- The Project's Emergency Response Center will have on-site at least one individual with wildfire expertise related to evacuation and emergency access, the costs for which will be paid by the HOA[28].

The following changes to the Project evaluated in the Final EIR certified in July 2020, that are relevant to this Wildfire Risk and Evacuation Assessment, are part of a revised project description assessed herein.

- Construction of improvements for a third evacuation route to and from the Guenoc Valley Site (evacuation egress and emergency access only) with an all-weather surface that will access SR 29 via Grange Road
- Removal of 64 hilltop residential lots from being closer to the WUI and relocation of those lots to the Project core
- Reservation of the Recreational and Camping Area in the northern portion of the Guenoc Valley Site for recreational and camping uses only, and strict prohibition of open fires within that area

[28] The previously approved entitlements for the Project included an ordinance establishing regulations and development standards for the Guenoc Valley Zoning District and a Development Agreement. Section 1.9(d) of the zoning ordinance required that the Project be made subject to covenants, conditions and restrictions (CC&Rs) prior to the opening of any unit purchase escrow. Section 1.9(e) required the establishment of an owners association to govern the Project and to manage, maintain and operate the shared use areas and shared use facilities of the Project. Similarly, Section 13.2 of the Development Agreement required that as a condition of approval for each Final Map, the Project applicant would be required to make the property included in the map subject to CC&Rs, with a minimum term of 60 years, with 10-year automatic renewals, which would run with the land. Section 13.2 further required that the CC&Rs describe the various relationships among the County, the Developer and its successors, including the owners association(s) and individual property owners regarding payments for funding the owners association obligations under the Project approvals. The CC&Rs would need to be reviewed by the Department of Real Estate (DRE) prior to recordation, and prior to submittal to DRE, the developer would be required to submit a draft build-out budget for the portion of the Project that the developer intends to submit to DRE to the County Community Development Director. The budget would be required to include anticipated costs of and all sources of revenue for (including anticipated monthly owners association dues per unit) the maintenance, repair and operation of all Project infrastructure and other common areas to be owned or maintained by the owners association, and anticipated reserves. The requirement for County review and approval review was intended to ensure that the build-out budget includes funds for the owners association(s) maintenance and repair of the Project Infrastructure and compliance with any terms of the Project Approvals that the owners association(s) assume, including any mitigation measures. Section 13.4 of the Development Agreement required the CC&Rs to expressly provide the County with a third party right to enforce the developer's or its successors' and assigns', including owners associations, obligations. These requirements of the zoning ordinance and Development Agreement would ensure enforceability and funding for all HOA obligations for the life of the Project. Although the County was required to set aside and vacate its approvals related to the Project, including the zoning ordinance and Development Agreement, the applicant is proposing that the County approve a similar zoning ordinance and Development Agreement, including all of the requirements described above. Therefore, it is expected that if approved, the Project would be subject to those requirements.

- Revised roadway plan with new connector roadways and with no dead-end, non-looped road segments that exceed one mile in length
- Revised Roadside Hardscape Design with an area of approximately 10 feet on each side of the roadways improved with hardscape, to the extent that topography feasibly permits

The following is a summary of wildfire risk reduction measures that the proposed Project will undertake in addition to those listed above.

- **Project Density**: Home Ignition Zone (HIZ) measures including home construction to California Building Code Chapter 7A standards, HIZ management and defensible space maintenance for every building through covenants to be paid for by the HOA and supported by resort maintenance staff.
- **Project Location in the Landscape:** consolidated design in valley/commercial core so that structures are away from areas where fire behavior may be most extreme, strategically locating development in relation to landscape fuel break features (intensive grazing, vineyards, golf course, and polo field) with ongoing grazing management, and maintenance of property-wide fire breaks and defensible space along the edge of developed areas in the resort.
- **Water Supply and Infrastructure:** a high-volume water supply through the existing irrigation system that is immediately available for all construction phases and into the future that exceeds the state's Minimum Fire Safe Regulations, a municipal-type fire hydrant system installed with each project phase, all electrical utilities buried underground, and vulnerable water supply and electric utility infrastructure will be placed underground for protection from wildfire damage.
- **Safety Zones and Temporary Refuge Areas:** designating the maintained polo field, golf course, grazed areas, and vineyards as safety zone and temporary refuge area opportunities for evacuation staging, sheltering for hazards where shelter-in-place is recommended, and/or when evacuation routes are temporarily blocked.
- **Construction Safety:** provision of new emergency responders to be housed at the Middletown fire station beginning at the start of construction through a formal agreement with the SLCFPD.
- **Communication, Management, and Maintenance:** provision and maintenance of an on-site early detection system to identify potential fires igniting on-site or in the vicinity, an opt-out phone-based communication system to provide emergency notifications, HOA-funded vegetation and HIZ/defensible space management around homes, and fire tools and fire extinguishers in all homes.

The CWPP is designed in large part to prevent or minimize wildfire emergencies primarily through the institution of fuel-reduction & prevention measures. The CWPP also identifies wildfire resource needs. The 2009 CWPP remains in effect as the Draft 2022 CWPP was released and the subject of an October 5, 2022 public workshop in the Board of Supervisors' chambers but has yet to be adopted.

The 2009 CWPP identifies the need for additional staffing and the addition of two more stations within the South Lake County Fire Protection District. The Draft 2022 CWPP updates and streamlines the 2009 CWPP in accordance with newer guidelines, provides fire safety information to homeowners, provides information to homeowners to reduce ignitability of their homes, identifies recommended fuel reduction projects throughout Lake County, and identifies fire safety resources and groups throughout Lake County. Appendix A of the Lake County CWPP provides a list of fuel-reduction & prevention priorities. Appendix B of the Lake County CWPP provides action plan items to address advancing defensible space, reducing fuels, reducing structural ignitability, enhancing fire protection, evacuation planning and emergency preparedness, promoting fire safe education, and facilitating long-term fire safety. The Project is consistent with the strategies identified in the 2009 CWPP and Draft 2022 CWPP in that it would implement wildfire risk reduction measures summarized above and provide funding and staff to implement measures to address identified needs in the 2009 CWPP (i.e., advancing defensible space, fuel-reduction, water availability, fire protection resources, and identification of evacuation routes) and the Draft 2022 CWPP including the Appendix B action plan categories identified above that were derived from the 2009 CWPP, recent community meetings for the Draft 2022 CWPP, and input from local, state, and federal fire agencies.

The County's Emergency Operations Plan contains a Wildland Urban Interface Annex (WUI Annex). The WUI Annex was written by the Lake County Fire Chief's Association to establish priorities, responsibilities, and assign tasks to coordinate response operations during wildfires. According to the WUI Annex, CAL FIRE provides wildland fire suppression, structure protection, and incident management to lands within State Responsibility Areas (SRAs) and has mutual aid agreements with the Lake County Fire Districts and County Government Departments. The Project would enhance firefighting capabilities in South Lake County by constructing an Emergency Response Center and funding additional firefighting staff on an annual basis, beginning with the start of construction. The Project would be constructed in accordance with federal, state, regional, and local requirements, which are intended to ensure the safety of county residents and structures to the extent feasible. Compliance with these standard regulations would be consistent with the County's Emergency Operations Plan.

Assessment of Emergency Access to the Project

The Proposed Project would construct an Emergency Response Center within the site that includes a new fire station, emergency helipad, dedicated nighttime water source for aerial firefighting, and a designated meeting and staging area.

For emergency access purposes, the Project site would have a total of three evacuation and emergency access routes that connect to Butts Canyon Road and SR 29 (via Grange Road). Two evacuation routes would provide access to Butts Canyon Road: a new Primary Access Road that would be located at McCain Canyon, approximately 2.6 miles south of the existing Langtry Winery Entrance, and a second access at the existing intersection located approximately halfway between

the Langtry Winery entrance and the Primary Access Road entrance. The third evacuation route would be via a newly improved road, for evacuation and emergency ingress and egress only, that would connect from the interior of the Project site through an adjacent property to SR 29 via Grange Road.

Significant efforts have been undertaken by Lake County, the California Department of Transportation (Caltrans), CAL FIRE, and other partner agencies over the past decade to collaborate on planning for improvements to the state highway system and wildfire risk reduction measures in South Lake County. For the state highway system, efforts include the State Route 29 South Corridor Engineered Feasibility Study (2014 joint study by Caltrans District 1 and Lake County/City Area Planning Council) and implementation of the SR 29 Konocti Corridor project (conversion of an eight-mile segment of SR 29 from a two-lane divided highway to a four-lane expressway). For wildfire risk reduction, Lake County is finalizing an update of its Community Wildfire Protection Plan (prepared in collaboration with local fire districts, CAL FIRE, the US Department of the Interior, and the US Forest Service) that identifies wildfire fuel-reduction and prevention, defensible space, and fire protection strategies. The evacuation analysis in this study does not rely on implementation of any of the above strategies, with the exception of Segment 2C of the SR 29 Konocti Corridor expressway project in the cumulative analysis, as either the projects were not fully funded or information was not available about project status at the time of study initiation. The following provides current information.

