatus. California Fire Code Section 503.2.5

Additional comments may follow after the site inspection.

Should you have any questions, please contact Nevada County Fire Marshal’s Office.

Regards,

Matt Furtado
Deputy Fire Marshal
Fire Captain, Cal Fire
To: Jessica Hankins, planner
From: Citizens Looking At Impacts of Mining (CLAIM-GV)

Jessica,

Regarding the Hansen Project, File NO: U15-008; RP15-001; EIS15-014; Z15-004, CLAIM-GV believes that the county should conduct a full EIR. This project would involve logging/mining/excavating in an area with a legacy of mining, so mercury is possibly on site, as are potentially other legacy mining pollutants. Also, there are potential impacts to the riparian zone wildlife, flora, aquatic habitat, surface and ground water quality, noise, aesthetics, air quality, local economy, county roads, and other impacts.

Thank You
Ralph Silberstein,
CLAIM_GV Board Member
Dear Ms. Hankins,

The Northern Sierra Air Quality Management District (NSAQMD) has reviewed the Early Consultation/Project Description for a proposed expansion of the Hansen Brothers Greenhorn Creek gravel processing facility.

Hansen Brothers annually obtains an Air Pollution Permit for the burning of natural wood waste. It is anticipated that this permit can accommodate the burning of additional waste vegetation resulting from project development.

Hansen Brothers also holds a Permit to Operate issued by the NSAQMD which contains production and emission limitations. This permit is anticipated to accommodate any additional mineral processing that occurs with the proposed expansion of the mining area.

Aside from the additional information provided here, the NSAQMD has no comment regarding this project.

Please contact me with any question.

Sincerely,

Sam Longmire, APCS

--

Samuel F. Longmire, MSES
Air Pollution Control Specialist III
Northern Sierra Air Quality Management District
PO Box 2509
200 Litton Drive, Suite 320
Grass Valley, CA 95945
Phone: (530) 274-9360 x106
Hi Jessica

It was very nice to meet you at the Hansen Brothers Public Meeting last week.

As I highlighted at the meeting, one of the environmental concerns is with mercury contamination of the water flowing into Rollins Lake. It is not clear what impact extracting gravel has on this and it doesn't appear that there is any baseline measurement on record that would help to determine whether the current operation increases or decreases the amount of mercury flowing downstream. It is apparent that there is gold being extracted from the gravel, but it is not clear that there has been any attempt to collect and dispose of any mercury that may be attached. I think it would be prudent to determine this before considering any expansion of the operation.

I was looking for a little more information on mercury contamination and came across the study below that indicates that a significant amount of mercury was lost to the environment. I thought that it might be of interest to you.

Regards
Ray Bryars

Mercury Contamination from Historical Gold Mining in California
September 24, 2015

Ms. Jessica Hankins
Senior Planner
Planning Department
County of Nevada Community Development Agency
950 Maidu Avenue
Nevada City, CA 95959

Subject: Zone Change and Modifications – Greenhorn Rock Plant
Hansen Bros. Enterprises

Dear Ms. Hankins:

This is to support the proposed expansion to mining activities relating to the Greenhorn Rock Plant on You Bet Road, by Hansen Bros. Enterprises.

For many years, silt, sand, and aggregates have migrated downstream along Greenhorn Creek towards Rollins Reservoir. Mining activities for the Greenhorn Rock Plant operations removes this material from the river bed, preventing a significant amount of material from entering and settling in Rollins Reservoir. Material that is not removed from the river bed continues to migrate downstream during storm events, and settles in the reservoir; the settled material occupies the upper reaches of the reservoir, and replaces valuable water storage capacity.

We believe that the proposed expansion of mining activities upstream of the Greenhorn Rock plant will likely remove more material from the river bed, and therefore, further reduce the migration of sand, aggregates, and silt to the reservoir. If so, this will help reduce the quantity of sediment entering the reservoir over time, and reduce further degradation to our water storage capacity.
At this time of severe drought, the District is seeking to protect and/or expand its storage capacity by any means. We appreciate the Community Development Agency's thoughtful consideration in this matter.

Sincerely,

Nevada Irrigation District

[Signature]

Remleh Scherzinger, P.E.
General Manager
DATE: November 24, 2015

TO: Jessica Hankins, Senior Planner
FROM: Joshua Pack, Principal Civil Engineer

SUBJECT: Hansen Brothers Expansion of Sand and Gravel Mine Operation

Background:
This application to the Planning Commission is for a proposed expansion to the existing Hansen Brothers sand and gravel mine operations in and on the banks of Greenhorn Creek to portions of APN's 38-370-17, 38-380-15, 38-380-16, and 38-430-02 totaling approximately 38 acres.

