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To: Rise Grass Valley Inc.
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**Re: Updated Technical Memorandum for Centennial Industrial Site:
Idaho-Maryland Mine Project – Biological Resources Impact Assessment**

The prepared Technical Memorandum ("Technical Memo") is a Biological Resources Impact Assessment of the Centennial Industrial Site for the proposed Idaho-Maryland Mine Project ("IMM Project"). This Technical Memo is based on the results of the Centennial Industrial Site Biological Resources Assessment ("BRA") Report (Matuzak, 2021) and Aquatic Resources Delineation Report (Matuzak, 2020). The two reports prepared by Greg Matuzak Environmental Consulting LLC for Rise Grass Valley Inc. ("Rise") include review, evaluation, and assessment of the sensitive biological resources that have the potential to occur within the Centennial Industrial Site.

The purpose of this Technical Memo is to present the results of the site specific impact assessment for sensitive biological resources based on the proposed IMM Project components. Additionally, avoidance, minimization, and mitigation measures are presented to ensure that the proposed surface disturbance would not have a significant impact on such sensitive biological resources. This Technical Memo, along with the Biological Resources Assessment for the Centennial Industrial Site, satisfies the Nevada County General Plan and Nevada County Land Use and Development Code requirements for the development of such biological resource assessments.

1 PROJECT UNDERSTANDING

Rise proposes to reinstate underground mining and ore processing of the Idaho-Maryland Mine in Nevada County, CA. The proposed facilities and operations to support underground mining will be located on the approximate 119-acre Brunswick Industrial Site. As a component of the mine project, Rise proposes to grade the Centennial

Industrial Site to create usable industrial property for potential future development. Grading of the Centennial Industrial Site will utilize engineered fill material produced from mining operations at the Brunswick Industrial Site. Development of the Centennial Industrial Site into an industrial subdivision is not part of the proposed IMM Project and is not proposed by Rise.

The Centennial Industrial Site is located in Nevada County, CA and borders the City of Grass Valley city limits. Zones within the approximate 56-acre Centennial Industrial Site contain elevated metal concentrations from historical land use. Rise is working with the California Department of Toxic Substances Control (DTSC) to fully remediate the site by developing a plan that consolidates and caps the contaminated soils in a manner consistent with current federal and state regulations (see attached DTSC project areas Site Plan).

The environmental cleanup work at the Centennial Industrial Site will be completed under the DTSC voluntary cleanup program and is outside the scope of the IMM Project . It is estimated that the cleanup program will cause a surface disturbance of 26.56 acres, inside the area of disturbance for the IMM Project, which will incorporate impacts to approximately 4.35 acres of mapped wetlands and 0.19 acres of mapped streams within the Centennial Industrial Site. Therefore, the impacts and associated mitigation of approximately 4.54 acres of wetlands and streams within the Centennial Industrial Site will be incorporated into the DTSC voluntary cleanup project and is outside the scope of the IMM Project.

After the environmental cleanup work at the Centennial Industrial Site is complete, Rise proposes to truck engineered fill from the Brunswick Industrial Site to the Centennial Industrial Site. The engineered fill, composed of barren rock and sand, will be placed, graded, and compacted. Concurrent with fill and grading activities, the fill slopes will be revegetated to control erosion and ensure slope stability. Grading activities associated with the IMM Project will cause a surface disturbance of approximately 43.71 acres including the previously disturbed area from the DTSC cleanup project and an additional 17.15 acres. The IMM Project would disturb 0.033 acres to mapped streams.

The base of the engineered fill will extend approximately 43.71 acres across the site, although much of the area will have experienced surface disturbance by site remediation efforts. Disturbance and engineered fill placement will be avoided on the remaining 12.7 acres, which includes the main stem of Wolf Creek, the 100-foot non-disturbance buffer of Wolf Creek, and an undisturbed zone containing Pine Hill flannelbush, a special-status plant species protected under the federal Endangered Species Act (see the attached appendices for the proposed IMM Project Site Plan).

2 BIOLOGICAL RESOURCE INVENTORY – KEY FINDINGS

2.1 “Waters of the U.S.”, including Wetlands, and “Waters of the State of California”

A total of 4.97 acres of “waters of the U.S.,” including wetlands, and “waters of the State of California” was identified and mapped within the Centennial Industrial Site in 2019. The 4.97 acres of wetland-waters includes 4.37 acres of mapped wetlands and 0.60 acres of mapped “other waters of the U.S.,” including the main stem of Wolf Creek, as well as several intermittent and ephemeral streams.

2.2 Identified CNPS Ranked Plants and Special-Status Plant Species

The results of the BRA developed for the Centennial Industrial Site included the following identified CNPS ranked plants and special-status plant species:

- Pine Hill flannelbush (*Fremontodendron decumbens*), a species listed on the federal Endangered Species Act (ESA), has been potentially identified and mapped within the southern portion of the Centennial Site. Sixty individual mature and flowering plants occupy an absolute area of 0.22 acres over approximately 4.5 acres of the Centennial Site. Genetic work has been conducted by Dr. Shannon Still from U.C. Davis that has confirmed that Pine Hill flannelbush is known to occur in Nevada County, but this work is still in press (Bill Wilson, personal communication 2019). During protocol level field surveys conducted for the species within the Centennial Site in 2019, the plants in the population were confirmed to have morphological characteristics, the floral and habit, of the Pine Hill flannelbush. Based on the unpublished genetic results and the supporting morphological characteristics, we are assuming the identification of Pine Hill flannelbush within the Centennial Site with it to be confirmed prior to the implementation of any disturbance.
- The Centennial Industrial Site contains two (2) unlisted plant species. Neither species is rare nor threatened. The two California Native Plant Society (CNPS) Lists the species at “List 4 Species”, including the Humboldt lily (*Lilium humboldtii* ssp. *humboldtii*) and the Sierra brodiaea (*Brodiaea sierra*). A large population with thousands of individual Sierra brodiaea covering almost a quarter of the Centennial Industrial Site was mapped during 2019 field surveys and a single occurrence of the Humboldt lily consisting of 10 individuals in an area less than 110 sq. feet was also documented in the Centennial Industrial Site during 2019 field surveys. Impacts to these species (CNPS List 4) do not require mitigation under CEQA Guidelines Section 15380.

2.3 Vegetation Communities and Associated Special-Status Species

Vegetation communities within the Centennial Industrial Site and associated mapped acreages are presented in Table 1.0 (Matuzak, 2021). The Biological Resources Assessment of the Centennial Industrial Site considered special-status species based on a current review of regulatory agency database information provided by the California Department of Fish and Wildlife (CDFW), United States Fish and Wildlife Service (USFWS), and California Native Plant Society (CNPS), as well as the biological surveys implemented for the entirety of the Centennial Industrial Site. Table 1.0 includes the vegetation communities identified, mapped acreages, and special-status species that have the potential to occur within the associated vegetation community.

Vegetation types were mapped and classified wildlife habitats/vegetation types using the California Department of Fish and Game's (CDFG) *A Guide to Wildlife Habitats* (Mayer and Laudenslayer, 1988) and therefore, the extent of freshwater emergent marsh wetland vegetation communities (0.58 acres) outlined within Table 1.0 is larger than the marsh wetlands (0.31 acres) included in the Waters of the United States in Section 2.1 above and further described in the Centennial Industrial Site Aquatic Resources Delineation of Waters of the United States and State of California (Matuzak, 2020).

TABLE 1.0 Centennial Industrial Site Vegetation Communities, Mapped Acreages, and Associated Special-Status Species (Matuzak, 2021)

Vegetation Community	Mapped Acreage (Acres)	Associated Special-Status Species
Montane Hardwood-Conifer	5.29	Chaparral sedge (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Montane Hardwood	0.48	Chaparral sedge (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2) Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Wolf Creek and Montane Riparian	20.07	Sierra blue grass (Rank 1B.3) Foothill yellow-legged frog (CSC), Western pond turtle (CSC), nesting migratory birds (CDFW)
Mixed Chaparral	16.24	Pinehill flannelbush (FE/CR), Stebbins' morning glory (FE/CE), finger rush (Rank 1B.1), Chaparral sedge (Rank 1B.2), Cantelow's lewisia (Rank 1B.2), Red Hills soaproot (Rank 1B.2) Coast horned lizard (CSC) and nesting migratory birds (CDFW)
Annual Grassland	9.74	Brownish beaked-rush (Rank 2B.2)
Freshwater Emergent Marsh Wetland	0.58	Scadden Flat checkerbloom (FT/CT) and Brownish beaked-rush (Rank 2B.2) California red-legged frog (FT, CSC), Western pond turtle (CSC), and California black rail (CT)
Wet Meadow	4.01	Brownish beaked-rush (Rank 2B.2) and finger rush (Rank 1B.1)
TOTAL	56.41	

Additional details pertaining to identified habitats and associated CNPS ranked plants and special-status species with the potential to occur within the Centennial Industrial Site is located in the results of the BRA for the Centennial Industrial Site and include the following:

- Perennial marsh wetlands within the eastern section of the Centennial Site contain potentially suitable habitat for several special-status aquatic wildlife species, including the California State ESA (CESA) listed threatened California black rail (*Laterallus jamaicensis coturiculus*) and the federally ESA listed California red-legged frog (*Rana aurora draytonii*). None of these species have been observed

within the Centennial Industrial Site and they are considered to have a low potential to occur within the Centennial Industrial Site.

- The main stem of Wolf Creek along the northern boundary of the Centennial Site includes a perennial stream and riparian vegetation. The perennial stream contains marginal suitable habitat for the foothill yellow-legged frog (*Rana boylei*), a Threatened species listed under CESA. This species has never been observed within the Centennial Industrial Site and it is considered to have a very low potential to occur within Wolf Creek located within the Centennial Industrial Site.
- Woodlands and grasslands within the Centennial Industrial Site contain suitable nesting habitat for some raptors and birds. None of these species have been observed within the Centennial Industrial Site and they are considered to have a moderate to high potential to occur and nest within the Centennial Industrial Site.

3 PROJECT AREA DISTURBANCE IMPACTS TO SENSITIVE BIOLOGICAL RESOURCES

Of the sixty (60) individual mature and flowering Pine Hill flannelbush plants identified within the Centennial Industrial Site, it is estimated that eighteen (18) mature plants will be removed as part of the placement of engineered fill. The take of such ESA listed plants will require mitigation and consultation with USFWS. The remaining forty-two (42) individual Pine Hill flannelbush plants are located outside of the proposed engineered fill areas and therefore, they will not be directly impacted by the IMM Project. However, four (4) individual Pine Hill flannelbush plants will be located within 30 feet of the edge of the engineered fill material and could be subject to indirect effects from changes in topography, runoff, etc. that could occur as an edge effect on those individual plants. The 4 individual plants are located approximately 27, 26, 28, and 29 feet from the edge of the engineered fill (see the proposed IMM Project Site Plans attached in the Appendices).

Estimated acreage impacts to vegetation communities from the proposed IMM Project footprint (see Site Plan in the attached appendices identifying the DTSC areas and the footprint of the IMM Project) within the Centennial Industrial Site are presented in Table 2.0 below and are based on the disturbance of 17.15 acres of vegetation communities and 26.56 acres of previously disturbed land from the DTSC cleanup project for a total disturbance area of 43.71 acres from the IMM Project.

The proposed IMM Project would have no impact on mapped wetlands within the Centennial Industrial Site given that any fill or dredge of mapped wetlands within the Centennial Industrial Site will occur as part of the site remediation project approved through DTSC prior to the development of the IMM Project. Table 3.0 below includes the disturbance impacts to mapped streams within the Centennial Industrial Site from the implementation of the IMM Project.