The SR 29 Konocti Corridor Project (four-lane expressway) is a cooperative effort of Caltrans, the Lake County Area Planning Council (LAPC), and the Federal Highway Administration (FHWA). In total, the project will widen an eight-mile section of SR 29. Segment 2C of the SR 29 Konocti Corridor Project (widening of the westernmost 3.1 mile segment of the project) was completed in June 2023. The Caltrans Milestone Report for Lake County (August 10, 2023)[29] indicates that construction of the remaining Segments 2A and 2B is scheduled for completion in December 2030.

Other improvements identified in the Caltrans Milestone Report along SR 29 in South Lake County include widening of a 1.5 mile segment of SR 29 between Butts Canyon Road and Grange Road to provide wider shoulders (end construction date December 2028), widening and channelizing of a 0.8 mile segment of SR 29 in south Middletown between Central Park Road and Young Street (end construction date January 2029), and widening of a 0.4 mile segment of SR 29 south of Lower Lake to provide left turn channelization at C Street (end construction date December 2027). These are among improvements identified in the State Route 29 South Corridor Engineered Feasibility Study.

Caltrans has indicated recently that it is currently working on an extensive fuel management effort along the state highway system in Lake County that may compliment evacuation planning efforts[30].

[29] Lake County/City Area Planning Council Board Agenda Packet, Agenda Item 9ai, September 13, 2023. https://0m0ea5.p3cdn1.secureserver.net/wp-content/uploads/2023/09/9-13-23-Lake-APC-Packet.pdf

[30] Personal communication with Rex Jackman, Office Chief of Transportation Planning/South Counties – Lake and Mendocino, California Department of Transportation (Caltrans), August 10, 2023 [E-mail].

The Clear Lake Environmental Research Center (CLERC) is coordinating projects throughout Lake County to help combat the impacts of wildfire[31]. CLERC has successfully received a series of community-wide grants for a variety of fire resiliency projects. The 2019 CAL FIRE Fire Prevention Grant and 2021 Forest Health Grant include tree removal and thinning projects in the Cobb Mountain and Boggs Mountain Demonstration State Forest areas where the 2015 Valley Fire started. Using funds from the CAL FIRE Fire Prevention Grant, the South Lake Fire Protection District recently purchased equipment and funded a crew to clear hazard vegetation 100 feet from the centerline in key areas along SR 29, Highway 175, and Butts Canyon Road – key evacuation routes in South Lake County. The Lake County Wildfire Risk Reduction Project – Phase 1 will implement priority actions in the 2022 updated Lake County CWPP including about 45 miles of roadside clearance.

Assessment of Wildfire Evacuation Times for Community Evacuation Routes

An assessment of evacuation times for community evacuation routes in South Lake County was conducted for conditions without and with the proposed Project. Two primary hypothetical wildfire events as summarized below were evaluated based on a review of the South Lake County wildfire history described in ***Section 2: Wildfire and Evacuation History*** and consultation with wildfire experts.

- **Wildfire Scenario A (wildfire from north to south)** is based on a wildfire that starts in Boggs Mountain Demonstration State Forest in the northwest portion of the Evacuation Area and moves to the southeast, similar to the 2015 Valley Fire that was a significant wind-driven weather event that traveled from northwest to southeast from Cobb Mountain into the valleys and communities of Middletown and Hidden Valley Lake.
- **Wildfire Scenario B (wildfire from south to north)** is based on a wildfire that starts on Mt. St. Helena in the southernmost portion of the Evacuation Area and moves to the north. This is somewhat similar to the LNU Lightning Complex fire that affected the southern portion of the Evacuation Area.

The following evacuation study years are evaluated for each of the wildfire hazard scenarios described above.

- Baseline (2022) without Project
- Baseline (2022) plus Guenoc Valley Project Phase 1
- Cumulative (2040) without Project
- Cumulative (2040) plus Guenoc Valley Project Full Build-out

Evacuation time estimates were prepared using the Lake County Area-Wide Microsimulation Model (LAMM) that spans most of Lake County and was originally prepared for the Lake County/City Area Planning Council. The LAMM was prepared using a simulation-based Dynamic Traffic Assignment

[31] https://www.clerc.co/fireandforestry.html

(DTA) package called TransModeler. The LAMM was designed to interface with the Wine Country Interregional Partnership (WCIRP) travel demand model (TDM). The LAMM and WCIRP TDM are built on a shared geographic information system platform. The LAMM includes nearly every street in Lake County and was calibrated and validated based on criteria published by the Federal Highway Administration (FHWA) and Caltrans. The LAMM relies on a series of zones consistent with the WCIRP TDM, trip tables that identify trips between land uses in the origin zones and destination gateways, and the existing road network. LAMM estimates traffic and levels of congestion on 15-minute intervals and, as link congestion builds (i.e., roads fill with cars), it dynamically reassigns traffic to less congested routes if available. This is a dynamic approach to estimating trip assignment and identifying congested locations on the transportation network.

For this evacuation study, the road network in the LAMM was updated to include the roundabout at SR 29 and Hartmann Road that was completed in 2019. Current geometrics and traffic signal phasing/timing data was updated for all signalized intersections in the road network. Turn movement counts collected at 14 intersections on Friday, August 19, 2022 were input into the updated LAMM to confirm that the new model is accurately representing observed field conditions.

One modification to the transportation network was made in the LAMM for the cumulative (2040) analysis. For cumulative (2040) conditions, Segment 2C of the Konocti Corridor (formerly Lake 29 Improvement) was added to the LAMM network. The Konocti Corridor project would ultimately widen SR 29 to a four-lane expressway with access control between the communities of Lower Lake and Kelseyville. Segment 2C, which is currently under construction, is a 3.1-mile segment (from postmile 28.5 to 31.6) from just west of the junction with SR 175 to about one-half mile west of the signalized intersection at SR 281/Red Hills Road.

For both the Phase 1 and Build-out Project scenarios, a roundabout is added to the existing network at the intersection of SR 29 and Butts Canyon Road. The roundabout improvement at this intersection is identified as a Project mitigation measure to be constructed prior to the beginning of Phase 1 construction.

The following are key parameters of the evacuation demand estimates. The forecast occupancy and evacuation levels are conservative based on typical occupancy data for a summer weekend, surveys of prior evacuation behavior, and historic growth levels.

- Evacuation order issued at 4:00 pm on a Friday afternoon in August
- All homes are occupied for both community population groups and Project population groups
- 100 percent of residents for both community population groups and Project population groups in Evacuation Area evacuate
- 80 percent of employees for community population groups and 100 percent of employees for Project population groups are at their place of employment

- 85 percent hotel occupancy for community population groups and 100 percent hotel occupancy for Project population groups
- Forecast annual average growth of about 1.6 percent through the cumulative horizon year of 2040, which is more than double the rate of growth experienced in Lake County over the past decade

Traffic counts obtained for SR 29, the evacuation route with the highest volumes in the Evacuation Area, show that daily volumes are highest on Fridays when compared to Wednesday and Thursday counts. PM peak hour volumes are traditionally the highest hourly volumes of weekdays, and counts conducted at various locations along SR 29 indicate that the highest hourly volumes in the pm peak on a Friday occur between 4:00-5:00 pm, which is why the evacuation assessment is based on an evacuation order at 4:00 pm on a Friday in August when background volumes are at their highest.

The affected community population groups would be permanent residents, employees, and visitors/tourists who would be present during an evacuation in the Evacuation Area. The estimate of evacuation trips for community population groups assumes that 100 percent of all residential units are occupied, 85 percent of hotel units are occupied, and 80 percent of all employees are on-site when the evacuation order occurs on Friday at 4:00 pm. The estimate of evacuation trips for the Project population groups assumes the 100 percent of all Project residential and hotel units are occupied, and that 100 percent of all Project employees are on-site when the evacuation order occurs on Friday at 4:00 PM.

For the 2022 No Project evacuation scenario, the affected community population groups in the Evacuation Area include approximately 4,455 households, 1,214 second homes, 123 hotel rooms, 1,591 employees at work who live and work inside the Evacuation Area, 1,240 employees at work who work inside but live outside the Evacuation Area, and 1,414 employees at work who live inside but work outside the Evacuation Area. These population groups are estimated to generate a total of 13,542 evacuation-related trips.

For the 2040 No Project evacuation scenario, growth in households and employment was forecast based on land use forecasts in the Wine Country Travel Model. An overall growth of 28 percent in households and employment is forecast to occur on the South Lake County communities of Cobb, Hidden Valley Lake, and Middletown from 2022 to 2040.