Comments:
The following edits to the proposed surface mining and reclamation plan should be addressed for DPW to consider the plan complete and/or required as mitigation for the project:

1. Section 4.4 (Transportation / Traffic)
   a. Language in the second paragraph should be amended as follows: “Maintenance for the Red Dog stream crossing and approaches shall be maintained in a passable condition during periods of the year when the stream is considered passable. This requirement shall not be dependent on mining operations in the vicinity of the area.”
   b. Language in the last paragraph of Page 34 should be amended as follows: “The Section 25 operation is required to contribute $0.005 per ton to a maximum of $49,000 annually for road maintenance and improvement attributable to plant operations. The tonnage rates and annual maximum amount shall be adjusted annually based on the California Construction Cost Index (CCCI) so that these fees can keep with the anticipated rate of inflation.”

If you have any questions, please contact Joshua Pack at (530) 265-7059 or at joshua.pack@co.nevada.ca.us.
Dear Ms. Hankins,

I am writing to request that the Nevada County Planning Commission require a full Environmental Impact Report (EIR) for the above project so that the cumulative impact of the Hanson Brothers proposed expansion can be known ahead of any further work in the Greenhorn Creek area. Of particular concern is the release of mercury from legacy mining, and the impact of erosion/sedimentation on water quality.

Thank you.

Jonathan Keehn

Jonathan Keehn
Wolf Creek Community Alliance
P.O. Box 477
Grass Valley, CA 95945
530.272.2347
web: WolfCreekAlliance.org

Many thanks for your support, donations, or volunteer effort!

"Do unto those downstream as you would have those upstream do unto you." Wendell Berry
Hi Jessica,

Regarding the Hansen Project, File NO: U15-008; RP15-001; EIS15-014; Z15-004,

I urge you to ensure that the County requires a full EIR on this project. The project involves logging/mining/excavating in an area with a legacy of mining and since Hansen Brothers is currently extracting gold along with gravel products, it is a certainty that mercury is being removed. For the safety of local residents and people and wildlife downstream, the County must ensure complete transparency regarding what is being removed and how these legacy mining pollutants are being disposed of.

The EIR should fully address the impacts to the riparian zone wildlife, flora, aquatic habitat, surface and ground water quality, noise, aesthetics, removal/disposal of toxins and air quality.

Regards
Ray Bryars
Jessica,

Thank you for providing an opportunity to comment on this project.

This project would involve logging/mining/excavating in an large area with a legacy of mining. There are potentially many impacts and only a full EIR will provide the level of analysis and input necessary to adequately evaluate them. CLAIM-GV urges the County to conduct a full EIR for this project.

Also, there seems to be some possibility that the existing permit from the California Regional Water Quality Control Board will be deemed sufficient. Clearly, with a project of this size, a new permit should be required.

And finally, it has been established that mercury is present on the site. But only 2 samples taken for a 38 acre site are not sufficient to make an accurate assessment of the mercury hazards. Large volumes of aggregate from prior mining activities will be disturbed repeatedly during the mining operations in the stream bed. This may be mobilizing significant amounts of mercury.

What impact will the mining operation have on the level of methyl-mercury entering the food chain in Rollins Reservoir and downstream over the long run?

Thank you for your consideration of these issues,

Ralph Silberstein,

CLAIM-GV Board Member

12/07/2015
My comments for the Hansen Bros permit to expand follow:

I have recently re-acquainted myself with the attached paper during my continued studies for the Blue Lead Mine. This paper is relative to the Hansen Bros project, as the proposed harvest area includes tailings from the old Starr Mine and tunnel.

While I generally support the idea of removing tailings deposited by hydraulic mining of yore in the Greenhorn and am supportive of such efforts by HBE, I am deeply concerned about the release of mercury and the formation of methylated mercury downstream as a result. I am deeply troubled by this paper's findings in the Starr tunnel and recognize that such studies were indeed and unfortunately limited...due to it being on private property. We need more data!

Pulling the "plug" of debris accumulated from the tunnel, and restoring the original route of the Greenhorn Creek would be ideal from many angles, but it could unleash a mess of mercury. I believe we need to be mindful of this and plan for the capturing of it.
12/9/2015

HANSEN BROS ENTERPRISES
PO BOX 1599
GRASS VALLEY, CA 95945

Dear Gentleperson(s):

Enclosed is a true copy of your Timber Harvesting Plan identified by date and document number shown above. The Director of Forestry finds that the plan conforms with the rules and regulations of the Board of Forestry pursuant to the provisions of the Z'berg-Nejedly Forest Practice Act of 1973. Conformance is indicated by the facsimile signature of his duly constituted representative being shown on the attached copy of the plan.

You may begin the timber operations proposed in the plan according to the conditions specified therein, and subject to the Forest Practice Act, Forest Practice Rules of the Forest District in which the operations will take place, related Board of Forestry Regulations and other applicable laws, regulations and ordinances.

The Forest Practice Act requires the filing of the two reports listed below for each timber harvesting operation undertaken:

1. Timber operations after completion of work described in a Timber Harvesting Plan, excluding work for stocking, a report shall be filed by the timber owner or his agent with the Director that all work, except stocking, has been completed.

2. Report of Stocking - within six (6) Months after completion of timber operations covered by a Timber Harvesting Plan, a report of stocking shall be filed by the timber owner or his agent with the Director.