Table 2.0 Vegetation Communities Impacted from Proposed IMM Project

Vegetation Community	Estimated Impact by IMM Project (Acres)	Associated Special-Status Species
Montane Hardwood-Conifer	3.67	Chaparral sedge (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2)
		Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Montane Hardwood	0.46	Chaparral sedge (Rank 1B.2), Red Hills soaproot (Rank 1B.2), Sierra blue grass (Rank 1B.3), Cantelow's lewisia (Rank 1B.2)
		Cooper's hawk and other nesting raptors and migratory birds (CDFW)
Wolf Creek and Montane Riparian	2.40	Sierra blue grass (Rank 1B.3)
		Foothill yellow-legged frog (CSC), Western pond turtle (CSC), nesting migratory birds (CDFW)
Mixed Chaparral	8.52	Pinehill flannelbush (FE/CR), Stebbins' morning glory (FE/CE) finger rush (Rank 1B.1), Chaparral sedge (Rank 1B.2), Cantelow's lewisia (Rank 1B.2), Red Hills soaproot (Rank 1B.2)
		Coast horned lizard (CSC) and nesting migratory birds (CDFW)
Annual Grassland	1.84	Brownish beaked-rush (Rank 2B.2)
Wet Meadow	0.26	Brownish beaked-rush (Rank 2B.2) and finger rush (Rank 1B.1)
TOTAL	17.15	

TABLE 3.0 Area of Disturbance to Mapped Streams within the Centennial Industrial Site

No.	Stream Type	Wetland ID Number	Size (Acres)	Impact by IMM Project (Acres)
1	Perennial Stream	Wolf Creek – 1	0.377	-
2	Intermittent Stream	I – 1	0.161	Removed in DTSC cleanup
3	Intermittent Stream	I – 2	0.006	Removed in DTSC cleanup
4	Ephemeral Stream	E – 1	0.002	Removed in DTSC cleanup
5	Ephemeral Stream	E – 2	0.005	Removed in DTSC cleanup
6	Ephemeral Stream	E – 3	0.015	0.015
7	Ephemeral Stream	E – 4	0.018	0.018
8	Ephemeral Stream	E – 5	0.011	Removed in DTSC cleanup
8		TOTAL	0.6	0.033

4 RECOMMENDED MITIGATION FOR PROJECT AREA DISTURBANCE AND ITS POTENTIAL IMPACT TO SENSITIVE BIOLOGICAL RESOURCES

The proposed avoidance, minimization, and mitigation measures for potential impacts to the sensitive biological resources from the IMM Project at the Centennial Industrial Site are presented below. The impact assessment is based on the BRA (Matuzak, 2021), Aquatic Resources Delineation (Matuzak, 2020), and IMM Project components.

4.1 Potential Impacts to Special-Status Plant Species

Background

CNPS ranked plant and special-status plant surveys were initially conducted in December 2018 and early January 2019, which is outside the blooming period for most special-status plant species with potential to occur within the Centennial Industrial Site. The blooming period for CNPS ranked plants and special-status plant species within the Centennial Industrial Site range between March and October (see attached appendices). The Pine Hill flannelbush, a federally endangered and California Rare plant was identified based on the perennial nature of the plant and from the identification of dried flowers from earlier in 2018 (Boes, 2021). Follow up special-status plant surveys were conducted in July and August 2019 during the time of year when most special-status plant species with the potential to occur within the Centennial Industrial Site are in bloom and most easily identified. As part of those July 2019 surveys, additional individuals of Pine Hill flannelbush were identified and mapped as well as two CNPS List 4 species,

the Humboldt lily and Sierra brodiaea. Therefore, the Centennial Industrial Site contains one special-status plant species subject to potential mitigation under CEQA, the Pine Hill flannelbush, based on previous assessments of the and results of the July 2019 surveys.

Disturbance related impacts to CNPS list 3 and list 4 species **would not** be considered a “significant” impact requiring additional mitigation under CEQA Guidelines Section 15380, as neither species meets the definition of “endangered” or “rare”.

Pre-Construction Survey

An additional pre-construction plant survey shall be conducted prior to ground disturbing activities within the Centennial Industrial Site to document the presence or absence of each of the special-status plant species with potential to occur within the Centennial Industrial Site during the early blooming period (April to May). Based on the species descriptions in the attached appendices, which identifies the blooming period for each of the special-status plant species with potential to occur within the Centennial Industrial Site, the pre-construction plant survey would focus on the following species: chaparral sedge (CNPS List 1B.2), Red Hills soaproot (CNPS List 1B.2), Butte County fritillary (CNPS List 3.2), finger rush (CNPS List 1B.1), dubious pea (CNPS List 3), and Cedar Crest popcorn flower (CNPS List 3). However, if identified within the Centennial Industrial Site, only CNPS List 1 and List 2 species would be subject to mitigation given only those species are defined as special-status plant species under CEQA. Previous surveys conducted within the Centennial Industrial Site did not coincide with those species blooming period. The additional CNPS ranked plant and special-status plant surveys shall be conducted no more than fourteen (14) days prior to such disturbance activities to document the presence or absence of each of the early blooming CNPS ranked plants and special-status plant species identified above with potential to occur within the Centennial Industrial Site.

Habitat Management Plan (HMP)

If any special-status plant species is documented within or directly adjacent to areas proposed for disturbance within the Centennial Industrial Site that are CNPS list 1A, 1B, 2A, or 2B per CEQA Guidelines Section 15380, or are listed under the ESA and/or CESA (see Section 2.2.7 of the BRA, Matuzak 2021a), protection of such plants would include complete avoidance, transplantation, and/or on- or offsite restoration of the special-status plant species that could be impacted by such site disturbance. These protective measures for such plants would be included as part of the required development of a Habitat Management Plan (HMP) as part

of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12, which includes regulations intended to avoid the impact of development on rare, threatened, endangered, and special-status species and their habitat, or where avoidance is not possible, to minimize or compensate for such impacts and to retain their habitat as non-disturbance open space. The HMP would include the avoidance, minimization, and mitigation measures outlined below as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.

Additionally, given the presence of and potential impacts to an ESA listed special-status plant species within the Centennial Industrial Site, the applicant will be required to develop a Biological Assessment (BA) that incorporates the background and findings of this HMP. The USFWS will develop a Biological Opinion (BO) if the IMM Project is covered under a Section 7 ESA consultation or if the IMM Project is covered under a Section 10 ESA consultation, a Habitat Conservation Plan ("HCP") for the Pine Hill flannelbush would most likely be required. The BO or HCP covering impacts to and FESA listed species within the Centennial Industrial Site may contain additional requirements related to avoidance, minimization, and mitigation measures to ensure the IMM Project does not jeopardize the persistence of the species.

At a minimum, the HMP would include the following protective measures for special-status plant species with the potential to be impacted by the proposed disturbance within the Centennial Industrial Site:

- a map of the location of special-status species that may be disturbed or need to be protected;
- location of environmental protection fencing to be placed around the individual plants to be protected;
- identification of the location of protected plants on design and construction drawings;
- environmental awareness training for all personnel working on the project during initial site disturbance to discuss the location of the protected plants and the measures to be taken to avoid impacts to them; and
- weekly site monitoring by a qualified biologist to ensure that the special-status plants are being protected during site disturbance and construction.

Where individuals would be potentially affected directly by site disturbance and transplantation of individual plants is required to minimize and mitigate for impacts to such species, the following should be integrated into the HMP:

- remove bulbs of individual plants to be directly impacted during the dormant season;
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- relocate the bulbs to a site with similar soil, hydrologic, vegetation type and aspect within the Centennial Industrial Site; and
- identify the location(s) for dormant season relocation and site selection for transplantation.

The HMP would also include a requirement to meet the following criteria:

- metrics of successful establishment, which would include a minimum of 80% survival of the transplants after 2 years of transplanting the species.

If the 80% survival is not established after 2 years, transplants of individuals grown from seed should be planted with similar soil, hydrologic, vegetation type and aspect within the Centennial Industrial Site. Transplantation shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced. Transplants will be monitored every month for the first six months, then subsequently, every two months for the first two years. After two summer seasons of monitoring identifies successful establishment of 50% of the initial transplants, transplant seedlings will have been deemed successful.

4.2 Species-Specific Measures for the ESA Listed Pine Hill Flannelbush

The Recovery Plan including the Pine Hill flannelbush has been developed (USFWS 2002). The Recovery Plan states that the only verified location of this plant is near Pine Hill in western El Dorado County, and that the reported occurrences of this plant in Nevada County may be erroneous. It states:

“Although there are some reports of *F. californicum* ssp. *decumbens* occurring in some small scattered populations in Yuba or Nevada County, other reports describe these individuals as aberrant *F. californicum* ssp. *californicum* (California flannelbush) (Recovery Plan pp. II-13).”

However, recent genetic work has been conducted by Dr. Shannon Still from U.C. Davis that has confirmed that Pine Hill flannelbush is known to occur in Nevada County, but this work is still in press (Bill Wilson, personal communication 2019). During protocol level field surveys implemented in 2019 for the Pine Hill flannelbush, the plants in the population were confirmed to have morphological characteristics, the floral and habit, of the Pine Hill flannelbush. Based on the unpublished genetic results and the supporting morphological characteristics, we are assuming the identification of Pine Hill flannelbush within the Centennial Industrial Site with it to be confirmed prior to the implementation of any disturbance.

Therefore, given the species is protected under the FESA and will potentially be impacted by the IMM Project given an estimated 18 individual plants are located within 4 clusters

within the engineered fill area footprint of the Centennial Industrial Site. Additionally, 4 individual plants have been mapped within 30 feet of the southern edge of the engineered fill and therefore, those plants will be included in the monitoring protocol below to evaluate the potential for indirect impacts on those 4 individual plants. The following avoidance, minimization, and mitigation measures shall be implemented to minimize potential direct and indirect impacts to the species.

Pine Hill Flannelbush Specific Measures to Include Within the HMP

In addition to the measures outlined in Section 4.1 above to be included in the development of an HMP for the Pine Hill Flannelbush, the following measures shall also be implemented to minimize and mitigate for the Pine Hill flannelbush species impacts within the Centennial Industrial Site:

PRE-CONSTRUCTION SURVEYS

Conduct pre-construction surveys for special status plants (any state or federally listed plant as well as any CNPS plant listed 1 or 2) in the appropriate phenological blooming period when each species is identifiable.

If any sensitive plants are identified during the pre-construction surveys, the following avoidance, minimization, and protection measures are recommended to avoid and minimize potential impacts to sensitive plants.

AVOIDANCE

Avoid impacts to sensitive plants where identified within the proposed disturbance areas. However, if avoidance and preservation is not possible, consultation with CDFW and USFWS will be required for impacts to Pine Hill flannelbush (*Fremontodendron decurrens*). Based on the consultation with CDFW and USFWS for this species, mitigation requirements could include, but may not be limited to the following: appropriate onsite enhancement for the species, site restoration for the species, and/or offsite compensation of impacts for the species. Consultation with CDFW and USFWS is also recommended for the development and implementation of other state and federally listed plant species or CNPS list 1 and 2 species identified within the project disturbance areas, if they are documented during pre-construction surveys.