Phase 1 of the Guenoc Valley Project would include or be assumed to include 401 estate units, 141 resort residential units, 127 hotel rooms, 610 employees, and 100 visitors on a Friday at 4:00 pm. These population groups are estimated to generate a total of 1,609 evacuation trips.

Full build-out of the Guenoc Valley Project would include or be assumed to include 1,400 estate units, 450 resort residential units, 400 hotel rooms, 1,220 employees, and 200 visitors on a Friday at 4:00 pm. These population groups are estimated to generate a total of 4,511 evacuation trips.

The Applicant would provide a weekday shuttle service for employees from the Middletown Housing Site to the Guenoc Valley Site. A parking lot for employees would be located within the Guenoc Valley Site, south of Butts Canyon Road across from the secondary entrance; employees would be shuttled from this parking lot to employment areas within the site. A total of 221 employees would live in the Middletown Housing Site and be shuttled to and from the Guenoc Valley site on a peak day. The applicant would acquire and provide storage for dedicated employee shuttle buses that can shuttle up to 221 employees from the Guenoc Valley Site back to the Middletown Housing Site (i.e., eleven 20-person buses at full occupancy of the Middletown Housing Site) during a full evacuation. The transportation analysis in the Final EIR indicates that up to 45 percent of hotel guests would arrive by shuttle, primarily from airports and other resorts to the south in the Bay Area. These hotel guests would not be able to evacuate from the resort in their own vehicles during an evacuation event and would require transportation assistance from the Project.

"Background" traffic is comprised of through trips on the evacuation routes that do not have an origin or destination in the Evacuation Area. Examples of background traffic on a late Friday afternoon in the summer are recreational trips destined for Lake County and employees returning to homes in communities north of the Evacuation Area from jobs in adjacent Napa or Sonoma Counties. Through trips for the Evacuation Area network were estimated based on daily and peak hour traffic counts collected in 2022 as well as origin-destination matrices extracted from the WCIRP TDM for a 2020 model scenario. To facilitate evacuation on SR 29 during the 2015 Valley Fire evacuation, southbound traffic on SR 29 was stopped at Lower Lake and northbound traffic on SR 29 was stopped at Tubbs Lake in Napa County by California Highway Patrol (CHP) and Napa sheriff deputies, respectively. These road closures, which stopped through traffic in both directions on SR 29, were made about 5 to 5.5 hours after the Valley Fire was initially reported. To provide a conservative assessment of evacuation conditions, this evacuation assessment does not assume closure of SR 29 to through traffic as occurred in the Valley Fire. As such, through traffic would continue to travel on the transportation network throughout the evacuation simulation period.

After determining the evacuation trip demand and associated transportation network, a dynamic traffic assignment with 30-minute intervals was performed that reflected departure times and congestion levels that informed overall evacuation time estimates (ETE). This assessment calculated the evacuation time estimates (last evacuee leaves the Evacuation Area) after an evacuation order was received by the public.

The following is a summary of evacuation time estimates for **Wildfire Scenario A** (Wildfire from North to South).

- Project-related evacuation trips from Phase 1, when added to baseline (2022) conditions, would add approximately 30 minutes (from about 4.5 hours to about 5 hours) in total evacuation time.

- Project-related evacuation trips from full build-out, when added to Cumulative no project (2040) conditions, would add approximately two hours and 30 minutes (from about 5 hours to about 7.5 hours) in total evacuation time.

The following is a summary of evacuation time estimates for **Wildfire Scenario B** (Wildfire from South to North).

- Project-related evacuation trips from Phase 1, when added to baseline (2022) conditions, would add approximately 30 minutes (from about 4 hours to about 4.5 hours) in total evacuation time.
- Project-related evacuation trips from full build-out, when added to Cumulative no project (2040) conditions, would add approximately two hours (from about 5 hours to about 7 hours) in total evacuation time.

Impact Summary

Wildfire Risk

The following summary addresses project density, project location in the landscape, and water supply and infrastructure. The Guenoc Valley Project will implement a comprehensive set of wildfire risk reduction measures, including but not limited to:

- addressing wildfire risk across multiple scales by identifying strategies that reduce risk at the building/lot site level, commercial and residential development nodes, and landscape scale;
- incorporating appropriate land uses to reduce fire behavior and provide for potential firefighter safety zones and temporary areas of refuge for the public, such as strategic placement of the golf course and polo field;
- expansion of vegetation management along roadways and incorporation of a third access route for emergency evacuation and emergency vehicles; and
- implementation of communication and maintenance measures that would occur from Project inception and throughout the duration of the Project.

The Guenoc Valley Project meets and exceeds state minimum requirements for wildfire safety by incorporating the above wildfire risk measures.

The new residential and commercial buildings would be developed in a concentrated pattern and surrounded by vineyards, a golf course, equestrian fields, and ranch agricultural uses that would buffer the developed area of the site from fires approaching the project and buffer the spread of any fires that start within the project site to off-site areas. Recent changes to the project include relocation of 64 hilltop residential lots from being closer to the WUI to a designated area within the project core.

For water supply, the project site has numerous lakes with the largest amount of impounded surface water in the region. A high-volume water supply through the existing irrigation system will be immediately available for all construction phases and will remain to support wildland fire water needs into the future. The presence of this volume of water supply exceeds the state's Minimum Fire Safe Regulations. A municipal-type fire hydrant system that meets the requirements of the California Fire Code will be installed with each new construction phase of the Project.

Impacts related to wildfire risk would be **less-than-significant**.

Emergency Vehicle Access

The following summary addresses emergency vehicle access to the Project and surrounding South Lake County communities.

The combination of the Emergency Response Center that would be constructed on-site as part of the Project with the provision of three emergency access points to the project (two on Butts Canyon Road and one via Grange Road) provides adequate emergency vehicle access to the project site from the closest fire stations. The inbound travel lane on each of these three on-site emergency access routes would be maintained by Project traffic management staff as directed by Emergency Response Center staff for first responders traveling to the project site from external stations. The Emergency Response Center constructed on the project site is located within three miles of all new buildings and would be able to respond to an on-site fire within about six minutes or less. The Southlake County Fire Protection District (Station 63) located in Hidden Valley Lake is located approximately 6 miles from the project site via SR 29 and Grange Road. The CAL FIRE Middletown Fire Station is located approximately 8 miles from the project site via SR 29 and Grange Road or approximately 9 miles from the project via SR 29 and Butts Canyon Road. There are nine fire stations that serve South Lake County communities including four along SR 175 in and near Cobb, two in Middletown, one in Hidden Valley Lake, one in Lower Lake, and the new Emergency Response Center that would be constructed as part of the project in Guenoc Valley. Nine additional fire stations are located in Clearlake, Kelseyville, and Lakeport to the north of the South Lake County communities.

The primary evacuation and emergency access routes for South Lake County are SR 29 and SR 175. Designated secondary routes include Bottleneck Road, Spruce Grove Road, Butts Canyon Road, Big Canyon Road, and Loch Lomond Road. Using funds from the CAL FIRE Fire Prevention Grant, the South Lake Fire Protection District recently purchased equipment and funded a crew to clear hazard vegetation 100 feet from the centerline in key areas along SR 29, Highway 175, and Butts Canyon Road – key evacuation and emergency access routes in South Lake County. The Lake County Wildfire Risk Reduction Project – Phase 1 will implement priority actions in the 2022 updated Lake County CWPP including about 45 miles of additional roadside clearance. These recent and ongoing roadside fuel reduction activities along SR 29, Highway 175 and Butts Canyon Road – in combination with the fact that all on-site roadways within the Project area will exceed the minimum California Fire Safe

Regulations with a 50-foot-wide fuel treatment on each side - will significantly reduce flame intensity along primary emergency vehicle access routes in South Lake County. The Lake County EOP identifies the county's emergency planning, organization, policies, and response to hazard situations associated with large scale events. Wildfire is identified as the highest Level 1 activation level. Directions for a large-scale evacuation are the responsibility of the Operations Section Coordinator and Section, in coordination with the appropriate field Incident Commander(s). The EOP also incorporates by reference hazard specific annexes including the Wildfire Fire Annex that provides the structure for coordinating interagency support for a local response to an incident. Upon activation of the Annex "contingency plan" for a wildfire by the Lake Operational Area Fire/Rescue Coordinator, tasks include working with Field Response Departments to update evacuation routes and shelter sites, creating an Incident Command Post, and identifying an Incident Commander. One of the actions is to pre-position resources and equipment. The Lake Operational Area Coordinator (Sheriff) will evaluate resources and determine whether mutual aid from any of the sixteen counties in Region II. First responders and evacuees usually travel in opposite directions and thus using opposing travel lanes. First responders also typically arrive at a wildfire well before evacuation orders are issued and congestion levels build. The Incident Commander and law enforcement personnel make decisions about evacuation orders and traffic management options such as converting a road to contraflow travel, including consideration of the ability to maintain emergency access for firefighters.