The Timber Harvesting Plan will expire on December 8, 2020. Any request for an extension must be received ten (10) days prior to the expiration date shown above.
The effective period of this Timber Harvesting Plan is up to five years from the date the Director's representative signed the plan as being in conformance with the Forest Practice Act and Rules unless extended pursuant to Public Resources Code 4590.

In future correspondence, please refer to the number in the box in the upper right corner of the plan.

Sincerely,

John Ramaley, RPF #2504  
Forester III, Cascade, Sierra & Southern Regions  
Forest Practice Manager

Attachment

cc:  
UNIT – NEU  
RPF - Eggleton  
TLO/TO Hansen Bros Enterprises  
INSPECTOR - Harvey  
Board of Equalization  
County Planning- Nevada  
FG 2  
WQ 5A  
FILE
OFFICIAL NOTICE OF THE DIRECTOR OF FORESTRY’S DETERMINATION OF CONFORMANCE OF TIMBER HARVESTING PLANS OR NON-INDUSTRIAL TIMBER HARVEST PLANS (NTMP) AND AMENDMENTS WITH THE FOREST PRACTICE ACT, AND BOARD OF FORESTRY REGULATIONS

The Director of Forestry found on the dates shown that the THPs, NTMPs or amendments listed below and on the attached sheets are in conformance with the Forest Practice Act, and Board of Forestry regulations pursuant thereto.

Copies of the plans and related documents are available for inspection at: 6105 Airport Road, Redding, CA 96002; (530) 224-2445.

This notice is posted in compliance with Sections 1037.7, Title 14, California Administrative Code.

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Date Mailed: December 9, 2015

TO POSTING AGENCY: Please post this notice at the place where official notices concerning Environmental Quality Act compliance are usually posted. If there are questions concerning posting, please contact Resource Management Office, California Department of Forestry. Posting Period is 30 days
Central Valley Regional Water Quality Control Board

14 November 2016

Jeff Hansen, President
Hansen Brother Enterprises
P.O. Box 1599
Grass Valley, CA, 95945

REPORT OF WASTE DISCHARGE NOT REQUIRED FOR CEQA PROJECT, HANSEN BROTHERS ENTERPRISES, GREENHORN CREEK PLANT, NEVADA COUNTY

I have reviewed the 14 July 2016 Results of Surface Water Sampling Analysis for Hansen Bros. Greenhorn Creek Aggregate Mining Expansion, which was submitted subsequent to Central Valley Water Quality Control Board staff approval of the 4 March 2016 Draft Sampling and Analysis Plan. Based on the provided information in the sampling analysis report, the aggregate extraction and processing activities do not appear to threaten water quality with respect to mercury or other sampled constituents.

Wastewater discharge from the facility is currently regulated by Waste Discharge Requirements (WDRs) 98-185, which were adopted on 11 September 1998. Because WDRs 98-185 regulate wastewater disposal at the processing plant and wastewater volume will not increase with the extraction area expansion, the submittal of a Report of Waste Discharge (ROWD) is not required to revise the WDRs at this time. While WDRs 98-185 may be adequate to continue regulating the processing plant waste disposal, the Central Valley Water Quality Control Board is authorized to review and revise WDRs periodically pursuant to Section 13263(e) of the Porter-Cologne Water Quality Control Act. WDRs are routinely updated every five to fifteen years due to changes in State laws, regulations, and revised Water Quality Control Plans which have been enacted since adoption of your WDRs. General WDRs are planned to be developed sometime in the future and would apply to a majority of aggregate mining operations in the Central Valley. We will likely request you to submit a ROWD for enrollment under the general WDRs once they are adopted rather than revising WDRs 98-185.

If you have any questions regarding this letter, please contact me at (916) 464-4897 or by email at Robin.Merod@waterboards.ca.gov.

ROBIN MEROD
Water Resource Control Engineer
Non15 Permitting Unit (Waste Discharge to Land)

cc: Jessica Hankins, Nevada County Planning Department, Nevada City
    Dave Huff, Nevada County Environmental Health Department, Nevada City
    Alicia Brenner, BT Consulting, Inc., Placerville
    Jason Muir, Holdrege & Kull Consulting Engineers and Geologists, Nevada City
December 27, 2016

VIA EMAIL: Jessica.Hankins@co.nevada.us
ORIGINAL SENT BY MAIL

Ms. Jessica Hankins
Nevada County Community Development Agency
Planning Department
950 Maidu Avenue, Suite 170
Nevada City, CA 95959-8617

Dear Ms. Hankins:

GREENHORN CREEK AGGREGATE MINING EXPANSION
SECOND RESPONSE TO COMMENTS AND REVISED AMENDED RECLAMATION PLAN
CA MINE ID# 91-29-0006; AMENDED RP# RP15-001; AMENDED USE PERMIT# U15-008

The Department of Conservation's Office of Mine Reclamation (OMR) has reviewed Nevada County's cover letter dated December 23, 2016, the Response to Comments letter from BT Consulting dated November 30, 2016, and the Revised Amended Surface Mining and Reclamation Plan for the Greenhorn Creek Harvesting and Material Processing Project dated November 2016. The submittal also included Biological Baseline Data and Revegetation Recommendations dated December 1, 2016, in Appendix B. The letters, biological data, and revisions to the reclamation plan are proposed in order to address outstanding comments in OMR's letter dated July 18, 2016. All of OMR's comments have been satisfactorily addressed.