RECOMMENDATIONS FOR TRANSPLANTING AND REPLACEMENT

Protect all individuals of Pine Hill flannelbush and their habitat that occur outside of the disturbance footprint. The recovery plan for Pine Hill flannelbush (USFWS 2002) reports that the habitat in which this plant occurs is naturally and artificially limited, and conservation of not just the populations, but adjacent vacant habitat is beneficial to long-term persistence. The following is recommended for transplantation and replacement of

individual Pine Hill flannelbush:

- Collect seed for seed banking and for future replacement and recovery efforts.
- Attempt to move the individuals of Pine Hill flannelbush that fall within the disturbance footprint to another site with similar soil, hydrologic, vegetation type and aspect. The transplantation site(s) selected should extend the known population spatially, in other words, planting beyond the known perimeters of the existing population is preferable, to maintain population coverage. Transplanting shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced.
- Transplants will be monitored every month for the first six months, then subsequently, every two months for the first two years. After monitoring identifies successful establishment and flowering for the second season for each of the transplants, transplanting will have been deemed successful. During the monitoring of the transplants, the 4 individual plants located within 30 feet of the engineered fill will also be monitored for their health and to determine if edge effects are causing indirect impacts to the health of those individuals.

If these measures are not successful in maintaining the Pine Hill flannelbush population numbers, including the maintenance of the health of the 4 individual plants within 30 feet of the engineered fill, then the following measures will be taken.

Individuals will be grown from seed and transplanted out in a 100:1 ratio for those taken. Transplants of individuals grown from seed will be planted with similar soil, hydrologic, vegetation type and aspect. Transplanting shall occur in the season deemed to have the greatest potential for success, generally the fall, after rains have commenced. Transplants will be monitored every month for the first six months, then subsequently, every two months for the first two years. After two summer seasons of monitoring identifies successful establishment of 25% of the initial transplants, transplant seedlings will have been deemed successful.

Prior to transplanting or monitoring: 1.) Develop a Transplantation Plan and model for site selection for transplanting; and 2.) Develop a Monitoring Plan with criteria for "aliveness" and metrics of establishment.

As stated within Section 4.1, coordination and consultation with CDFW and USFWS covering impacts to this species within the Centennial Site may contain additional requirements related to avoidance, minimization, and mitigation measures to ensure the IMM Project does not have a significant impact on the species.

4.3 Potential Impacts to Special-Status Wildlife Species

The Townsend's big-eared bat (and other bats including the hoary and pallid bat) and coast horned lizard are not listed under the state or federal Endangered Species Acts and have only a low potential to occur within the Centennial Industrial Site. These species are in addition to potential nesting raptors, CDFW regulated nesting bird species, and special-status aquatic species that have the potential to occur within the Centennial Industrial Site as discussed in the BRA and in detail below.

Townsend's big-eared bat (and other bat species, including hoary and pallid bats)

Occurrence: The Townsend's big-eared bat has the potential to roost within the abandoned structures, including the existing decant tower located in the northwest portion of the Centennial Industrial Site, may contain suitable roosting habitat for this species. within the Centennial Industrial Site. Hoary and pallid bats roost in riparian and forested woodlands. However, these species have not been documented within the Centennial Industrial Site and they each have a low potential to occur within the Centennial Industrial Site.

Mitigation: Prior to disturbance of any structures or riparian and forested woodlands within the Centennial Industrial Site and no more than seven (7) days prior to such disturbance, a pre-construction bat roosting survey should be conducted to identify the presence or absence of roosting bats. If any Townsend's big-eared bats (or any other species of bat, including the hoary and pallid bat) are identified during roosting surveys, passive removal the roosting bats prior to disturbance to structures and riparian and forested woodlands should be implemented to avoid impacts to this species. Passive removal includes allowing roosting bats to freely leave the roost site (riparian and forested woodlands and any structure). Once the roosting bats have been passively removed from the structure(s) and riparian and forested woodlands, the structure(s) would be closed off from recurring bat roosting within the structure and the proposed work within the structure(s) would no longer pose a risk to individuals of the species. For riparian and forested woodlands containing bat roosts, the removal of trees associated with such woodlands would only occur once the bats leave the day roosts. Furthermore, if a maternal (breeding) roost is documented, no disturbance will occur until the breeding roost has dispersed from the structure or riparian and forested woodlands they are found in.

Coast horned lizard

Occurrence: There is potential suitable habitat within the sandy and rocky locations within the Centennial Industrial Site. In addition, the Centennial Industrial Site

includes the required open areas of exposed, sandy soils for this species. Therefore, this species has a moderate potential to occur within the Centennial Site though the species has not been identified within the Centennial Industrial Site.

Mitigation: Prior to disturbance within the areas of the Centennial Industrial Site that contain disturbed or developed surfaces and annual grassland vegetation community and no more than seven (7) days prior to such disturbance, a pre-construction survey for the species shall be conducted prior to any disturbance within those areas of the Centennial Industrial Site in order to avoid direct impacts to the species. If the species is documented during pre-construction surveys, a qualified wildlife biologist (approved by CDFW) would have the authority to move individual coast horned lizards outside of the proposed disturbance area(s) in order to avoid an impact to this species. Once the coast horned lizard(s) have been removed from the disturbance area(s) and out of harms way, the proposed work would no longer pose a risk to individuals of the species.

4.4 Potential Impacts to Special-Status Aquatic Species

Foothill yellow-legged frog

Occurrence: Suitable habitat for this species occurs within the Centennial Industrial Site (main stem of Wolf Creek); however, the species has a very low potential to occur within the Centennial Industrial Site given the species has not been documented within the Centennial Industrial Site or the Wolf Creek watershed. Protocol-level surveys for this species were not implemented within Wolf Creek as part of the development of the BRA for the Centennial Industrial Site. The species was not found during any of the special-status species surveys conducted within the Centennial Industrial Site.

Mitigation: Any proposed disturbance within or immediately adjacent to the perennial stream (riparian zone) would require a pre-construction survey for the species prior to such proposed disturbance. The pre-construction survey shall be conducted to identify the presence or absence of this species following CDFW recommended Visual Encounter Survey (VES) methods and shall be implemented no more than fourteen (14 days) prior to any disturbance within and directly adjacent to the Wolf Creek (within the riparian zone).

If this species is documented during pre-construction VES method surveys (egg masses, juveniles, or adults), disturbance to the stream and species should be completely avoided given the species is listed as Threatened under CESA. If the species is documented during the pre-construction VES surveys, CDFW shall be contacted immediately. An Incidental Take Permit (ITP) may be required from CDFW as part of the development of conservation measures to ensure avoidance and minimization of potential impacts to any frogs identified within Wolf Creek. The ITP may allow a CDFW

qualified wildlife biologist with a CDFW handling permit for the species to move individuals out of the disturbance areas to avoid impacting this species and/or other potential conservation measures to avoid and minimize impacts to the species (see Section 4.7 below for additional information related to an ITP).

Western Pond Turtle

Occurrence: The main stem of Wolf Creek, a perennial stream, and the large marsh wetlands within the eastern section of the Centennial Industrial Site containing perennial water/ponding are considered suitable habitat for this species. The species has not been documented within 5 miles of the Centennial Site and has also not been identified within the Centennial Industrial Site during the surveys implemented within the Centennial Industrial Site; however, it has a high potential to occur within the Centennial Industrial Site given the suitable habitat that occurs within the Centennial Industrial Site.

Avoidance: If the species is found on site, any development within these perennial water sources or within 325 feet of these perennial water sources during spring and early summer (March through July) should be avoided to minimize any potential impacts to this species.

Mitigation: If these perennial water sources can't be avoided from direct impacts or if these perennial water sources can't be avoided by a minimum of 325 feet during the spring and early summer months, a pre-construction survey shall be conducted to identify the presence or absence of this species within the areas to be disturbed no more than seven (7) days prior to the proposed disturbance within the species suitable habitat. If this species is documented during pre-construction surveys, it should be allowed to move out of the way of the disturbance zone on its own or a qualified wildlife biologist with a CDFW handling permit for the species can move individuals out of the disturbance areas to avoid impacting this species.

California red-legged frog (CRLF)

Occurrence: Potential suitable reproductive habitat for this species may occur within the large marsh wetlands with perennial water/ponding in the eastern section of the Centennial Industrial Site. It is unknown if there are suitable breeding locations within 1.25 miles of the Centennial Industrial Site and connected by barrier-free dispersal habitat that is at least 300 feet in width, which would be required for suitable dispersal habitat to be located within the Centennial Industrial Site. However, the species has not been documented within the Centennial Industrial Site, it has not been documented in the watershed, and was not documented by the species surveys conducted. Therefore, this species has a very low potential to occur within the Centennial Industrial Site.

Avoidance: Potential suitable reproductive habitat for this species may occur within the larger marsh wetlands with perennial water/ponding within the eastern section of the Centennial Industrial Site. Therefore, if found on site, avoidance of the large, perennial marsh wetlands within the eastern section of the Centennial Industrial Site by a minimum of 100 meters would ensure that the species would not be impacted if present.

Mitigation: If found on site, and avoidance of a minimum of 328 feet (100 meters) from suitable habitat for the species within the Centennial Industrial Site is not feasible, then pre-construction surveys for CRLF shall be implemented to ensure that no CRLF are present during the proposed disturbance within the species suitable habitat. A qualified wildlife biologist approved by USFWS would be required to implement the pre-construction surveys. The *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* (USFWS Guidance, August 2005) should be implemented as part of the pre-construction surveys to avoid disturbance and take of the species. If no CRLF are identified during the pre-construction surveys, then the proposed disturbance within 328 feet (100 meters) of suitable breeding habitat for the species could occur with no further requirements.

If CRLF are identified during the pre-construction surveys, coordination and consultations with the USFWS would be required through an ESA Section 7 or Section 10 process. As part of the consultation process, specific avoidance, minimization, and mitigation measures would be required to be implemented, which could include, but may not be limited to the following: additional pre-construction surveys and daily monitoring to ensure that the proposed site disturbance will not disturb individual CRLF, environmental awareness training to contractors working within or adjacent to CRLF habitat, and exclusionary fencing installation between CRLF aquatic habitat and disturbance areas.

Additionally, a Habitat Management Plan (HMP) would also be required for any state or federally listed special-status wildlife species if documented within the Centennial Industrial Site. The HMP would be developed for the special-status species as part of compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12 and it would include the avoidance, minimization, and mitigation measures outlined above and as part of any coordination or consultation with the USFWS compliance with the Nevada County Land Use and Development Code, Section L-II 4.3.12.

California black rail

Occurrence: Suitable habitat for this species occurs within the large marsh wetlands within the eastern section of the Centennial Industrial Site where there is permanent ponding of water and dense vegetation. The species has not been documented within the Centennial Industrial Site but has been identified within 5 miles to the southeast and

southwest of the Centennial Industrial Site. This species has a low likelihood of occurring within the Centennial Industrial Site.

Avoidance: Avoidance of the large, perennial marsh wetlands within the eastern section of the Centennial Industrial Site would ensure that the species would not be impacted if present.

Mitigation: To identify the presence or absence of the species within the Centennial Industrial Site for any proposed disturbance within or immediately adjacent to those larger wetlands, pre-construction surveys for the species shall occur prior to the implementation of any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys for this species shall occur no more than fourteen (14) days prior to any such disturbance within or directly adjacent to the species habitat. The pre-construction surveys would include conducting call back/response surveys. This species is most active between 2 hours before and 3 hours after sunrise; therefore, surveys should start at sunrise and continue no later than 0930. If evening surveys are to be conducted, they should be paired with a morning survey, and all sites should have surveys conducted at both time periods. The preferred method for conducting surveys via the call-back/response protocol of Evens et al (1991). If a positive call back is identified during the surveys, then the species is assumed to be present and the area should be avoided from disturbance in order to avoid impacts to individuals of the species, if feasible.