For all of the above reasons, impacts related to emergency vehicle access would be **less-than-significant**.

Evacuation

The following summary addresses whether the project would substantially impair an adopted emergency response plan or emergency evacuation plan, consistency with the County's adopted Safety Element, consistency with recommendations by the California Board of Forestry and Fire Protection regarding the safety of subdivisions pursuant to Public Resources Code section 4290.5, and the project's effect on evacuation of project residents as well as the existing population in surrounding South Lake County communities.

The Lake County Emergency Operations Plan (EOP) contains a Wildland Urban Interface Annex (WUI Annex). The WUI Annex establishes priorities, responsibilities, and assign tasks to coordinate response operations during wildfires. Wildland fire suppression, structure protection, and incident management are the responsibility of CAL FIRE in State Responsibility Areas, Lake County Fire Districts in Local Responsibility Areas, and the U.S. Forest Service and the Bureau of Land Management in designated Federal Lands. The Sheriff's Office manages evacuation notification, evacuation of residents, traffic control, and fire services emergency related requests. The WUI Annex also includes a contingency plan with actions such as notifying emergency response departments of anticipated emergencies, testing the County's emergency alert systems, and pre-establishing human

and animal evacuation shelters. The South Lake County Wildland Fire Preparation and Evacuation Plan describes pre-fire preparation recommendations, identifies primary and secondary evacuation routes, and describes evacuation notification levels. These plans do not provide evacuation traffic management strategies to address the new population that would be added by the Project in the southeast area of South Lake County. As such, the project may substantially impair an adopted emergency response plan by requiring development and documentation of new evacuation strategies.

Section 7.7 of the Lake County General Plan Health & Safety Element addresses Urban and Wildland Fire Hazards. The Health & Safety Element includes policies related to new development that call for consultation with fire service districts, encouraging cluster development, requiring development of wildland fire management plans, establishing fuel breaks around structures, implementing wildfire risk mitigation measures (i.e., cluster development, providing ongoing fire prevention maintenance activities, and providing an adequate private water supply), and using fire resistant building materials. The project design, wildfire prevention plan, and wildfire risk reduction measures are consistent with the relevant wildland fire hazard policies in the County's adopted Health & Safety Element.

Recommendations by the California Board of Forestry and Fire Protection regarding the safety of subdivisions pursuant to Public Resources Code section 4290.5 include creating secondary access to a subdivision, improvements to existing access roads, and other fire safety measures. The Guenoc Valley Project meets and exceeds state minimum requirements for wildfire safety by incorporating a comprehensive set of measures, including but not limited to providing three access and egress routes, building all project access roadways with a 50-foot-wide fuel treatment on each side that exceeds minimum Fire Safe Regulations, building a 25-foot-wide all-weather surface on all roadways, and providing two emergency helipads that will provide aerial support site access points. Recent changes in the project include a revised roadway plan with new connector roadways and with no dead-end, non-looped road segments that exceed one mile in length.

The evacuation time estimates are based on a mandatory evacuation order issued for the Evacuation Area on a typical Friday afternoon (i.e., at approximately 4:00 PM) during the summer season (i.e., August). The assessment assumes 100 percent occupancy of all project uses and all employees located on-site at the time of the evacuation order.

The estimated Phase 1 population of the project on a summer Friday afternoon, assuming 100 percent occupancy of all project uses and all employees on-site, is approximately 2,300 persons upon completion of all Phase 1 development. The existing population of the surrounding South Lake County communities on a typical summer Friday afternoon is approximately 14,800 persons. Under baseline conditions without the added project evacuation trips, estimated evacuation time for 100 percent evacuation of the South Lake County communities total about 4.5 hours for Wildfire Scenarios A and B. Under both Scenarios A and B, the Phase 1 Project evacuation trips are estimated

to add approximately 30 minutes in total evacuation time for 100 percent evacuation of South Lake County when combined with evacuation trips from the surrounding communities.

The estimated 2040 cumulative population of the project on a summer Friday afternoon, assuming 100 percent occupancy of all project uses and all employees on-site, is approximately 6,500 persons upon full build-out of the project. The 2040 population of the surrounding South Lake County communities on a typical summer Friday afternoon is estimated to be approximately 18,900 persons. Under future cumulative 2040 conditions without the added project evacuation trips, estimated evacuation times for 100 percent evacuation of the South Lake County communities are estimated to total about 5 hours for Wildfire Scenarios A and B. Under future cumulative 2040 conditions with Scenarios A and B, the project's Full Build-out evacuation trips are estimated to add approximately 2.5 hours and 2 hours for a 100 percent evacuation, respectively, in total evacuation time in South Lake County when combined with evacuation trips from the surrounding communities. The added evacuation time due to project evacuation trips for a 90 percent evacuation level, which is more representative of the level of residents who have chosen to evacuate in past wildfires, is 1.5 hours for Scenario A and 1 hour for Scenario B.

The added evacuation trips generated by the project and estimated changes in evacuation times caused by the proposed Project would require updates to the current evacuation plans and additional management of use of evacuation routes by community and project-related evacuation trips. Hotel guests arriving via shuttle will need transportation assistance during an evacuation. Thus, implementation of the proposed Project would impair an emergency response or emergency evacuation plan by requiring development and implementation of new evacuation strategies, and **impacts would be significant**.

MITIGATION MEASURES

The following mitigation measures are provided for the Phase 1 project-level impacts and programmatic full build-out impacts.

Phase 1 Project-Level Mitigation Measures

The following mitigation measures address the impacts identified in the project-level analysis of Phase 1 of the proposed Project. Phase 1 would include or be assumed to include 401 residential estate units, 141 resort residential units, 127 hotel rooms, off-site employee housing for 221 employees in Middletown, and an estimated 610 employees and 100 visitors on a Friday at 4:00 pm. The Phase 1 development is estimated to generate a total of approximately 1,610 evacuation trips on a summer Friday afternoon under 100 percent occupancy levels. Under both Scenarios A and B, the Phase 1 Project evacuation trips are estimated to add approximately 30 minutes in total evacuation time to evacuation routes in South Lake County when combined with evacuation trips from the surrounding communities. SR 29 would be the most heavily congested evacuation route during a full evacuation of South Lake County with bottlenecks occurring at the Hidden Valley Lake

community egress roads, at the signalized intersection with SR 52 in Lower Lake, and at the signalized intersection with SR 175 in Middletown.

The purpose of Phase 1 Mitigation Measures 5-1 through 5-4 is to reduce total evacuation times and accommodate evacuees from the proposed Project through implementation of a series of strategies that are summarized as follows.

1. SR 29 Evacuation Traffic Reduction Measure that stops through traffic on SR 29 during a full evacuation of South Lake County by stopping northbound traffic at Tubbs Lane in Napa County and southbound traffic at SR 53 in Lower Lake, thus reducing traffic levels on SR 29 during an evacuation.
2. Hidden Valley Lake Evacuation Traffic Management Measure that reduces evacuation times for Hidden Valley Lake, the most populous area of South Lake County, by using measures employed for the 2015 Valley Fire or comparable alternatives to manage traffic at key intersection bottlenecks on SR 29 at Hidden Valley Lake,
3. Guenoc Valley Project SR 29 Evacuation Traffic Reduction Measure that directs project evacuation trips away from the SR 29 corridor.
4. Traffic Signal Operational Enhancements at SR 29 traffic signals in Lower Lake and Middletown that would redistribute signal green time to the evacuating direction of traffic.
5. Dedicated Project Evacuation Shuttles for Hotel Guests that would access the Project via shuttles, taxis, or other shared ride vehicles.

The first two traffic strategies above were implemented during the 2015 Valley Fire by Lake County Sheriff and California Highway Patrol (CHP) officers, approximately five hours after the fire was originally reported, and proved effective at managing evacuating traffic. They are not assumed to be in place in the evacuation time estimate forecasts for this evacuation assessment.