If you have any questions on these comments or require any assistance with other mine reclamation issues, please contact me at (916) 445-6175.

Sincerely,

Beth Hendrickson, Manager
Environmental Services Unit
March 23, 2017

Tyler Barrington, Principal Planner
Nevada County Planning Department
950 Maidu Avenue
Nevada City, California 95959

Dear Mr. Barrington:

This is in response to your request for comments regarding the Proposed Mitigated Negative Declaration Notice of Availability for Public Review.

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Nevada (Community Number 060210), Maps revised February 3, 2010. Please note that the County of Nevada, California is a participant in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65.

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE, and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map.

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any development must not increase base flood elevation levels. The term development means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials. A hydrologic and hydraulic analysis must be performed prior to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways.
Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA’s Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtml.

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community’s floodplain manager for more information on local floodplain management building requirements. The Nevada County floodplain manager can be reached by calling Brian Foss, Planning Director, at (530) 265-1222.

If you have any questions or concerns, please do not hesitate to call Michael Hornick of the Mitigation staff at (510) 627-7260.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Brian Foss, Planning Director, Nevada County
Ray Lee, WREA, State of California, Department of Water Resources, North Central Region Office
Michael Hornick, NFIP Compliance Officer, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX
Dear Tyler Barrington,

This is in regard to the proposed Mining Expansion project within Greenhorn Creek in the Red Dog-You Bet area of Grass Valley, Nevada County, California. The U.S. Fish & Wildlife Service (Service) is aware of extant populations of threatened or endangered species (protected under the Endangered Species Act of 1973) within 10 miles of Red Dog Road crossing of Greenhorn Creek. There are California Natural Diversity Database records of the following federally-listed species occurring: (1) Sierra Nevada yellow-legged frog (*Rana sierrae*, endangered); and (2) California red-legged frog (*Rana draytonii*, threatened). Federally-designated critical habitat for California red-legged frog is found within 5 miles of the Red Dog Road crossing of Greenhorn Creek.

Some of these species have specific habitat requirements and the project area may or may not have these habitats. Therefore, the Service suggests that a biological analysis is conducted to determine if federally-listed species are presently found adjacent to or within the project area and if the proposed project may affect listed species.

If you have questions regarding these comments, please contact me by email or phone (916-414-6444).

Thank you,

Ian Vogel

--

Ian Vogel
Fish and Wildlife Biologist - Sierra/Cascades Division
Endangered Species Program
Sacramento Fish and Wildlife Office
U.S. Fish and Wildlife Service
(916) 414-6444
April 6, 2017

Tyler Barrington
Nevada County Planning Department
950 Maidu Ave., Suite 170
Nevada City, CA 95959

Dear Mr. Barrington,

The letter is being provided in support of the Hansen Bros. Enterprises Greenhorn Creek Mining Expansion application proposing:

1) A Rezone (Z15-004) of APNs 38-370-17, 38-380-15, and 38-430-02 from Forest-40 (FR-40) to FR-40 with the Mineral Extraction combining district (FR-40-ME);
2) A Use Permit (U15-008) to extend the existing aggregate mine waste removal and creek restoration area to an adjacent 38 acres in the vicinity of the Red Dog Road creek crossing;
3) An updated Reclamation Plan (RP15-001) to reclaim and restore the site after mining activities are complete; and
4) A Management Plan (MGT17-0003) for the operation.

Employees that work at locally owned and operated Hansen Bros. Enterprises understand that there are numerous beneficial uses of the facility and operation which benefit the community in a multitude of ways.

First, the Hansen Bros. Enterprises owned Greenhorn Plant and Aggregate Harvesting operation has provided jobs to local residents since 1973. Approval of the application would not only continue to provide employment to the operators of the plant and the material harvesters, it also aids in the employment of truck drivers that transport material purchased from the facility. The application that is titled as an “expansion” does not propose to expand the plant or increase the quantity of material stored, processed, or sold. The “expansion” merely provides additional area from which to harvest aggregate material.

Secondly, the operation and plant produce material that is used for a variety of public and private uses. The plant produces aggregate products that are ideal for landscaping; gravel that is used for roads,

Hansen Bros. Enterprises Staff Support Letter

Proudly Serving Nevada County & Surrounding Sierra Nevada Communities Since 1953
driveways, and pathways; arena and sandbox sand; sand for roadways to improve safety for snowy or icy road conditions; sand used in grout, stucco, and concrete; drain rock; rock that can be used to stabilize the ground surface and reduce erosion at culverts outlets; asphalt; and various other road maintenance and construction related aggregate products. Materials produced and sold at the facility provide a source of material within Nevada County that would otherwise be purchased elsewhere, therefore; providing a local resource and contributing local tax dollars.