Given the species is a CESA listed species, coordination with CDFW shall occur if a positive response to the call-back/response surveys occurs and if any proposed disturbance may impact the species. Any area containing this species would likely need to be avoided in order to avoid impacts to and take of this species, if feasible, or additional mitigation measures would be required in coordination with CDFW to minimize and avoid impacts to such species. Additional avoidance measures could include, but may not be limited to the following: environmental awareness training, daily construction monitoring by a CDFW qualified biologist when disturbance related activities occur within or directly adjacent to the species habitat, and exclusionary fencing installation between the species habitat and the proposed disturbance areas. Additionally, an ITP could be required by CDFW if complete avoidance of the species is not feasible. Areas where no positive response to the call-back/response surveys are assumed to not contain individuals of the species and therefore, disturbance in those areas would have no impact on this species.

4.5 Potential Impacts to Nesting Raptors and CDFW Regulated Bird Species

Occurrence: The Centennial Industrial Site contains many larger trees and many of those trees contain suitable habitat for nesting raptors, including suitable nesting sites for

Cooper's hawk. In addition, the Centennial Industrial Site also includes smaller riparian trees and shrubs as well as grasslands that provide suitable nesting habitat for other protected bird species. The breeding season for raptors and other protected bird species in the vicinity of the Centennial Industrial Site is generally from February 1 to August 31 varies depending on the species and localized weather patterns.

Avoidance: Vegetation clearing or tree removal outside of the breeding season for such bird species and/or avoidance of such potential nesting habitat would not require the implementation of any avoidance, minimization, or mitigation measures.

Mitigation: Construction or disturbance activities during the breeding season could disturb or remove occupied nests of raptors and/or protected bird species and would require the implementation of a pre-construction survey within and adjacent to any proposed disturbance area within the Centennial Industrial Site for nesting raptors and other protected bird species within seven (7) days prior to disturbance. The nesting survey radius around the proposed disturbance would be identified prior to the implementation of the protected bird nesting surveys by a CDFW qualified biologist and would be based on the habitat type, habitat quality, and type of disturbance proposed within or adjacent to nesting habitat.

If any nesting raptors or protected birds are identified during such pre-construction surveys, trees or shrubs or grasslands with active nests should be not be removed or disturbed and a no-disturbance buffer should be established around the nesting site to avoid disturbance or destruction of the nest site until after the breeding season or after a qualified wildlife biologist determines that the young have fledged. The extent of these buffers would be determined by a CDFW qualified wildlife biologist and would 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 by a qualified wildlife biologist to make an appropriate decision on buffer distances based on the species and level of disturbance proposed in the vicinity of an active nest.

4.6 Mitigation Measures for Potential Impacts to Clean Water Act Regulated "Waters of the U.S.," Including Wetlands

Each of the mapped wetland features and stream features included as part of the Centennial Industrial Site Aquatic Resources Delineation Report (Matuzak, 2020) are assumed to fall under Corps jurisdiction pursuant to Section 404 of the CWA. The RWQCB pursuant to Section 401 of the CWA also has jurisdiction over areas subject to regulation by the Corps under Section 404 of the CWA. As detailed in the CWA, any proposed action that would place fill or dredge material within areas identified as Corps jurisdictional

wetlands or waters would require a Department of the Army Section 404 permit and a RWQCB Section 401 Water Quality Certification, or waiver thereof, prior to the placement of fill or dredge material within such features. Fill or dredge impacts to any features regulated under Sections 404 and 401 of the CWA would be required to be mitigated at a minimum of a 1:1 ratio. Compensatory mitigation would be included as a Section 404 and Section 401 permit condition to be implemented prior to the placement of such dredge and fill material within a “waters of the U.S.,” including wetlands, and would ensure the no net loss of such features within the Centennial Industrial Site.

Project Related Impacts

Disturbance within the Centennial Industrial Site for the proposed IMM Project is estimated to fill 0.033 acres of ephemeral streams mapped within the Centennial Industrial Site (see Table 3.0). No proposed fill or dredge material will occur within the main stem of Wolf Creek (perennial stream) as part of the IMM Project. Final impact calculations to such “waters of the U.S.,” including wetlands, within the Centennial Industrial Site will be based on an approval of the aquatic resources mapped within the Centennial Industrial Site by the Corps and the proposed disturbance within and directly adjacent to such aquatic resources based on the final design. Given the recently passed Navigable Waters Protection Rule, ephemeral streams currently mapped within the Centennial Industrial Site may no longer contain protections under the CWA.

Nationwide Permit

Under the CWA, any fill within “waters of the U.S.,” including wetlands of 0.5 acres or greater would not meet the general conditions of any previously authorized Nationwide Permit and therefore, an Individual Permit (IP) or Letter of Permission (LOP) would be required prior to the filling of 0.5 acres or greater of such CWA regulated features. Typically, an IP has the longest timeline compared to an LOP and Nationwide Permit for approval given the IP includes a 404(b)(1) alternatives analysis that demonstrates that the proposed project has minimized and reduced impacts to the aquatic environment. However, given the proposed IMM Project would fill only 0.033 acres of mapped streams within the Centennial Industrial Site, which is less than 0.5-acre trigger for an Individual Permit or LOP, the proposed IMM Project disturbance within the Centennial Industrial Site would most likely fit under a pre-authorized Nationwide Permit (potentially a Nationwide Permit #39 for Commercial and Institutional Developments).

Once an application is deemed complete for a Nationwide Permit (generally the submission of a Pre-Construction Notification and supplemental materials) by the Corps Sacramento District, the Corps will process the mapping associated with the Aquatic Resources Delineation and the permit application. As part of the Nationwide Permit process, it is recommended that a functional assessment of the wetlands and waters to

be impacted by the proposed site disturbance should be developed. Based on the results of the functional assessment and coordination with the Corps, an approved Compensatory Mitigation Plan that mitigates for impacts to such CWA regulated features at a minimum of a 1:1 ratio is required. Compensatory mitigation can include but is not limited to the following: onsite and/or offsite wetland creation and/or restoration, payment of an in-lieu fee, and/or purchase of mitigation credits at an approved Corps wetland mitigation or conservation bank.

4.7 Mitigation Measures for Potential Impacts to Stream and Riparian Zones Under CDFW Jurisdiction

Substantial alteration to perennial, intermittent, and ephemeral streams and adjacent riparian habitat within the Centennial Industrial Site would likely fall under CDFW jurisdiction as these areas each contain a bed and bank. Any substantial alteration of the bed or bank of any stream river or lake would most likely require a Streambed Alteration Agreement from the CDFW pursuant to Section 1600 *et. seq.* of the California Fish and Wildlife Code prior to construction, including any disturbance within the main stem of Wolf Creek or other mapped streams within the Centennial Industrial Site.

Project Related Impacts

The proposed Project disturbance within the Centennial Industrial Site would cause an estimated 0.033 acres of permanent impacts to mapped streams within the Centennial Industrial Site. Specific to the main stem of Wolf Creek, no impacts to the creek itself are proposed and any disturbance would remain a minimum of 100 feet from the southern edge of the main stem of Wolf Creek. Additionally, small impacts to the adjacent riparian zone to the mapped intermittent and ephemeral streams within the Centennial Industrial site are likely, but those areas would be revegetated and restored to pre-project contours, where feasible. Therefore, the proposed disturbance within the mapped stream zones within the Centennial Industrial Site would be subject to CDFW jurisdiction and a Streambed Alteration Agreement from the CDFW pursuant to Section 1600 *et. seq.* of the California Fish and Wildlife Code would be required prior to disturbance within such CDFW jurisdiction. Based on coordination with CDFW through the Streambed Alteration Agreement development process, an ITP may be required as a condition to the Streambed Alteration Agreement if there is a potential that any CESA listed or candidate for listing may occur within the Centennial Industrial Site and be impacted by the proposed disturbance, including any potential disturbance related impacts to Wolf Creek within the Centennial Industrial Site.

Any temporary impacts to the stream zones within the Centennial Industrial Site, including riparian habitat, would be required to be restored to pre-construction contours and revegetated if required. Site restoration would include all exposed/disturbed areas and

access points within any stream as a result of the disturbance activities (pipeline, outfall, new culvert, etc.). These areas shall be restored using locally native grass and/or forb seeds, locally native grass plugs and/or a mix of quick growing sterile non-native grass with locally native grass/forb seeds. Seeded areas shall be covered with broadcast straw and/or seeded erosion control blankets.

For impacts to any stream that includes the removal of native trees within the stream would require prior consultation and approval by CDFW for native trees with a diameter at breast height of 4 inches or greater. A site revegetation plan would be required to be developed and approved by CDFW as part of a Streambed Alteration Agreement permit condition and native trees planned for removal with a diameter at breast height of 4 inches or greater would need to be replanted and impact zones revegetated, with clear success criteria identified, monitoring and reporting required, and corrective actions to be taken if mitigation measures do not meet the proposed success criteria. If the stream geomorphology and flow regimes are impacted by the proposed project, then CDFW would also require a Restoration Plan by a qualified engineer, geologist, or stream restoration specialist to ensure recovery or enhancement of stream form, and fish and wildlife resource values.

4.8 Compliance with the Nevada County Land Use and Development Code

Aquatic Resources Management Plan

A Management Plan will be developed for the Centennial Industrial Site to comply with Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3 17C.3 (Ordinance Number 2033) requiring such a Management Plan be prepared for projects in non-disturbance buffers, including areas that are within 100 feet of the high water mark of perennial streams, watercourses, and wetlands, 50 feet from the high water mark of intermittent watercourses, and 100 feet upslope or 20 feet downslope from an NID canal (Nevada County 2000. Land Use and Development Code, Chapter II: Zoning Regulations. Effective July 27, 2000). Therefore, the development of such a Management Plan would be required for the proposed IMM Project given the proposed impacts to such aquatic resources and their non-disturbance buffers. The development of such a Management Plan for the proposed IMM Project within the Centennial Industrial Site would meet the requirements of the Nevada County Land Use and Development Code, Chapter II; Zoning Regulations, Section L-II 4.3 17C.3 (Ordinance Number 2033).

A comprehensive analysis of the projects consistency with applicable goals and policies of the County Land Use and Development Code has been provided under separate cover (Benchmark Resources 2020).

5 REFERENCES

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- Evens, J., Page, G.W., Laymon, S.A. and R.W. Stallcup. 1991. Distribution, Relative Abundance and Status of the California Black Rail in Western North America. *The Condor* 93(4) 952 November 1991.
- Matuzak, Greg. 2021. Centennial Industrial Site Biological Resources Assessment (Greg Matuzak Environmental Consulting LLC).
- Matuzak, Greg. 2020. Centennial Industrial Site Aquatic Resources Delineation of Waters of the United States and State of California (Greg Matuzak Environmental Consulting LLC).
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- United States Fish and Wildlife Service (USFWS). 2002. Recovery Plan for Gabbro Soil Plants of the Central Sierra Nevada Foothills. Portland, Oregon. Technical Report 200623.
- United States Fish and Wildlife Service (USFWS). 2005. Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog (August 2005).

Appendices



Grass Valley, CA
Grass Valley 7.5 minute USGS quadrangle
T16N, R8E Section 26

Coordinate System: NAD 83 Zone 10N
Projection: Transverse Mercator
Datum: D_North_American_1983

Figure. Centennial Industrial Site



SCALE: 1 inch = 300 feet

Legend

 Centennial Industrial Site
Study Area, 56.41 ac.