MM 5-1 **Prepare a South Lake County Evacuation Traffic Management Plan to reduce near-term evacuation times, Incorporate in Updated Lake County Emergency Operations Plan (EOP), and Implement Evacuation Traffic Management Measures**

The applicant shall fund the administrative costs for preparation and adoption of a South Lake County Evacuation Traffic Management Plan, which shall be adopted prior to the issuance of the first certificate of occupancy for Phase 1. Lake County shall be the Lead Agency for adoption of the plan and implementation of the traffic management measures, working in collaboration with other responsible agencies as noted below. The Evacuation Traffic Management Plan strategies, in combination with other mitigation measures described below, shall achieve a 15-minute reduction in total evacuation times for a full evacuation of South Lake County, thereby reducing the 30 minutes in added overall evacuation time due to Phase 1 Project evacuation trips. The Traffic Management Plan shall be subject to the approval of the Lake

County Office of Emergency Services (OES), the Lake County Sheriff, the South Lake County Fire Protection District, Caltrans, and the California Highway Patrol (CHP). The approved version of the South Lake County Evacuation Traffic Management Plan shall be incorporated into an updated version of the Lake County Emergency Operations Plan (Lake County Office of Emergency Services) and the Lake County Community Wildfire Protection Plan (CWPP), with evacuation management strategies and improvement measures to address major bottlenecks in the South Lake County evacuation network, such as the following.

- SR 29 Evacuation Traffic Reduction Measure – at the time of an evacuation order for a full South Lake County evacuation and as determined by the Incident Commander and County Sheriff, CHP and/or other police enforcement personnel shall implement measures to stop through traffic on SR 29 through the evacuation area such as stopping northbound SR 29 traffic at Tubbs Lane in Napa County and southbound SR 29 traffic at SR 53 in Lower Lake, thus reducing traffic levels on SR 29 during an evacuation. This measure was implemented during the 2015 Valley Fire, approximately five hours after the fire was originally reported, and proved effective at relieving evacuation congestion levels. This measure would prevent inbound traffic on SR 29 from accessing the South Lake County evacuation network but would allow outbound evacuating vehicles to exit via SR 29. It would apply similarly for study Scenarios A and B.
- Hidden Valley Lake Evacuation Traffic Management Measure – at the time of an evacuation order for a full South Lake County evacuation and as determined by the Incident Commander and County Sheriff, Lake County Sheriff and/or other police enforcement personnel shall implement traffic management for the Hidden Valley Lake community that addresses bottlenecks at the intersections of SR 29 and Hidden Valley Lake community egress roads. As was the case for the Valley Fire when the Lake County Sheriff directed evacuating vehicles from the northern half of the Hidden Valley Lake community to the north on SR 29 and evacuating vehicles from the southern half of the community to the south on SR 29, the officers would direct Hidden Valley Lake evacuating traffic away from the direction of the wildfire and in a coordinated direction to reduce or avoid conflicting movements at the intersections. This measure would apply similarly for study Scenarios A and B.
- Guenoc Valley Project SR 29 Evacuation Traffic Reduction Measure – at the time of an evacuation order for a full South Lake County evacuation, evacuating project traffic shall be directed to alternate routes to SR 29. Unless precluded by wildfire, evacuating project traffic shall be directed to

the planned project egress intersections on Butts Canyon Road and to the south on Butts Canyon Road. This measure would not apply if Butts Canyon Road were closed due to wildfire. In that event (such as under Scenario B), evacuating project trips would be directed to travel north on Butts Canyon Road (or via Grange Road as needed), south on SR 29 to Middletown, and then north on SR 175 (presuming that SR 29 to the south over Mt. St. Helena was also closed). Additional details are described for this measure in Mitigation Measure 5-2.

- SR 29 Traffic Signal Evacuation Operational Enhancement Measures – a description of the traffic signal evacuation operational enhancement measures described in Mitigation Measure 5-3 shall be included in the Updated Lake County EOP. This measure would apply similarly for study Scenarios A and B.

MM 5-2 Reduce Evacuation Time Impacts on SR 29 Through Guenoc Valley Project SR 29 Traffic Evacuation Reduction Measure

Prior to occupancy of any project uses, the applicant shall install variable message signs at the outbound lanes of the three project egress roads that connect to Butts Canyon Road and Grange Road. Lake County shall be the Lead Agency to oversee installation of the variable message signs within the project site. The variable message signs shall be connected to the on-site Emergency Response Center so that evacuation-related messages can be controlled by fire personnel managing the evacuation. At the time of an evacuation order for a full South Lake County evacuation, evacuating project traffic shall be directed to alternate routes to SR 29. Unless precluded by wildfire, evacuating Project traffic shall be directed to the planned egress intersections on Butts Canyon Road and to the south on Butts Canyon Road. Butts Canyon is a lightly traveled and populated rural road that would provide access to Napa and Solano counites. Traveling to the south on Butts Canyon Road would be the most direct route for evacuating trips from the proposed Project residential units and hotel uses whose primary destination would be to the south. This measure would be implemented by staff in the on-site Emergency Response Center.

A large share of the evacuating trips from the proposed Project residential units and hotel uses would be destined to the south where residents or guests would return to homes in the Bay Area or access airports or hotels. The evacuation time estimates presented earlier in this assessment are based on an equal distribution between SR 29 and Butts Canyon Road of project evacuation trips destined to the south.

Under this measure, all traffic evacuating from the proposed Project via Butts Canyon Road would turn left and travel to the south unless precluded by wildfire. Directing all Project evacuation trips exiting onto Butts Canyon Road to turn left, which is the most immediate evacuation route to the south, would reduce congestion levels on SR 29 south of Butts Canyon Road through Middletown that otherwise would be exacerbated by Project-generated evacuation trips. With implementation of this mitigation measure, the only Project evacuation trips that would use SR 29 would be those with destinations to the north (e.g., Lower Lake, Clear Lake, Kelseyville, etc.), which would be directed to use the Grange Road evacuation route to access SR 29. The total number of Phase 1 Project evacuation trips that would be assigned to Butts Canyon Road with this mitigation measure, under Scenario A (which has the higher share of evacuation trips assigned to the south), would be approximately 1,330 vehicle trips over a four-hour window as shown in Figure 4-3. This measure would not apply if Butts Canyon Road were closed due to wildfire. For this condition that could occur under Scenario B, evacuating project trips would be directed to travel north on Butts Canyon Road (or via Grange Road as needed), south on SR 29 to Middletown, and then north on SR 175 (presuming that SR 29 to the south over Mt. St. Helena was also closed). To facilitate an evacuation under a condition when Butts Canyon Road to the south of the project is closed due to wildfire and project traffic must evacuate to the north on Butts Canyon Road, the roundabout that will be constructed by the project applicant at the SR 29/Butts Canyon Road intersection will include a southbound bypass lane to increase intersection capacity.

MM 5-3 **Implement SR 29 Traffic Signal Evacuation Operational Enhancement Measures**

Prior to issuance of the first certificate of occupancy for any Project uses, the applicant shall design, obtain permits for, and install improvements to the signalized intersection of SR 29/SR 53 intersection in Lower Lake and the two signalized intersections on SR 29 in Middletown (SR 175 and Wardlaw Street). The improvements would be funded by the project applicant who shall obtain permits from Caltrans and/or Lake County. The variable message signs and traffic signal controllers shall be connected to Caltrans and Lake County traffic operations staff so they can be managed remotely during an evacuation. Improvements at the SR 29/SR 53 intersection in Lower Lake shall include extending the length of the northbound left turn pocket by 175 feet to a length of approximately 400 feet which could be accomplished by restriping the existing striped median, installing variable message signs on three approaches (i.e., eastbound, southbound, and westbound), and developing and installing wildfire signal timing plans that can be implemented by County staff during a wildfire that significantly extend maximum green times on the northbound approach. Improvements at the two intersections on SR 29 in

Middletown include developing and installing wildfire signal timing plans that can be implemented by County staff during a wildfire that significantly extend maximum green times on the northbound and/or southbound approaches depending on conditions.

The traffic signals located on SR 29 in Lower Lake at SR 53 and in Middletown at SR 175 and Wardlaw Street are bottlenecks during a wildfire event in South Lake County. These bottlenecks existed in prior wildfire evacuations and would be exacerbated by added Project evacuation trips. This measure would involve preparing and implementing traffic signal timing plans for wildfire events. The traffic signal timing plans for wildfire events would be designed for different scenarios and would significantly extend green times on key approaches. For example, a signal timing plan for a wildfire in South Lake County would significantly extend green time for northbound traffic at the SR 29/SR 53/Main Street intersection in Lower Lake until police resources could arrive at the intersection to manage traffic congestion. This measure would also require extending the length of the northbound left turn pocket (which currently has a storage length of approximately 225 feet) and installing variable message signs on the approaches to the SR 29/SR 53/Main Street intersection in Lower Lake. The variable message signs would be installed on the eastbound, southbound, and westbound approaches to notify drivers that an evacuation notice has been issued for South Lake County and that traveling to southbound SR 29 is prohibited.

The above improvements would be funded by the applicant and implemented by Lake County in collaboration with Caltrans. The implementation of improvements within the Caltrans right-of-way are beyond the control of Lake County and it is possible that permits are not issued for construction.