Lastly, the operation also provides environmental and public safety benefits. The aggregate harvesting operation removes sand, gravel, and other aggregate material that was deposited in the Greenhorn Creek canyon as a waste product from historic hydraulic mining. Removing the material returns the canyon to a more natural state. Removal of the aggregate material also prohibits that material from being transported downstream, reducing the capacity of nearby Rollins Reservoir, which is intended to store water for public use. The operation also provides improved access to a remote area for emergency response, possible evacuation routes, and utility repairs.

Additionally, measures are implemented to protect against and mitigate potential environmental impacts. The facility acts in accordance with regulations supplied by various Local and State agencies.

By signing this letter, Hansen Bros. Employees acknowledge their understanding and support of the proposed application.

Sincerely,

Hansen Bros. Enterprises Staff

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Title</th>
<th>Phone Number</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brenda Applegate</td>
<td>A/R P - Credit</td>
<td>530-432-3947</td>
<td>Brenda Applegate</td>
</tr>
<tr>
<td>Amanda K. Proctor</td>
<td>Office Assistant</td>
<td>530-305-8168</td>
<td>A.K. Proctor</td>
</tr>
<tr>
<td>Bonnie Roberts</td>
<td>Office Asst.</td>
<td>530-263-7006</td>
<td>Bonnie Roberts</td>
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<tr>
<td>Joe Hayden</td>
<td>Benefits Mgr.</td>
<td>530 913-6557</td>
<td>Joe Hayden</td>
</tr>
<tr>
<td>Helen Hansen</td>
<td>Vice President</td>
<td>530 265-5263</td>
<td>Helen Hansen</td>
</tr>
<tr>
<td>Walt Hansen</td>
<td>Aggregates Mgr.</td>
<td>530-913-6551</td>
<td>Walt Hansen</td>
</tr>
<tr>
<td>Dennis Jackson</td>
<td>Driver</td>
<td>530-210-3365</td>
<td>Dennis Jackson</td>
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Hansen Bros. Enterprises Staff Support Letter
<table>
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<th>Employee Name</th>
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<tbody>
<tr>
<td>Ron Miner</td>
<td>Plant Mgr.</td>
<td>273-5980</td>
<td>Ron Miner</td>
</tr>
<tr>
<td>Ron Koster</td>
<td>Plant Foreman</td>
<td>844-1437</td>
<td>Ronald Koster</td>
</tr>
<tr>
<td>William Cantle</td>
<td>Laborer</td>
<td>(530) 586-6289</td>
<td>William Cantle</td>
</tr>
<tr>
<td>Earnest C. Smith</td>
<td>Operator</td>
<td>401-3059</td>
<td>Earnest C. Smith</td>
</tr>
<tr>
<td>Kevin Vandeberg</td>
<td>Operator</td>
<td>407-5983108</td>
<td>Kevin Vandeberg</td>
</tr>
<tr>
<td>Wayne Hatcher</td>
<td>Operator</td>
<td>530-277-1179</td>
<td>Wayne Hatcher</td>
</tr>
<tr>
<td>Hector Romo</td>
<td>Plant Operator</td>
<td>530-272-2362</td>
<td>Hector Romo</td>
</tr>
<tr>
<td>Jim Davis</td>
<td>Manager</td>
<td>908-854-9111</td>
<td>Jim Davis</td>
</tr>
<tr>
<td>Wendy Gati</td>
<td>Office</td>
<td>530-913-2075</td>
<td>Wendy Gati</td>
</tr>
<tr>
<td>Phil Martin</td>
<td>Director</td>
<td>916-208-7445</td>
<td>Phil Martin</td>
</tr>
<tr>
<td>Jeff Hansen</td>
<td>Pres./G.M.</td>
<td>530-913-3935</td>
<td>Jeff Hansen</td>
</tr>
</tbody>
</table>

Hansen Bros. Enterprises Staff Support Letter
April 6, 2017

Tyler Barrington
Nevada County Planning Department
950 Maidu Ave., Suite 170
Nevada City, CA 95959

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1) A Rezone (Z15-004) of APNs 38-370-17, 38-380-15, and 38-430-02 from Forest-40 (FR-40) to FR-40 with the Mineral Extraction combining district (FR-40-ME);
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Sincerely,