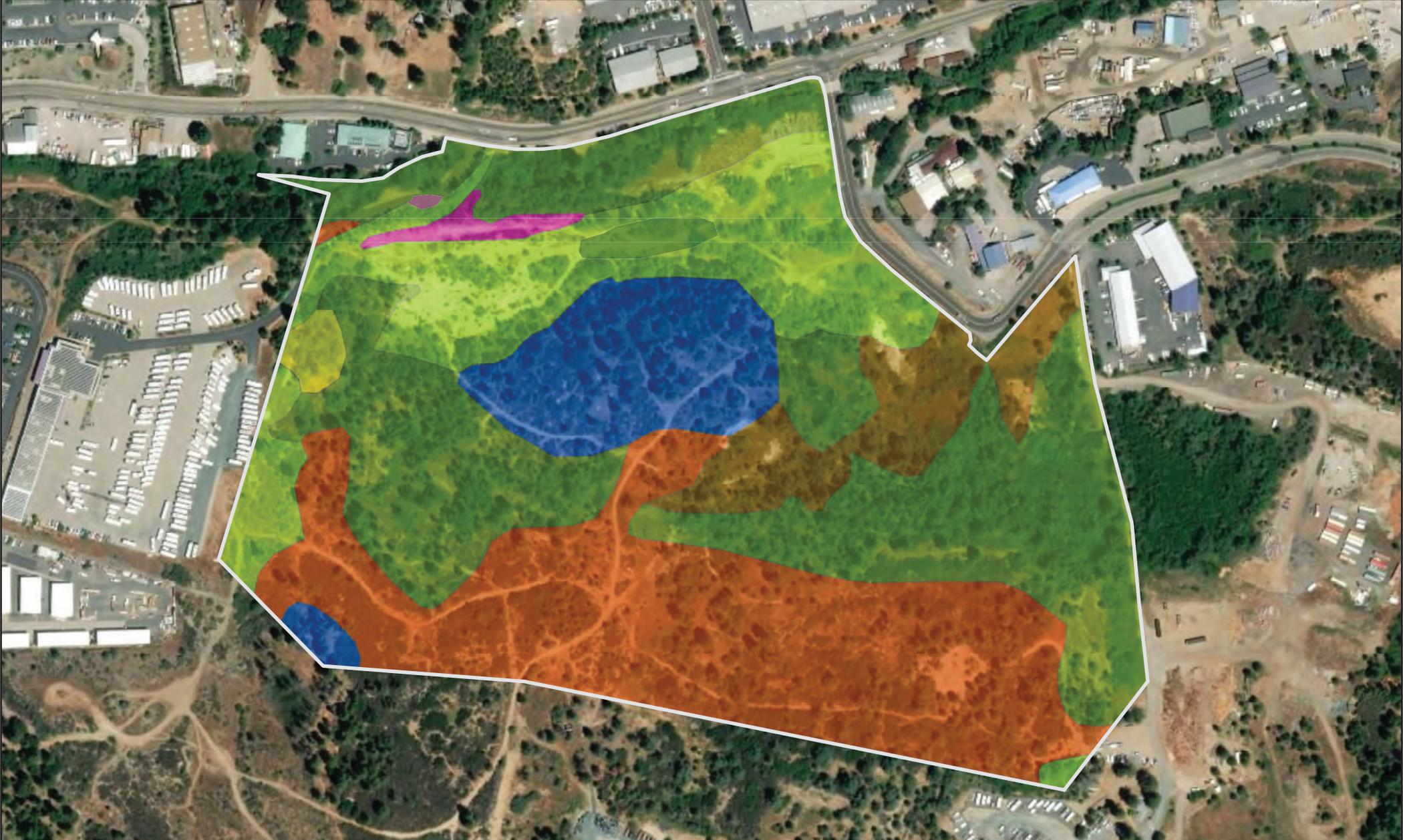


Figure. Vegetation Communities within the Centennial Industrial Site

Grass Valley, CA
 Grass Valley 7.5 minute USGS quadrangle
 T16N, R8E Section 26

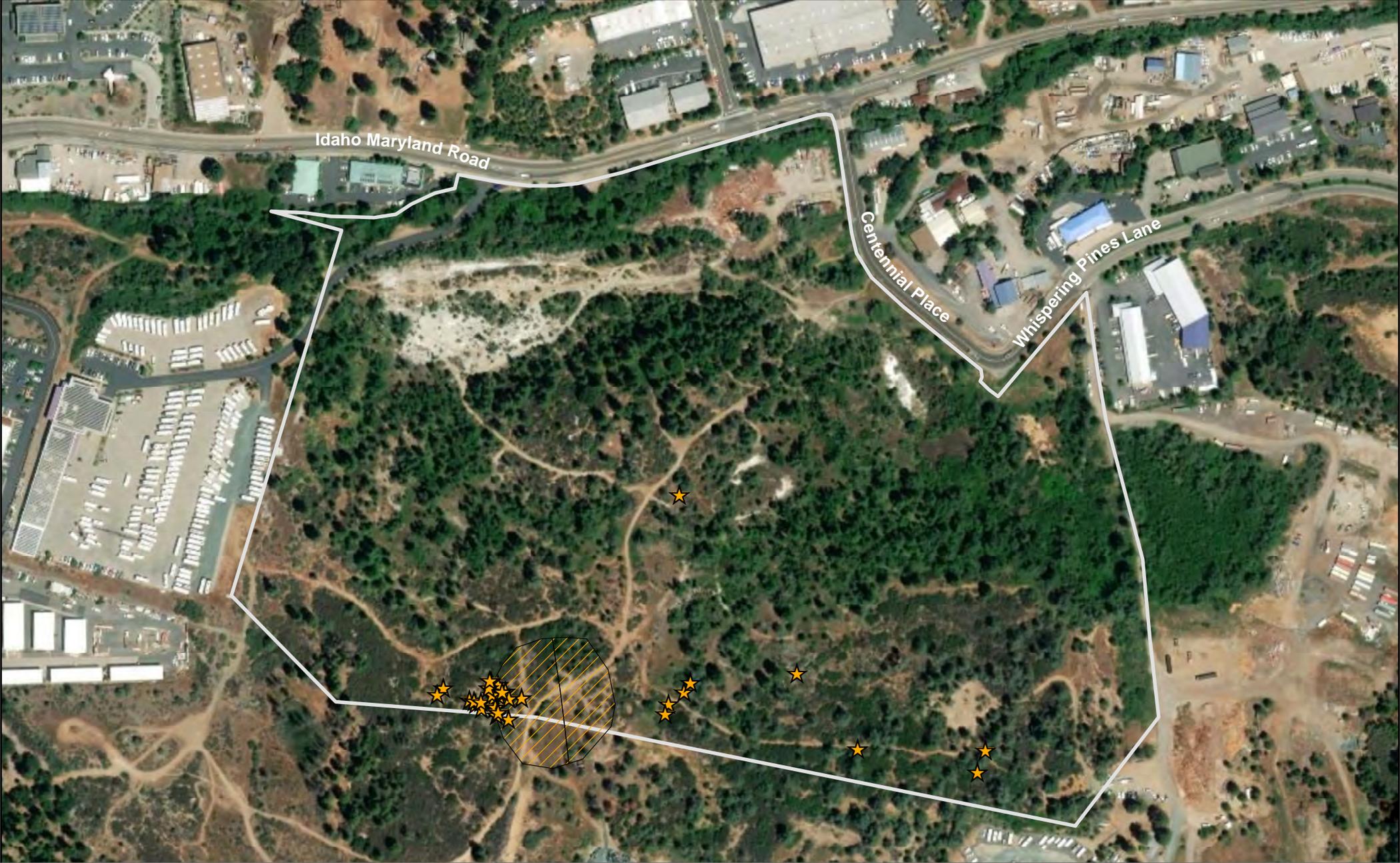
Coordinate System: NAD 83 Zone 10N
 Projection: Transverse Mercator
 Datum: D_North_American_1983

Legend

- | | |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
|  Centennial Industrial Site Study Area |  Montane Hardwood-Conifer |
| Vegetation Type |  Montane Hardwood |
|  Annual Grassland |  Montane Riparian |
|  Fresh Emergent Wetland |  Wet Meadow |
|  Mixed Chaparral | |



SCALE: 1 inch = 300 feet



Grass Valley, CA
 Grass Valley 7.5 minute USGS quadrangle
 T16N, R8E Section 26

Coordinate System: NAD 83 Zone 10N
 Projection: Transverse Mercator
 Datum: D_North_American_1983

**Figure. Pine Hill Flannelbush Occurrences
 Within the Centennial Industrial Site**

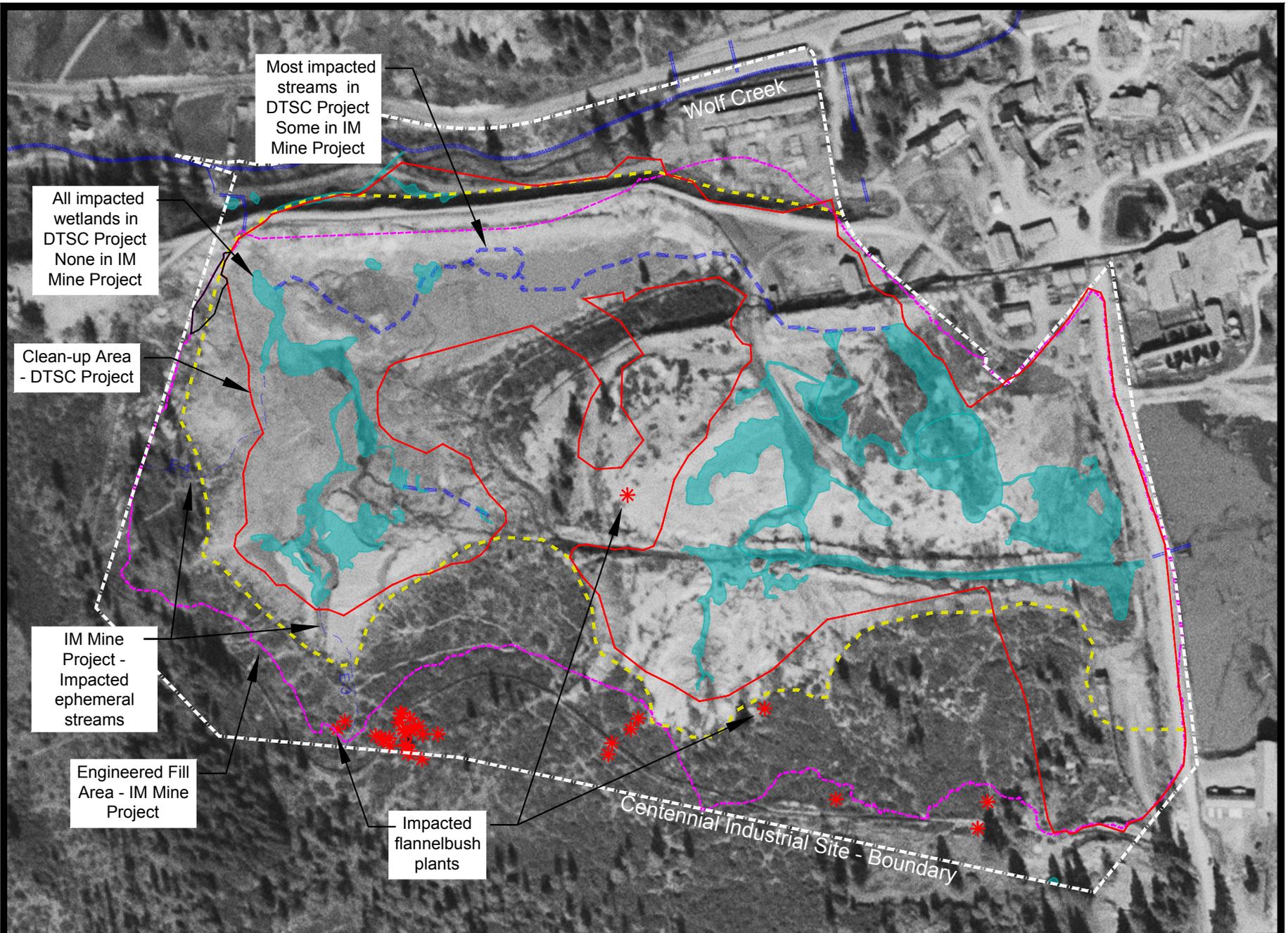


SCALE: 1 inch = 300 feet

Legend

-  Pine Hill flannelbush (individuals or clusters)
-  CNDB mapped extant of Pine Hill flannelbush*
-  Centennial Industrial Site Study Area

*The mapped extent from digitization of 1999 paper map by Karen Callahan is likely cause for part of discrepancy.