MM 5-4 Provide Dedicated Project Evacuation Shuttles for Phase 1 Hotel Uses

Prior to the issuance of the first certificate of occupancy for any Project hotel uses, the applicant shall acquire and provide storage for dedicated evacuation shuttle buses that can serve 45 percent of all guests (i.e., six 20-person buses at full occupancy of all Phase 1 hotel uses). Applicant shall identify and provide signage for bus stop evacuation pick-up zones at all hotels, and identify evacuation routes and shelter locations. Applicant shall designate shuttle drivers and provide ongoing training for staff and drivers for the shuttle buses.

The transportation analysis conducted for the Final EIR indicates that 45 percent of hotel guests will arrive by shuttle. These hotel guests would not be able to evacuate from the resort in their own vehicles during an evacuation event and would require transportation assistance from the Project. Phase 1 of the Project would provide 127

hotel rooms. At full occupancy with two guests per room, approximately 114 guests would have traveled to the resort via shuttle. This equates to 0.9 guests arriving via shuttle per room.

The Project shall obtain, maintain, and store dedicated evacuation shuttles for hotel guests, as individual hotel projects are completed, at a rate of 0.9 shuttle bus seats per room. If shuttle buses with a 20-person capacity are acquired, a total of six dedicated evacuation shuttle buses for hotel guests would be provided for the 127 hotel units when all Phase 1 hotels are completed. The Project shall train employees to operate the shuttles and be aware of alternative routes to designated shelter locations.

Full Build-Out Program-Level Mitigation Measures

A subsequent project-level CEQA assessment of full build-out evacuation impacts will be required prior to implementation of development beyond the Phase 1 land use program. The following mitigation measures address the impacts identified in this program-level analysis of full build-out of the proposed Project. The measures are programmatic in nature and may be refined following additional project-level CEQA analysis based on more specific details regarding future Project phases that will be included in application submittals for such phases, evolving evacuation analysis methods, any future changes to roadway infrastructure and/or capacity, and/or new or enhanced evacuation mitigation strategies.

Full build-out of the Project as permitted by the Project's General Plan and Zoning Ordinance amendment is assumed to include up to 1,400 residential estate units, 450 resort residential units, 400 hotel rooms, off-site employee housing for 221 employees in Middletown, and an estimated 1,220 employees and 200 visitors on a Friday at 4:00 pm. Full build-out of the Project would generate a total of approximately 4,500 evacuation trips that would begin within four hours of the evacuation notice on a summer Friday afternoon under 100 percent occupancy levels. The full build-out Project evacuation trips are estimated to add approximately two to two and a half hours to the total evacuation time estimates (ETEs) (i.e., the time until the last evacuee leaves the Evacuation Area) for evacuation routes in the Evacuation Area when combined with evacuation trips from the surrounding communities under cumulative 2040 conditions. As with Phase 1 evacuation conditions, SR 29 would be the most heavily congested evacuation route during a full evacuation of the Evacuation Area, with bottlenecks occurring at the Hidden Valley Lake community egress roads, at the signalized intersection with SR 52 in Lower Lake, and at the signalized intersection with SR 175 in Middletown.

The purpose of Full Build-out Program-Level Mitigation Measures 5-5 through 5-6 is to reduce total evacuation times and accommodate evacuees from the proposed Project through implementation of strategies that are summarized as follows.

1. Evacuation Time Reduction Strategies that reduce overall evacuation time estimate (ETE) for the Evacuation Area.
2. Dedicated Project Evacuation Shuttles for Hotel Guests that would have arrived to the Project via shuttles, taxis, or other shared ride companies.

The total number of evacuation trips generated by the Project at full build-out, with implementation of Mitigation Measure 5-2, would exceed the capacity of Butts Canyon Road as a two-lane facility under Scenario A. With implementation of Mitigation Measure 5-2, which would shift Project evacuation trips that otherwise would be likely to travel southbound on SR 29 to instead travel south via Butts Canyon Road, the total number of Project evacuation trips that would be estimated to travel southbound along Butts Canyon Road would be approximately 3,400 one-way vehicle trips under Scenario A, and about 2,040 one-way vehicle trips under Scenario B over a four-hour window after the 4:00 pm evacuation notice is issued under the Friday afternoon study scenario. This number of trips would exceed the peak hour capacity of the single southbound lane on Butts Canyon Road and cause excessive queuing during the evacuation period under Scenario A (wildfire from north to south). Mitigation Measure 5-2 would not apply if Butts Canyon Road were closed due to wildfire. For this condition that could occur under Scenario B (wildfire from south to north), evacuating project trips would be directed to travel north on Butts Canyon Road (or via Grange Road as needed), south on SR 29 to Middletown, and then north to SR 175 (presuming that SR 29 to the south over Mt. St. Helena was also closed). Under this condition, the number of Project evacuation trips that would travel northbound along Butts Canyon Road would similarly exceed the capacity of a single northbound lane and cause excessive queuing on northbound Butts Canyon Road.

MM 5-5 **Prepare a South Lake County Evacuation Plan to reduce cumulative evacuation times, Incorporate in an Updated Lake County Emergency Operations Plan (EOP), and Implement Evacuation Time Reduction Demand, Supply, and/or Communication Strategies**

As part of the future project-level CEQA evacuation assessment of full build-out of the Project and prior to issuance of the first certificate of occupancy for any uses beyond those included in Phase 1, the Project shall develop evacuation time reduction strategies to reduce forecast evacuation levels in the Evacuation Area, which the Project will be required to implement after occupancy of such uses. The measures would include any combination of demand, supply, and/or communication strategies as described below such that (1) the added evacuation time estimates (ETEs) (i.e., time until the last evacuee leaves the Evacuation Area) due to Project full build-out evacuation trips shall not exceed one hour beyond the total cumulative no project ETEs for a full evacuation of the Evacuation Area under either Scenario A or B, and (2) the estimated number of added Project full build-out evacuation trips on Butts Canyon Road shall not exceed its evacuation capacity.

Prior to issuance of the first certificate of occupancy for any use beyond those included in Phase 1, the applicant shall fund the administrative costs for preparation and adoption of a South Lake County Evacuation Plan (Evacuation Plan) that includes strategies to reduce overall cumulative ETEs for the Evacuation Area as described above, and the Evacuation Plan shall have been approved by the Lake County Office of Emergency Services (OES), the Lake County Sheriff, the South Lake County Fire Protection District, and the California Highway Patrol (CHP). Prior to the approval of the Evacuation Plan, a project-level CEQA analysis shall be conducted that analyzes the impacts of any proposed use beyond those included in Phase 1 on evacuation routes, and confirms that the strategies included in the Evacuation Plan meet the performance standards described above related to added ETEs and the evacuation capacity of Butts Canyon Road. The approved version of the South Lake County Evacuation Plan shall be incorporated into an updated version of the Lake County Emergency Operations Plan (Lake County Office of Emergency Services).

- Demand Strategies – demand-side strategies that may reduce evacuation time estimates (ETEs) and evacuation trips include vehicle reduction and phased evacuation measures. A vehicle reduction strategy may include a combination of land use program reductions and/or measures to increase vehicle occupancy (i.e., additional shuttles). A community-wide policy encouraging households to limit the number of evacuating vehicles to one per household is another demand reduction strategy that could help reduce overall evacuation times. Reduction of the number of housing units shall be implemented as a strategy only if implementation of all other feasible demand-side, supply-side, and communication strategies would not reduce ETEs or exceedance of the capacity of Butts Canyon Road sufficiently to meet the performance standards described above.
- Supply Strategies – supply-side strategies that may reduce ETEs include road lane widening, shoulder widening to provide an additional egress lane, contraflow lane operations, and intersection traffic control measures.
- Communication Strategies – communication strategies that may reduce ETEs include early warning systems, enhanced communication systems, and dynamic route guidance and monitoring.

The above strategies are programmatic in nature and may be refined following the additional project-level CEQA analysis described above based on more specific details regarding future Project phases that will be included in application submittals for such phases, evolving evacuation analysis methods, any future changes to

roadway infrastructure and/or capacity, and/or new or enhanced evacuation mitigation strategies.

The following provides a description of evolving wildfire evacuation strategies and an illustrative combination of strategies to accomplish the stated performance standard. The illustrative combination is described in the chronological order of an evacuation beginning with wildfire detection. New wildfire early detection systems technology including wildfire cameras, smoke sensors, gas sensors, and drones is being developed and employed to provide more time for evacuation notification. Systems have been developed to analyze data collected from detection devices using artificial intelligence and cloud-based tools. Wildfire early detection systems technology is relatively new and data to quantify the effectiveness of the systems on reducing evacuation times based on actual applications is pending.

Enhanced communications systems can take the form of hardened communication systems to maintain power for communications infrastructure like cell towers during wildfire, improved notification systems for evacuation orders, and/or traffic monitoring and wayfinding (i.e., variable message signs) that can be used to provide dynamic traffic guidance to respond to evacuation route bottlenecks and changing conditions. Communications systems have the potential to allow evacuees to begin their evacuation sooner and/or better manage evacuations in progress, but may have varying effects on the amount of added evacuation time from the time of the evacuation order.