Hansen Bros. Enterprises Staff

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Title</th>
<th>Phone Number</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chad Smith</td>
<td>Plant Superintendant</td>
<td>530-277-4230</td>
<td></td>
</tr>
<tr>
<td>Scott Michael</td>
<td></td>
<td>530-217-9985</td>
<td></td>
</tr>
<tr>
<td>Zach Stahl</td>
<td>Driver</td>
<td>392-0167</td>
<td></td>
</tr>
<tr>
<td>Caleb Potts</td>
<td>Rental Mechanic</td>
<td>530 616 8042</td>
<td></td>
</tr>
<tr>
<td>James Reese</td>
<td>Driver</td>
<td>916 745 8848</td>
<td></td>
</tr>
<tr>
<td>Robert Cassingall</td>
<td>Driver</td>
<td>530-205-7729</td>
<td></td>
</tr>
<tr>
<td>Chris Allen</td>
<td>Driver</td>
<td>530 520 4486</td>
<td></td>
</tr>
</tbody>
</table>

Hansen Bros. Enterprises Staff Support Letter
<table>
<thead>
<tr>
<th>Employee Name</th>
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<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeanene Smith</td>
<td>VIP</td>
<td>530-401-3059</td>
<td>SB Smith</td>
</tr>
<tr>
<td>David Griswold</td>
<td>Truck Driver</td>
<td>630-798-9184</td>
<td>David</td>
</tr>
<tr>
<td>Richard Tully</td>
<td>Rentals</td>
<td>530-913-3784</td>
<td>Kirk</td>
</tr>
<tr>
<td>David Vauda</td>
<td>Construction</td>
<td>530-401-5125</td>
<td>DP Young</td>
</tr>
<tr>
<td>Brandon Johnson</td>
<td>Supervision</td>
<td>530-913-4666</td>
<td>Brynn</td>
</tr>
<tr>
<td>(Tony) Anthony</td>
<td>R/20 Driver</td>
<td>916-798-7051</td>
<td>Tony</td>
</tr>
<tr>
<td>Carl Ohren</td>
<td>Labor/Operator</td>
<td>530-503-7919</td>
<td>Carl</td>
</tr>
<tr>
<td>Luke Tate</td>
<td>Driver</td>
<td>530-263-9089</td>
<td>Luke</td>
</tr>
<tr>
<td>Steven Pemburn</td>
<td>Driver</td>
<td>530-205-6804</td>
<td></td>
</tr>
<tr>
<td>Jennifer Kein</td>
<td>Wife</td>
<td>(570) 401-5780</td>
<td></td>
</tr>
<tr>
<td>Scott Detoro</td>
<td>Safety/Acme</td>
<td>530-713-0122</td>
<td>Scott</td>
</tr>
<tr>
<td>Andrew Brown</td>
<td>Rentals</td>
<td>530-210-3902</td>
<td></td>
</tr>
<tr>
<td>Salvador Alvarez</td>
<td>Construction</td>
<td>530-368-4198</td>
<td></td>
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<tr>
<td>Nate Mattace</td>
<td>Ready Mix</td>
<td>530-913-8966</td>
<td></td>
</tr>
<tr>
<td>Grant Fennell</td>
<td>Driver</td>
<td>530-878-3704</td>
<td></td>
</tr>
</tbody>
</table>
Tyler Barrington  
County of Nevada  
950 Maidu Ave  
Nevada City, CA 95959

Subject: Proposed Mitigated Negative Declaration: Rezone (Z15-004) of APNs 38-370-17, 38-380-15 &-16, and 38-430-02 from FR-40 to FR-40-ME; a Use Permit (U15-008); a Reclamation Plan (RP15-001); and a Management Plan (MGT17-0003)

Dear Tyler Barrington,

Thank you for requesting information regarding the above referenced project. The United Auburn Indian Community (UAIC) of the Auburn Rancheria is comprised of Miwok and Southern Maidu (Nisenan) people whose tribal lands are within Placer County and whose service area includes El Dorado, Nevada, Placer, Sacramento, Sutter, and Yuba counties. The UAIC is concerned about development within its aboriginal territory that has potential to impact the lifeways, cultural sites, and landscapes that may be of sacred or ceremonial significance. We appreciate the opportunity to comment on this and other projects. The UAIC would like to consult on this project.

In order to ascertain whether the project could affect cultural resources that may be of importance to the UAIC, we would like to receive copies of any archaeological reports that are completed for the project. We also request copies of environmental documents for the proposed project so that we have the opportunity to comment on appropriate identification, assessment and mitigation related to cultural resources. We recommend UAIC tribal representatives observe and participate in all cultural resource surveys. If you are interested, the UAIC’s preservation department offers a mapping, records and literature search services program that has been shown to assist project proponents in complying with the necessary resource laws and choosing the appropriate mitigation measures or form of environmental documentation during the planning process.

The UAIC’s preservation committee would like to set up a meeting or site visit, and begin consulting on the proposed project. Based on the preservation committee’s identification of cultural resources in and around your project area, UAIC recommends that a tribal monitor be present during any ground disturbing activities. Thank you again for taking these matters into consideration, and for involving the UAIC early in the planning process. We look forward to reviewing the documents requested above and consulting on your project. Please contact Marcos Guerrero, Cultural Resources Manager, at (530) 883-2364 or by email at mguerrero@auburnrancheria.com if you have any questions.