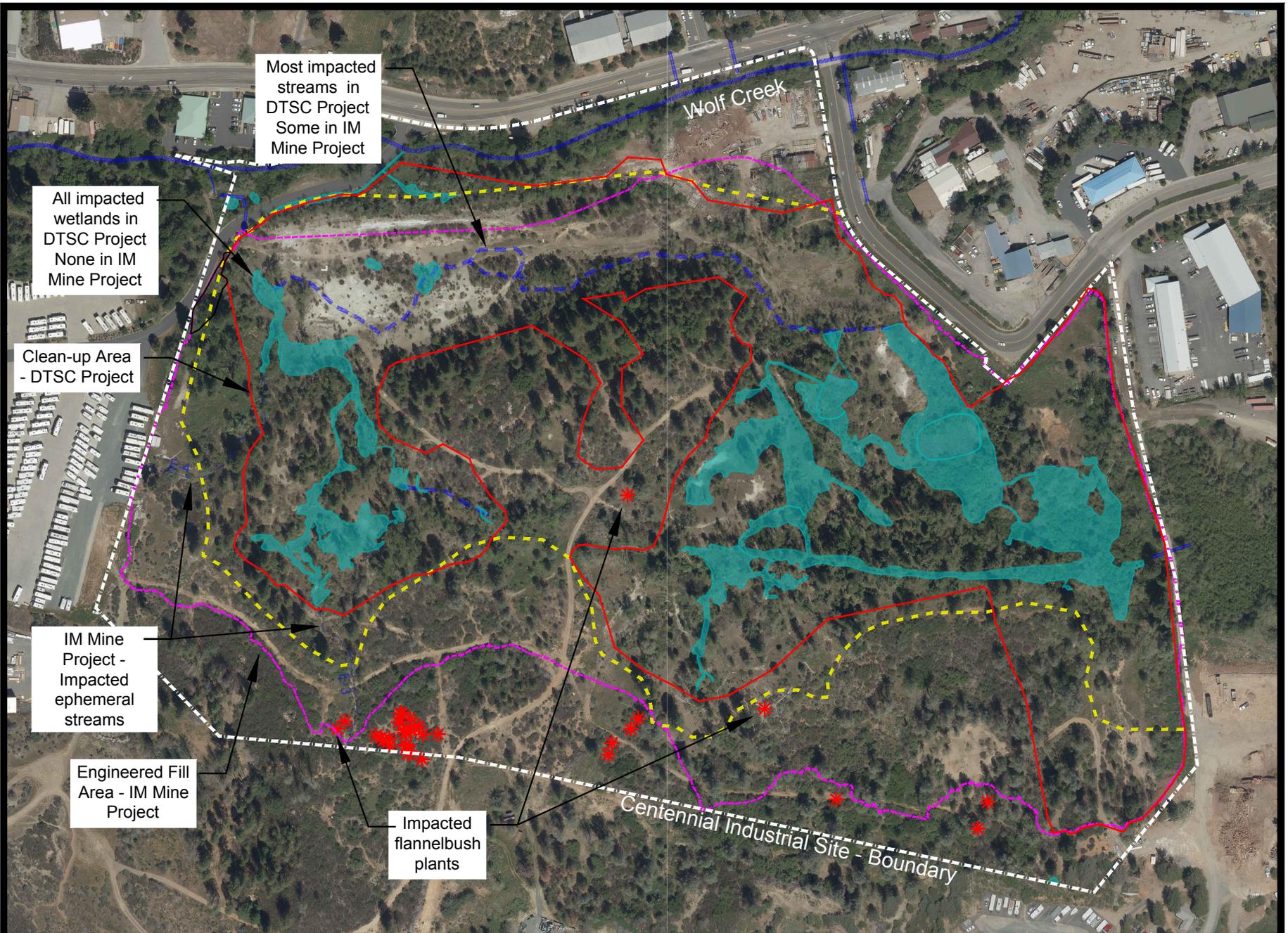


LEGEND

- Centennial Industrial Site - Boundary
- Stream - Perennial
- - - Stream - Intermittent
- - - Stream - Ephemeral
- Wetland mapped on Centennial Site
- Boundary of historic tailings placement (approximate)
- Boundary of DTSC Clean-up Project (approximate)
- Boundary of IM Mine Project Engineered Fill placement
- * Pine Hill Flannelbush

FIGURE A
DISTURBANCE AREA
SHOWING 1947 AIR PHOTO

Scale 1 inch = 300 ft

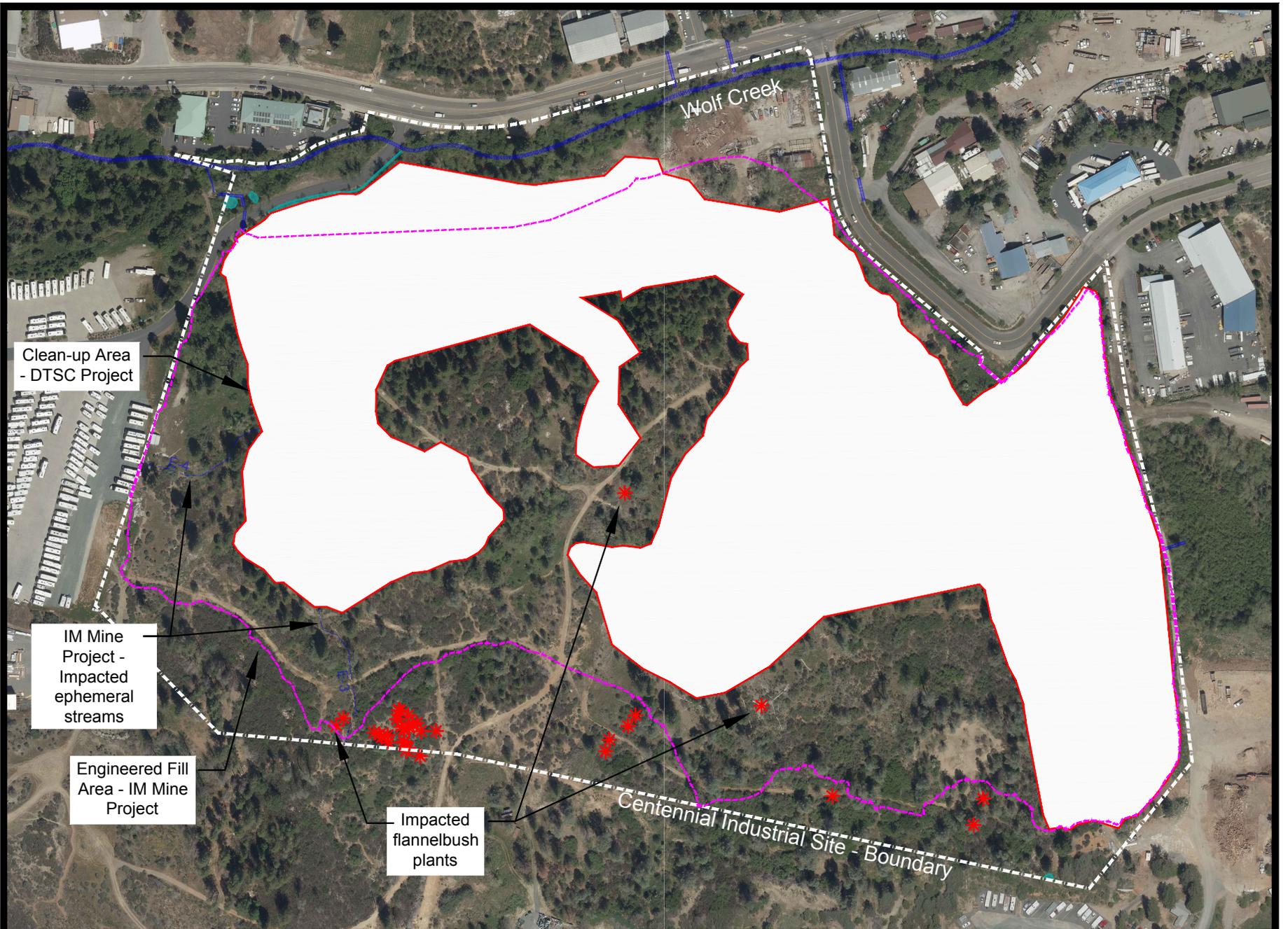


LEGEND

- Centennial Industrial Site - Boundary
- Stream - Perennial
- - - Stream - Intermittent
- - - Stream - Ephemeral
- Wetland mapped on Centennial Site
- Boundary of historic tailings placement (approximate)
- Boundary of DTSC Clean-up Project (approximate)
- - - Boundary of IM Mine Project Engineered Fill placement
- * Pine Hill Flannelbush