An alternative evacuation approach that would be supported by enhanced communication systems is a managed and phased evacuation declaration for South Lake County communities rather than a single mass evacuation as analyzed. Evacuating in phases, based on vulnerability, location, or other factors, could enable subsequent traffic surges on major evacuation routes to be reduced and managed over a longer time frame and could be planned to result in traffic levels that flow more efficiently than when mass evacuations include large areas evacuating simultaneously. Law enforcement personnel and Office of Emergency Services staff would be responsible for ensuring that evacuations are phased appropriately, taking into consideration the vulnerability of communities when making decisions. A phased evacuation approach was applied for the 2015 Valley Fire.

In the event of an evacuation declaration, law enforcement and the on-site Emergency Response Center staff would have the option to conduct a phased evacuation of Guenoc Valley Project evacuees, relocate evacuees within the project, and/or instruct evacuees to shelter at temporary refuge areas such as the maintained polo field, golf course, grazed areas, and vineyards.

Intersection traffic control measures such as installation of traffic signals for emergency traffic management along Butts Canyon Road at Snell Valley Road and at Howell Mountain Road in Pope Valley is a supply strategy that would enhance management of traffic at the two primary cross-streets in the approximately 10-mile section of Butts Canyon Road south of the project.

A supply strategy in South Lake County that would benefit the most congested corridor is the widening of shoulders on SR 29 sufficient to provide shoulder evacuation lanes, perhaps initially in the northbound direction from Hidden Valley Lake to Lower Lake. The State Route 29 South Corridor Engineered Feasibility Study (2014) prepared for Caltrans District 1 and Lake County/City Area Planning Council (Lake APC) called for shoulder widening along segments of SR 29 between Middletown and Lower Lake.

The above early detection, communication, and supply strategies could be applied in combination to reduce overall evacuation time estimates (ETEs), but it is possible that they might not accomplish the ETE reduction performance standard. If those strategies do not achieve the performance standard, the remaining ETE reduction would need to come from demand-side strategies that would include additional shuttles for hotel guests but would primarily involve reducing the number of project evacuation trips by reducing the amount of development that would occur between Phase 1 and full build-out of the Project. This would involve reduction of the 1,400 estate units and estimated 1,220 employees that would generate up to 80 percent of all Project evacuation trips at full build-out.

MM 5-6 **Provide Dedicated Project Evacuation Shuttles for Full Build-out Hotel Uses**

Consistent with Mitigation Measure 5-4, prior to the issuance of the first certificate of occupancy for any new hotel uses beyond those included in Phase 1, the applicant shall acquire and provide storage for dedicated evacuation shuttle buses that can serve 45 percent of all guests. Applicant shall identify and provide signage for bus stop evacuation pick-up zones at all hotels and identify evacuation routes and shelter locations. Applicant shall designate shuttle drivers and provide ongoing training for staff and drivers for the shuttle buses, including information on alternative evacuation routes and shelter locations. If shuttle buses with a 20-person capacity are acquired, a total of up to eighteen dedicated evacuation shuttle buses for hotel guests would be provided for up to 400 hotel units when all hotels are completed.

Significance After Mitigation Measures

The following is a summary of the effect of implementation of the above mitigation measures on impacts related to emergency response or emergency evacuation plans.

Phase 1 Project-Level Mitigation Measures

Under baseline conditions without the added project evacuation trips, estimated total evacuation times for 100 percent evacuation of the South Lake County communities total about 4.5 hours for Wildfire Scenarios A and B. Under both Scenarios A and B, the Phase 1 Project evacuation trips are estimated to add approximately 30 minutes in total evacuation time in South Lake County when combined with evacuation trips from the surrounding communities.

The Phase 1 project-level mitigation measures would reduce impacts associated with impairing the current Lake County Emergency Operations Plan by funding the administrative costs for preparation and adoption of a South Lake County Evacuation Traffic Management Plan, which shall be adopted prior to the issuance of the first certificate of occupancy for Phase 1. The project would construct the new on-site Emergency Operations Center, providing a new fire station that would serve the project site as well as the nearby communities of Hidden Valley Lake and Middletown.

Unless precluded by wildfire, all evacuating project traffic shall be directed to the planned project egress intersections on Butts Canyon Road and then to the south on Butts Canyon Road. Traveling to the south on Butts Canyon Road would be the most direct route for evacuating trips from the proposed Project residential units and hotel uses whose primary destination would be to the south where residents or guests would return to homes in the Bay Area or to access airports or hotels. This mitigation measure would eliminate adding project evacuation trips on SR 29, which is the major evacuation route for existing South Lake County communities.

Additional Phase 1 mitigations include preparing and implementing traffic signal operational improvements at previous evacuation bottleneck locations along SR 29, including a southbound bypass lane in the roundabout that will be constructed by the project applicant at the SR 29/Butts Canyon Road intersection, and providing a fleet of dedicated evacuation shuttles with approximately 114 seats, for the 127 Phase 1 hotel rooms, for use in evacuating hotel guests that initially travel to the site via shuttle, taxi, or other shared ride vehicles.

Recent and ongoing roadside fuel reduction activities along SR 29, Highway 175 and Butts Canyon Road – in combination with the fact that all on-site roadways within the Project area will exceed the minimum California Fire Safe Regulations with a 50-foot-wide fuel treatment on each side - will significantly reduce flame intensity along primary evacuation routes.

Wildfire evacuations occurred in South Lake County communities surrounding the Guenoc Valley Project during the 2020 LNU Lightning Complex Fire, the 2015 Valley Fire, and the 2015 Jerusalem

Fire. Interviews with first responders, combined with reviews of fire and media reports, indicate that no one died in a vehicle attempting to evacuate in Lake County during these fires.

A summary of Phase 1 Project-Level Mitigation Measures is provided below.

- Mitigation Measure 5-1 would require the project applicant to fund the administrative costs for preparation and adoption of a South Lake County Evacuation Traffic Management Plan. The Traffic Management Plan strategies, in combination with other mitigation measures described below, shall be designed to achieve a 15-minute reduction in total evacuation time estimates (ETEs) for a full evacuation of the Evacuation Area, thereby reducing the 30 minutes in added overall ETEs due to Phase 1 project evacuation trips. The South Lake County Evacuation Traffic Management Plan shall be incorporated into an updated version of the Lake County Emergency Operations Plan (Lake County Office of Emergency Services) with evacuation management strategies and improvement measures to address major bottlenecks in the South Lake County evacuation network. The measures shall include an SR 29 Evacuation Traffic Reduction Measure, a Hidden Valley Lake Evacuation Traffic Management Measure, a Guenoc Valley Project SR 29 Evacuation Traffic Reduction Measure, and a SR 29 Traffic Signal Operational Enhancement Measure.
- Mitigation Measure 5-2 would reduce evacuation time impacts on SR 29 through implementation of a Guenoc Valley Project SR 29 Traffic Evacuation Reduction Measure. At the time of an evacuation order for a full evacuation of the Evacuation Area, evacuating project traffic shall be directed to alternate routes to SR 29. Unless precluded by wildfire, evacuating project traffic shall be directed to the planned project egress intersections on Butts Canyon Road and to the south on Butts Canyon Road. Traveling to the south on Butts Canyon Road would be the most direct route for evacuating trips from the proposed Project residential units and hotel uses whose primary destination would be to the south where residents or guests would return to homes in the Bay Area or to access airports or hotels. This measure would be implemented by staff in the on-site Emergency Response Center.
- Mitigation Measure 5-3 would prepare and implement traffic signal operational improvements at evacuation bottleneck locations along SR 29 including implementation of evacuation signal timing plans as well as modifying the striping on the south leg of the SR 29/SR 53 intersection in Lower Lake, that is a bottleneck during evacuations, to extend the length of the northbound left turn lane to provide additional storage through restriping of the striped median. This measure would improve evacuation traffic flows by increasing the percentage of green time allocated at traffic signals to the primary evacuation traffic flow direction during a South Lake County evacuation (i.e., northbound at SR 29/SR 53). A benefit is that the evacuation signal timing plans could be activated by Public Works staff as a quick response measure at the beginning of evacuations when police resources are not available to manage traffic at the signalized intersections.
- Mitigation Measure 5-4 would provide a fleet of dedicated evacuation shuttles with approximately 114 seats, for the 127 Phase 1 hotel rooms, for use in evacuating hotel guests

that initially travel to the site via shuttle, taxi, or other shared ride vehicles. If some of the on-site shuttles are not needed for evacuation of hotel occupancy levels due to less than 100 percent occupancy or other factors, the applicant has indicated they may offer shuttles to first responders for use if needed to evacuate residents in the surrounding communities.