Sincerely,

Gene Whitehouse,  
Chairman

CC: Marcos Guerrero, CRM
April 12, 2017

To the Nevada County Planning Commission,

I am writing to you today to express my opposition to the Hansen Brothers Greenhorn Creek Mining Expansion project (Z15-004, U15-008, RP15-001, and MGT17-0003). In November of 2016 I purchased the parcel of land immediately adjacent to a portion of this proposed mining expansion (APN 38-370-19). The initial reports associated with this application refer to my parcel as undeveloped land. While this was accurate at the time that the report was written, it is no longer the case. At the present moment, I am preparing permit documents for my first round of development. This site was purchased with the intention of building my future home on it, and the location was deliberate. At the time of purchasing the property, I was unaware of the Hansen Bros permit application.

It is my opinion, based on my own observations over the past several months of conditions at Greenhorn Creek, that it is not in the best interest of Nevada County that they grant this permit to Hansen Brothers Enterprises (HBE).

My property is the last parcel on Red Dog Road on the west side of Greenhorn Creek. Red Dog Road splits the parcel into two. On several occasions I have driven to the end of the road, and my property. This spring when I visited the creek I was astonished at the degree of erosion that had occurred along the creek banks. Whole portions of the bank had clearly sheared off, carried away down the creek and into Rollins Reservoir. Where there had once been a path, or a road now lay a void. The volume of material that had been washed away between November of last year and March of this year is remarkable, and truly disturbing.

Upon reviewing the documents available on the Nevada County Planning Department website it is clear that Hansen Brothers Enterprises initial permit granted in 1994 (U93-063, RP93-001, and EIS93-079) contained conditional measures that require HBE to inspect mined areas each fall to identify areas of potential erosion and to backfill such areas with a 2:1 gravel fill slope, per Notice of Conditional Approval Use Permit Application, dated May 27, 1994. It is clear to anyone who has been to Greenhorn Creek in the past several years that this is not being done. The portion of the creek below the “Narrows”, the extent of HBE’s previous mining operations, is so badly eroded. The slopes along these portions of the creek appear to be closer to 20:1 than the 2:1 slope required by the conditions of approval.

As the creek bed continues to erode, sediment is being carried downstream and deposited into Rollins Reservoir. At a time when the community is considering a proposal to create a new water reservoir by damming the Bear River, it is incumbent upon us to maintain the health and vitality of our existing water storage infrastructure. Allowing for further sediment build up in Rollins will not help us meet that challenge.

As an architect and a landowner, I am intimately familiar with the stringent requirements citizens must take when re-grading their own properties. It seems to me
that if individuals are required to adhere to strict erosion control prevention measures, so too should corporate entities.

Based on my observations of the level of commitment HBE currently has to mitigating erosion along the portions of the creek where they have already mined, it is not clear that future operations will be adequately monitored or regulated. I have very serious concerns that the mining operations permitted under these applications will result in damage to uphill conditions on my own property. When erosion is allowed to occur, unchecked, and unaddressed, the effects continue to erode land above the affected areas. Over time, eroded creek beds on HBE property will creep outward, potentially causing irreparable damage to portions of my property.

In addition to the threat of severe erosion caused by the proposed mining operations, the related noise and air pollution are of grave concern to me. I chose to purchase land at the end of the road in a rural Timber Production Zone district land for a reason. I was seeking a place of peace and solitude. This mining expansion project has the ability to jeopardize the quality of life I was seeking from my property for decades to come. There is now the potential that each year for the foreseeable future I will be subjected to months of sound pollution related to the various scrapers, dozers, and other heavy equipment related to gravel extraction.

Within the online documents available, I was unable to find a CEQA report, or any type of environmental assessment conducted by an entity not hired directly by HBE. It seems that a project of this scale, with the potential to impact vast acres of watershed areas should undergo rigorous 3rd party evaluations.

In conclusion, based on HBE’s past and current commitment to erosion mitigation, I have grave concerns for the negative, irreparable impact this project poses not only to my own property, but also to all those properties adjacent, upstream, and down stream from the proposed operations.

Sincerely,
Jo Garst
April 12, 2017

Tyler Barrington
Nevada County
950 Maidu Avenue, Suite 170
Nevada City, CA 95959

Subject: Hansen Bros. Enterprises Greenhorn Creek Aggregate Mining Expansion
SCH#: 2017032040

Dear Tyler Barrington:

The State Clearinghouse submitted the above named Mitigated Negative Declaration to selected state agencies for review. The review period closed on April 11, 2017, and no state agencies submitted comments by that date. This letter acknowledges that you have complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to the California Environmental Quality Act.

Please call the State Clearinghouse at (916) 445-0613 if you have any questions regarding the environmental review process. If you have a question about the above-named project, please refer to the ten-digit State Clearinghouse number when contacting this office.