FIGURE B
DISTURBANCE AREA
SHOWING 2017 AIR PHOTO

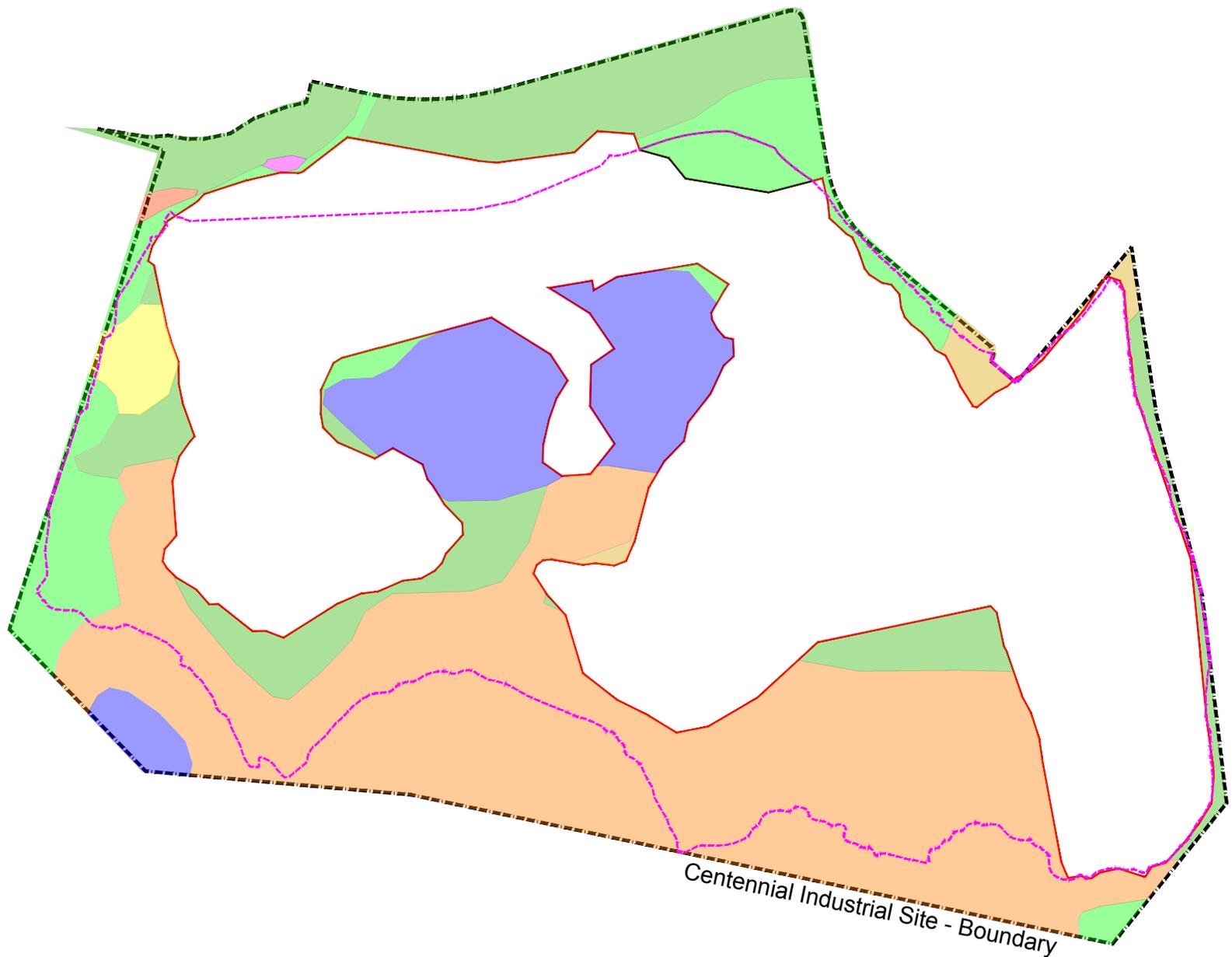
Scale 1 inch = 300 ft



LEGEND

- Centennial Industrial Site - Boundary
- 0.377 Ac — Stream - Perennial
- 0 Ac - - - Stream - Intermittent
- 0.033 Ac - - - - Stream - Ephemeral
- 0.05 Ac ■ Wetland mapped on Centennial Site
- Boundary of DTSC Clean-up Project (approximate)
- - - Boundary of IM Mine Project Engineered Fill placement
- * Pine Hill Flannelbush

FIGURE C
IMM PROJECT BASELINE
AFTER DTSC CLEANUP
SHOWING 2017 AIR PHOTO
 Scale 1 inch = 300 ft



LEGEND

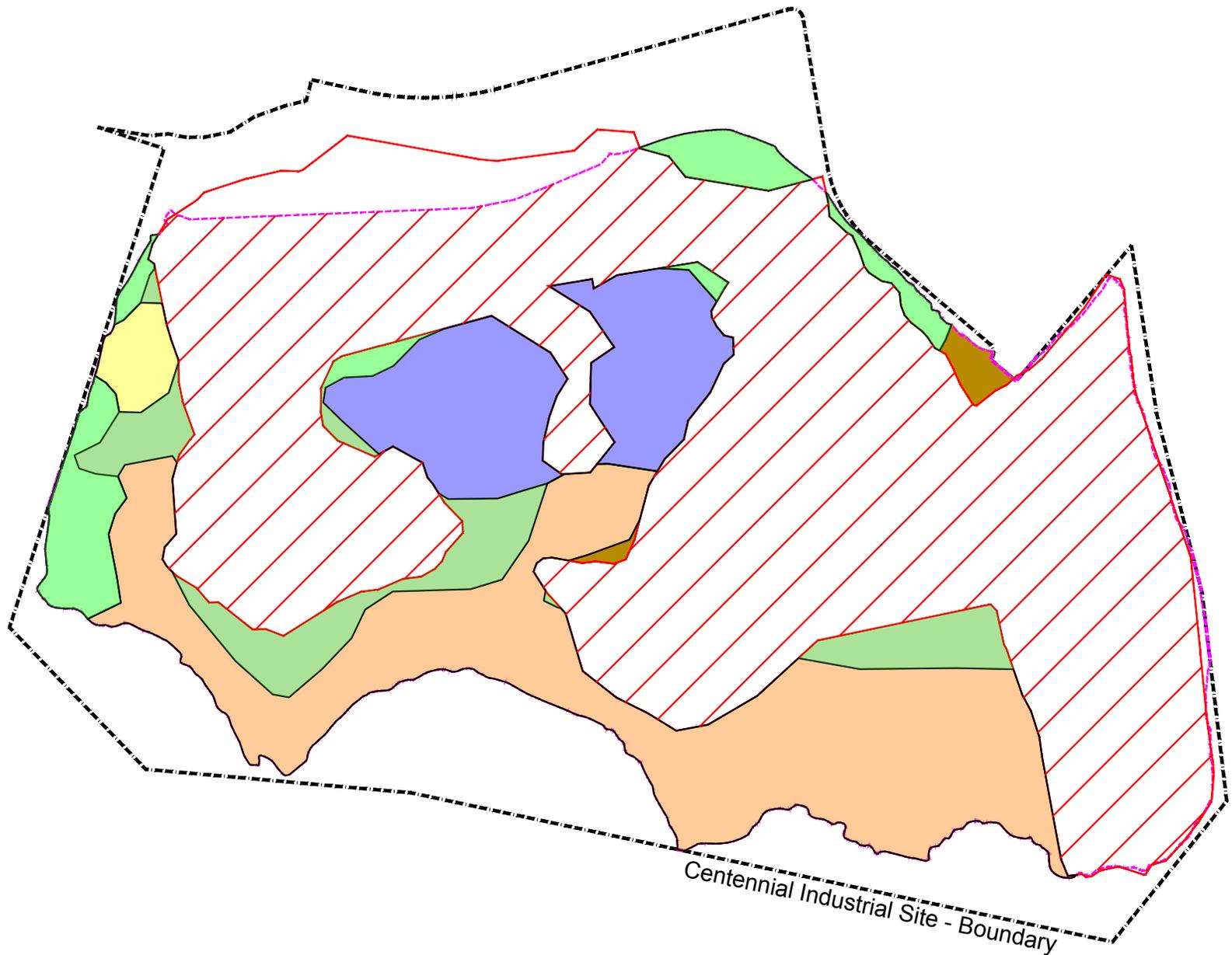
--- Centennial Site Boundary

28.25 Ac		Area Previously Disturbed by DTSC clean-up project (Estimated)	5.97 Ac		Montane Riparian
3.54 Ac		Annual Grassland	0.41 Ac		Wet Meadow
13.94 Ac		Mixed Chaparral	0.03 Ac		Fresh Emergent Marsh Wetland
3.79 Ac		Montane Hardwood-Conifer			
0.48 Ac		Montane Hardwood			

 Boundary of DTSC Clean-up Project (approximate)
 Boundary of IM Mine Project Engineered Fill placement

FIGURE D
IMM PROJECT BASELINE
AFTER DTSC CLEANUP
VEGETATION COMMUNITIES

Scale 1 inch = 300 ft



Centennial Industrial Site - Boundary

LEGEND

--- Centennial Site Boundary

- 26.56 Ac Area Previously Disturbed by DTSC clean-up project & Impacted by IMM Project
- 1.84 Ac Annual Grassland
- 8.52 Ac Mixed Chaparral
- 3.67 Ac Montane Hardwood-Conifer
- 0.46 Ac Montane Hardwood
- 2.40 Ac Montane Riparian
- 0.26 Ac Wet Meadow

FIGURE E
DISTURBANCE AREA
VEGETATION COMMUNITIES

Scale 1 inch = 300 ft

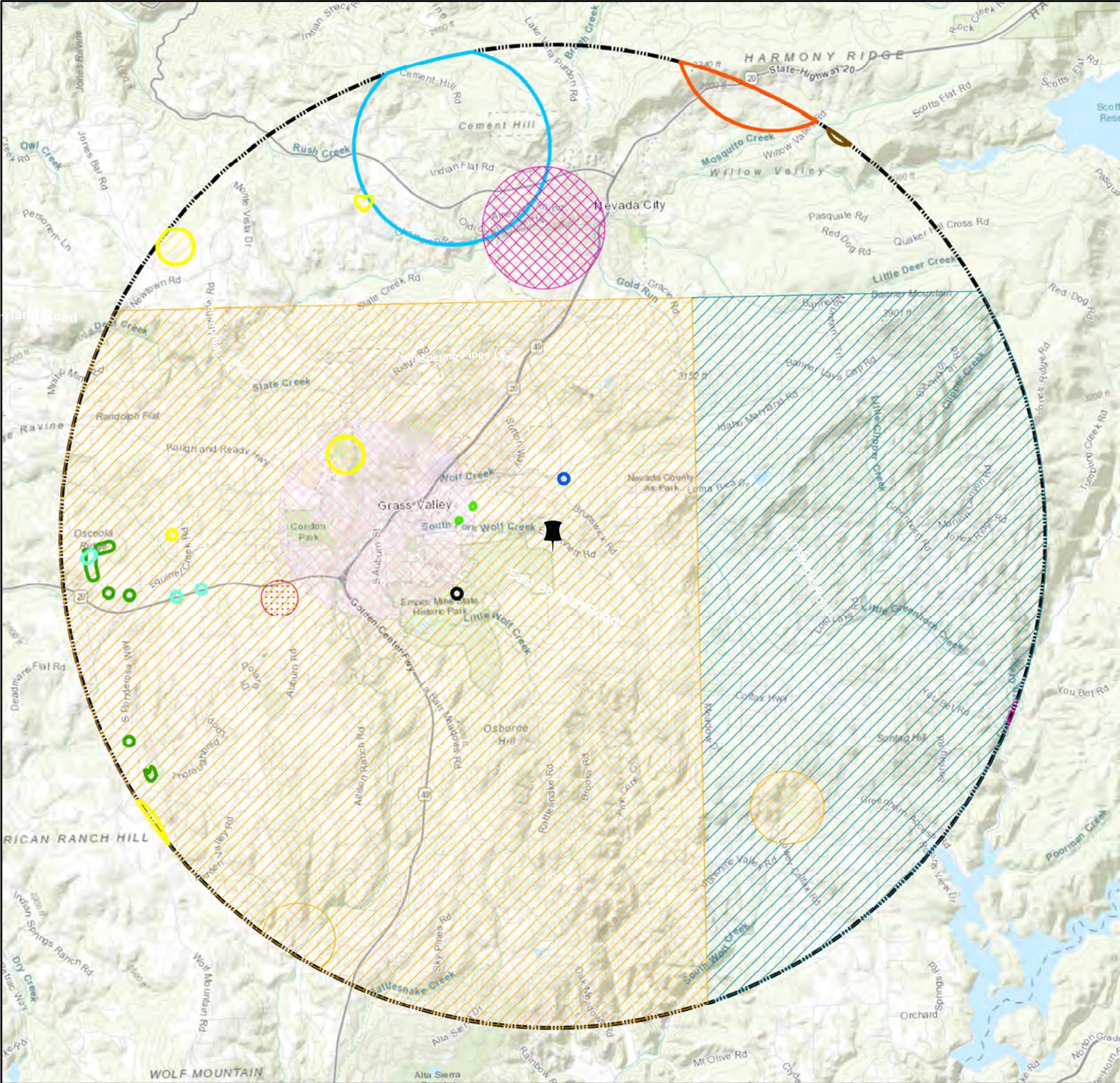


Figure. Known Occurrences of Special Status Species within 5 Miles of the Centennial Site