Sincerely,

Scott Morgan
Director, State Clearinghouse
SCH# 2017032040
Project Title Hansen Bros. Enterprises Greenhorn Creek Aggregate Mining Expansion
Lead Agency Nevada County

<table>
<thead>
<tr>
<th>Type</th>
<th>MND Mitigated Negative Declaration</th>
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<tr>
<td>Description</td>
<td>A rezone (Z15-004) of APNs 38-370-17, 38-380-15, -16 and 38-430-02 from Forest-40 to FR-40 with the Mineral Extraction combining district; a use permit to expand an existing in-stream aggregate mining operation to an additional 38 acres in and on the banks of Greenhorn Creek in the vicinity of the Red Dog Road Creek crossing and for work within the 100 year floodplain; a Reclamation Plan (RP15-001) to reclaim and restore the site after mining activities are completed; and a management plan (MGT17-0003) for work within a waterway.</td>
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</table>

Lead Agency Contact

<table>
<thead>
<tr>
<th>Name</th>
<th>Tyler Barrington</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency</td>
<td>Nevada County</td>
</tr>
<tr>
<td>Phone</td>
<td>(530) 470-2723</td>
</tr>
<tr>
<td>Address</td>
<td>950 Maidu Avenue, Suite 170</td>
</tr>
<tr>
<td>City</td>
<td>Nevada City</td>
</tr>
<tr>
<td>State</td>
<td>CA</td>
</tr>
<tr>
<td>Zip</td>
<td>95959</td>
</tr>
<tr>
<td>Fax</td>
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Project Location

<table>
<thead>
<tr>
<th>County</th>
<th>Nevada</th>
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<tbody>
<tr>
<td>City</td>
<td>Grass Valley</td>
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<tr>
<td>Region</td>
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<tr>
<td>Lat./Long</td>
<td>39° 13' 16.3&quot; N / 120° 54' 52&quot; W</td>
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<td>Cross Streets</td>
<td>Within Greenhorn Creek, 2.4 mi north of You Bet Rd</td>
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<tr>
<td>Parcel No.</td>
<td>38-370-17, -380-15, 16, -430-02</td>
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<tr>
<td>Township</td>
<td>16N</td>
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<tr>
<td>Range</td>
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<tr>
<td>Section</td>
<td>25, 36</td>
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<tr>
<td>Base</td>
<td>MD</td>
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Proximity to:

- Highways
- Airports
- Railways
- Waterways: Greenhorn Creek, Missouri Canyon, Arkansas Ravine
- Schools
- Land Use: Forest 40 GP Des and Zoning district

Project Issues

- Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Cumulative Effects; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Growth Inducing; Landuse; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Septic System; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian

Reviewing Agencies

- Resources Agency; Department of Conservation; Department of Fish and Wildlife, Region 2; Department of Parks and Recreation; Department of Water Resources; Office of Emergency Services, California; Caltrans, District 3 N; Air Resources Board, Major Industrial Projects; State Water Resources Control Board, Division of Drinking Water, District 9; State Water Resources Control Board, Division of Financial Assistance; State Water Resources Control Board, Division of Water Rights; Regional Water Quality Control Bd., Region 5 (Sacramento); Native American Heritage Commission; State Lands Commission

Date Received 03/13/2017
Start of Review 03/13/2017
End of Review 04/11/2017

Note: Blanks in data fields result from insufficient information provided by lead agency.
Dear Mr. Barrington:

The Northern Sierra Air Quality Management District has reviewed the Initial Study/Proposed Mitigated Negative Declaration for the Hansen Brothers Greenhorn Creek Mining Expansion project, and has no comment.

Please contact me with any questions.

Sincerely,

Sam Longmire, APCS

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Samuel F. Longmire, MSES
Air Pollution Control Specialist III
Northern Sierra Air Quality Management District
200 Litton Drive, Suite 320
Grass Valley, CA 95945
Phone: (530) 274-9360 x106
From: jason corrie <corriejason@hotmail.com>
Sent: Wednesday, April 19, 2017 6:40 PM
To: Tyler Barrington
Subject: Hansen brothers expansion on the greenhorn creek

I am not against a mining expansion but my concern is the narrows on the greenhorn creek near red dog road. Is this specific area (the narrows) going to be destroyed?

Jason corrie

Sent from my LG G Pad F™ 8.0, an AT&T 4G LTE tablet
Planning Department  
County of Nevada  
Community Development Agency  
950 Maidu Ave. Suite 170  
Nevada City, CA 95959

04/19/2017

Re: Hansen Brothers Expansion Permit

My name is Bruce Ivy and my family owns five parcels that border Greenhorn Creek. We have been living on Fifield Road for forty four years.

In 1972 Rollins Lake was below our home and now it is approximately 1/2 mile away. The sand and gravel that is next to our property is a result of historic hydraulic mining.

I believe that Hansen Brothers is doing a good job of harvesting this un-natural county asset. I think that the Greenhorn Creek gravel and sand should be harvested so the canyon will look natural after removal.

I have reviewed the Expansion Permit application and I think that the County should approve it.

Thank You  
Bruce Ivy  
14455 Fifield Road  
Grass Valley, CA 95945  
530.362.0017