Legend

- FiveMileProjectBuffer
- Project Area

Common Name, Scientific Name, FESA, CESA, CNPS

	Brandegee's clarkia, <i>Clarkia biloba</i> ssp. <i>brandegeae</i> , none, none, 4.2		Townsend's big-eared bat, <i>Corynorhinus townsendii</i> , none, none
	California black rail, <i>Laterallus jamaicensis coturniculus</i> , none, Threatened		brownish beaked-rush, <i>Rynchospora capitellata</i> , none, none, 2B.2
	Cooper's hawk, <i>Accipiter cooperii</i> , none, none		chaparral sedge, <i>Carex xerophila</i> , none, none, 1B.2
	Pine Hill flannelbush, <i>Fremontodendron decumbens</i> , Endangered, Rare, 1B.2		coast horned lizard, <i>Phrynosoma blainvillii</i> , none, none
	Scadden Flat checkerbloom, <i>Sidalcea stipularis</i> , none, Endangered, 1B.1		dubious pea, <i>Lathyrus sulphureus</i> var. <i>argillaceus</i> , none, none, 3
	Stebbins' morning-glory, <i>Calystegia stebbinsii</i> , Endangered, Endangered, 1B.1		finger rush, <i>Juncus digitatus</i> , none, none, 1B1
			foothill yellow-legged frog, <i>Rana boylei</i> , none, Candidate Threatened
			western bumble bee, <i>Bombus occidentalis</i> , none, none

1 in = 1 miles

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
Stebbins' morning-glory <i>Calystegia stebbinsii</i>	--/--/1.B2	Gabbroic or serpentinite soils. Openings in chaparral, cismontane woodland, lower montane coniferous forest, from 980-4,330 feet.	Apr- Jul	Low. Potential for occurrence in openings and under chaparral in gabbroic soils. Known 4 miles to east on gabbroic chaparral on Ocoola Ridge. Was not observed during targeted 2019 field surveys.
Sierra arching sedge <i>Carex cyrtostachya</i>	--/--/1B.2	Lower montane mesic coniferous forest, meadows and seeps, marshes and swamps, Riparian forests (margin), from 2,000-4,460 feet.	May -Aug	Low. Potential for occurrence in mesic forests. Within the known distributional and elevational range for this species, though nearest known occurrence 16 miles to the north. This species was recently described so the full extent of its range and distribution are unlikely yet known. Marginal habitat present in study area, and it was not observed during 2019 field surveys.
Chaparral sedge <i>Carex xerophila</i>	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 1,400 – 2,525 feet.	Mar- Jun	Low. Potential for occurrence in openings and under chaparral in gabbroic soils. Known 4 miles away on Ocoola Ridge in gabbroic chaparral. Was not observed during 2019 field surveys.
Red Hills soaproot <i>Chlorogalum grandiflorum</i>	--/--/1B.2	Chaparral, cismontane woodland, lower montane coniferous forests on serpentinite and gabbroic substrates, from 800 – 5,545 feet.	May-Jun	Low. Potential for occurrence in openings and under chaparral in gabbroic soils. Known over 10 miles south in Bunch Canyon south of Colfax, with no known occurrences to north. Was not observed during 2019 field surveys.
Pine Hill flannelbush <i>Fremontodendron decumbens</i>	FE/CR/1B.2	Chaparral, cismontane woodland on serpentinite and gabbroic substrates, from 1,390 – 2,495 feet.	Apr- July	High. Potential for occurrence in openings and under chaparral in gabbroic soils in Idaho Maryland study area. Known from study area from CNDDDB Occurrence #14. Field surveys in 2019 expanded boundaries of known occurrence.

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
Butte County fritillary <i>Fritillaria eastwoodiae</i>	--/--/3.2	Openings in chaparral, cismontane woodland, and lower montane coniferous forest, sometimes serpentinite, from 160-4,920 feet.	Mar-Jun	Low. Potential for occurrence in open areas in the study area. There is a 1979 record for this species on the south side of the South Yuba River canyon approximately 7 miles north of the study area, and other occurrences on the Washington Ridge. Surveys were not conducted during the appropriate phenological period for this species (April-May), but fruits would have been visible for individuals from this genus and they were not observed during 2019 field surveys.
Finger rush <i>Juncus digitatus</i>	--/--/1B.1	Seasonal wet areas, cismontane woodland openings, openings in lower montane coniferous forest, xeric vernal pools, from 2,165-2,590 feet.	Apr-Jun	Low. Potential for the occurrence in gravelly, seasonally moist openings. Known less than one mile to the north near the intersection of Idaho Maryland and Brunswick. Was not observed during 2019 field surveys.
Dubious pea <i>Lathyrus sulphureus</i> var. <i>argillaceus</i>	--/--/3	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest, from 490-3,050 feet.	Apr-May	Low. Potential to occur in forested areas. Known within 3 miles of study areas from a 1926 collection. Also known to SW 5 miles away near Wolf Mountain. Plant list from 2006 surveys have a <i>Lathyrus sulfureus</i> with no variety designation, but not observed during 2019 surveys.
Cantelow's lewisia <i>Lewisia cantelovii</i>	--/--/1B.2	Moist, granitic areas in broadleaf upland forest, chaparral, cismontane woodland, lower montane coniferous forest mesic, sometimes serpentinite seeps, from 1,080-4,495 feet.	May-Oct	Low. Potential for occurrence in any rocky outcrops with seeps on the parcel. There are records for this species in the Middle Yuba and South Yuba river canyons within 7 miles of the study area. The preferred habitat for this species in the study area has been disturbed and is of reduced quality. Was not observed during 2019 field surveys.
Cedar Crest popcornflower <i>Plagiobothrys glyptocarpus</i> var. <i>modestus</i>	--/--/3	Cismontane woodland, valley and foothill grasslands (mesic), from 2,850-2,855 feet.	Apr-Jun	Moderate. Known from historic collection potentially from nearby Cedar Ridge. Also known from historic collections in Nevada City. Suitable habitat for this species is present. Was not observed during 2019 field surveys.

Common and Scientific Name	Legal Status ¹	Habitat Association	Identification Period	Potential for Species/Habitat Presence
	Federal/State/CNPS			
Sierra blue grass <i>Poa sierrae</i>	--/--/1B.3	Openings in lower montane coniferous forest, 1,195-4,920 feet.	Apr-Jul	Low. There is only marginal suitable habitat for this species in the study area, primarily in the ponderosa pine forest, and in the forested areas along Wolf Creek. Known from Steepollow Creek from a collection from 1964. Was not observed during 2019 field surveys.
Brownish beaked-rush <i>Rhynchospora capitellata</i>	--/--/2B.2	Wet areas (marshes, swamps, meadows, and seeps) in montane coniferous forest, from 145-6,560 feet.	Jul-Aug	Low. Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 field surveys.
Scadden Flat checkerbloom <i>Sidalcea stipularis</i>	--/CE/1B.1	Marshes and swamps (montane freshwater), from 2,295-2,395 feet.	Jul-Aug	Low. Suitable habitat for this species in the perennial marsh wetlands. It is known 3 miles to the west near the Nevada County Fairgrounds from a report in 1973. Was not observed during 2019 field surveys.

¹Status explanations:

FE = Federally Endangered
CR = State Rare
CE = State Endangered
-- = no listing.

California Native Plant Society Rare Plant Rank (formerly known as CNPS lists)

1B = Rank 1B species: rare, threatened, or endangered in California and elsewhere.
2B = Rank 2B species: rare, threatened, or endangered in California but more common elsewhere.
3 = Rank 3 species are taxonomically problematic and lack the necessary information to assign them to one of the other ranks.
4 = Rank 4 plants are of limited distribution or infrequent throughout a broader area in California; should be monitored regularly.

Source: CNPS 2019; CNDDDB 2019; USFWS 2019, and Calflora 2019.

Common and Scientific Name	Legal Status ¹	Habitat Requirements	Potential for Species/Habitat Presence
	Federal/State		
Amphibians			
California red-legged frog <i>Rana draytonii</i>	FT/SSC	Found in permanent and semi-permanent aquatic habitats, such as creeks and ponds, with emergent and submergent vegetation. May aestivate in rodent burrows or cracks during dry periods. Along the coast and coastal mountain ranges of California from Marin County to San Diego County and in the Sierra Nevada from Tehama County to Fresno County.	Very Low; however, the perennial aquatic resources such as the freshwater emergent marsh habitats within the eastern section of the Centennial Site contain marginal suitable habitat for the species.
Foothill yellow-legged frog <i>Rana boylei</i>	SCT/SCC	Perennial rocky (pebble or cobble) streams with cool, clear water in a variety of habitats from valley and foothill oak woodland, riparian forest, ponderosa pine, mixed conifer, coastal scrub, and mixed chaparral at elevations ranging from 0 to 6,370 feet. Occurs in the Klamath, Cascade, north Coast, south Coast, and Transverse Ranges; through the Sierra Nevada foothills up to approximately 6,000 feet south to Kern County	Very Low; however, the main stem of Wolf Creek within the northern section of the Centennial Site contains marginal suitable habitat for the species.
Reptiles			
Western pond turtle <i>Emys marmorata</i>	--/SSC	Thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation, below 6,000 feet in elevation. Populations extend throughout the coast and central valley of California.	High. Potential for occurrence in areas near water, including Wolf Creek and perennial aquatic resources such as the freshwater emergent marsh habitats within the eastern section of the Centennial Site.
Coast horned lizard <i>Phrynosoma blainvillii</i>	--/SSC	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	Moderate. Potential for occurrence in areas with appropriate habitat within the Centennial Site, including open chaparral habitats.
Mammals			
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	--/SSC	Associated with lower montane coniferous and mixed conifer forest habitats where abandoned buildings and structures occur for roosting.	Low. Potential for occurrence in areas containing abandoned structures, including the existing decant structure in the northwestern section of the Centennial Site.

Common and Scientific Name	Legal Status ¹	Habitat Requirements	Potential for Species/Habitat Presence
	Federal/State		
Birds			
California black rail <i>Laterallus jamaicensis coturiculus</i>	--/CT	California black rail inhabits freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. The species requires water depths of approximately 1 inch that does not fluctuate during the year and dense vegetation for nesting habitat.	Very Low; however, the perennial aquatic resources such as the freshwater emergent marsh habitats within the eastern section of the Centennial Site contain marginal suitable habitat for the species.
Cooper's hawk <i>Accipiter cooperii</i>	MBTA/CDFW Watch List	Cooper's hawks are forest and woodland birds. These hawks are a regular sight in parks, quiet neighborhoods, over fields, at backyard feeders, and even along busy streets if there are trees present.	Moderate; however, the woodland habitats within the Centennial Site contain marginal suitable habitat for the species.
Invertebrates			
Western bumble bee <i>Bombus occidentalis</i>	--/--	Western bumble bee was documented approximately 3 miles northeast of Nevada City (4+ miles from the Centennial Site) in 1968. It is known from a single collection on May 20 th of that year. This species is of conservation concern and is listed as S1, Critically Imperiled, by NatureServe and is listed on the CNDDDB.	Very Low. Unlikely to occur in the Centennial Site or surrounding region.

¹Status explanations:

-- = no listing.

Federal

BCC = federal Bird of Conservation Concern

FPT = federal proposed threatened under the federal Endangered Species FT
= listed as threatened under the federal Endangered Species Act.

State

FP = state fully protected

SCT = state candidate for listing as threatened under the California Endangered Species SE
= listed as endangered under the California Endangered Species Act.

SSC = state species of special concern

ST = listed as threatened under the California Endangered Species Act.

Source: CNDDB 2019 and USFWS 2019