Full Build-Out Program-Level Mitigation Measures

As noted previously, the analysis of full build-out conditions is conducted at a program-level and implementation of any development beyond Phase 1 will require a future project-level CEQA evacuation assessment. Construction of Phase 1 is anticipated to be spread out over approximately 8-10 years, so additional development beyond Phase 1 would occur in 2035 or later.

Under future cumulative 2040 conditions 100 percent evacuation conditions without the added project evacuation trips, estimated evacuation times for 100 percent evacuation of the South Lake County communities are estimated to total about 5 hours for Wildfire Scenarios A and B. Under future cumulative 2040 conditions with Scenarios A and B, the Full Build-out evacuation trips are estimated to add approximately 2.5 hours and 2 hours for a 100 percent evacuation level, respectively, in total evacuation time in South Lake County when combined with evacuation trips from the surrounding communities. The added evacuation time for a 90 percent evacuation level, which is more representative of the level of residents who have participated in evacuations in past wildfires, is 1.5 hours for Scenario A and 1 hour for Scenario B.

The full build-out program-level mitigation measures would reduce impacts associated with impairing the current Lake County Emergency Operations Plan by developing additional evacuation time reduction strategies to reduce forecast evacuation levels in the Evacuation Area, which the Project will be required to implement after occupancy of such uses. The applicant shall fund the administrative costs for preparation and adoption of a South Lake County Evacuation Plan (Evacuation Plan) that includes strategies to reduce overall cumulative evacuation time estimates (ETEs) (i.e., time until the last evacuee leaves the Evacuation Area) for the Evacuation Area such that (1) the added ETEs due to Project full build-out evacuation trips shall not exceed one hour beyond the total cumulative no project ETEs for a full evacuation of the Evacuation Area under either Scenario A or B, and (2) the estimated number of added Project full build-out evacuation trips on Butts Canyon Road shall not exceed its evacuation capacity. The measures would include any combination of demand, supply, and/or communication strategies. Reduction of the number of housing units shall be implemented as a strategy if implementation of all other feasible demand-side, supply-side, and communication strategies would not reduce ETEs or avoid exceedance of the capacity of Butts Canyon Road sufficiently to meet the performance standards described above.

Given that the build-out program-level mitigation measures would not be implemented until 2035 (i.e., after Phase 1 is completed) or later, there may be a number of candidate evacuation strategies that could be available based on developing technologies that are difficult to quantify today.

- A San Francisco company called Pano AI has developed a system that uses panoramic cameras installed on mountaintops and artificial intelligence software to provide early detection of wildfires in remote areas. The South Lake County Fire Protection District has engaged Pano to beta test four camera installations in the peaks around Middletown, including on Mount St. Helena. The ALERT Wildfire initiative developed by academics about eight years ago has expanded to about 850 cameras in California. Drones are also being used for early wildfire detection. The benefit of emerging AI technology is that it would not require human observers to spot fires via the camera feeds.
- The development of autonomous or self-driving vehicles could provide an opportunity for a fleet of specialized vehicles to be used to evacuate vulnerable people during a wildfire. Autonomous vehicles could also improve traffic flow during an evacuation as they would journey closer together at a constant rate of speed.

Finally, Caltrans plans to implement several improvements along SR 29, the primary evacuation corridor serving South Lake County, that are not assumed to be in place in the evacuation assessment as they are either not fully designed or fully funded yet. The most significant example is Phase 2A and 2B of the Konocti Corridor (formerly Lake 29 Improvement) project that will ultimately widen SR 29 to a four-lane expressway with access control between the communities of Lower Lake and Kelseyville. Segment 2C is currently under construction and scheduled to be complete by the end of 2024 according to the Caltrans Milestone Report for Lake County (August 10, 2023). Phase 2A and 2B are not yet fully funded but scheduled for completion by the end of 2030. The SR 29 South Corridor Engineered Feasibility Study (2014) prepared by Caltrans identified a series of planned improvements along SR 29 between the Lake County/Napa County line and Lower Lake. Based on consultation with Rex Jackman (Caltrans District 1 Office Chief of Transportation Planning/South Counties), Caltrans is in the early project development stages of designing capacity improvements at the signalized intersection of SR 29/Wardlaw Street intersection in Middletown. Other improvements identified in the Caltrans Milestone Report along SR 29 in South Lake County include widening of a 1.5 mile segment of SR 29 between Butts Canyon Road and Grange Road to provide wider shoulders (end construction date December 2028), widening and channelizing of a 0.8 mile segment of SR 29 in south Middletown between Central Park Road and Young Street (end construction date January 2029), and widening of a 0.4 mile segment of SR 29 south of Lower Lake to provide left turn channelization at C Street (end construction date December 2027).

- A summary of Full Build-Out Program-Level Mitigation Measures is provided below. Mitigation Measure 5-5 would require development of a South Lake County Evacuation Plan to reduce cumulative evacuation time estimates (ETEs), approval of the plan by local agencies, incorporation of the approved South Lake County Evacuation Plan into an Updated Lake County Emergency Operations Plan (EOP), and implementation of evacuation time reduction demand, supply, and/or communication strategies such that (1) the added evacuation time due to Project full build-out evacuation trips shall not exceed one hour beyond the total cumulative no project ETEs for a full evacuation of the Evacuation Area

under either Scenario A or B, and (2) the estimated number of added Project full build-out evacuation trips on Butts Canyon Road shall not exceed its evacuation capacity.

- Mitigation Measure 5-6 would provide a fleet of dedicated evacuation shuttles with up to 360 seats, for the up to 400 hotel rooms at full build-out of the Project, for use in evacuating hotel guests that initially travel to the site via shuttle, taxi or shared ride vehicles. If some of the on-site shuttles are not needed for evacuation of hotel occupancy levels due to less than 100 percent occupancy or other factors, the applicant has indicated they may offer shuttles to first responders for use if needed to evacuate residents in the surrounding communities.

The Guenoc Valley Project meets and exceeds state minimum requirements for wildfire safety by incorporating a comprehensive set of measures. The *Maha Guenoc Valley Wildfire Prevention Plan (WPP)* describes an integrated approach to wildfire management for the project. This plan includes consideration of the site's wildfire history as well as vegetative, topographic, and climatic wildfire risks. These risk patterns inform a series of wildfire prevention strategies for the project that contribute to a wildfire resilient setting. This includes fire breaks comprised of access roads with a 50' fuel reduction zone on each side, irrigated equestrian fields and golf course greens, and irrigated vineyards. The golf course and polo field provide potential firefighter safety zones and temporary areas of refuge for the public. The ranch has numerous lakes with the largest amount of impounded surface water in the region.

The Project would provide three evacuation routes and a new on-site Emergency Response Center with funding for firefighters. Wildfire prevention infrastructure includes an underground electric network, early wildfire detection system, emergency notification siren system, and helipads. All buildings will be constructed according to California building codes and WUI standards. During construction, the Project will pay for the Lake County Fire Protection District to hire and train new emergency responders.

The mitigation measures require preparation of a South Lake County Evacuation Traffic Management Plan and incorporation into an updated Lake County Emergency Operations Plan (EOP) prior to the issuance of the first certificate of occupancy for Phase 1. The Project would thus not impair implementation of the EOP. Evacuation management strategies and improvement measures are identified as mitigations to address bottlenecks in the evacuation network including an SR 29 evacuation traffic reduction measure to stop through traffic on SR 29 through South Lake County during an evacuation, a roundabout at SR 29 and Butts Canyon Road with a southbound bypass lane, a Hidden Valley Lake evacuation traffic management measure, a Guenoc Valley Project measure to reduce project traffic on SR 29 that serves as the community's primary evacuation route, traffic signal operational upgrades on SR 29, variable message signs on the approaches to the SR 29/SR 53/Main Street intersection in Lower Lake, and dedicated project evacuation shuttles for 45 percent of hotel guests. These measures would be documented in the EOP and reduce the 30 minutes of added evacuation time forecast with Phase 1 of the project.

Since the analysis of full build-out conditions is conducted at a program-level and implementation of any development beyond Phase 1 will require a future project-level CEQA evacuation assessment, the full build-out program-level mitigation measures require performance standards of reducing forecast evacuation levels such that (1) Project full build-out evacuation trips shall not exceed one hour beyond the total cumulative no project ETEs for a full evacuation of the Evacuation Area, and (2) the estimated number of added Project full build-out evacuation trips on Butts Canyon Road shall not exceed its evacuation capacity. If demand, supply, and communication strategies are not identified in the future CEQA document to achieve this performance measure under full build-out conditions, a reduction in the number of housing units to be added beyond Phase 1 shall be implemented. Reducing the number of housing units that can be added beyond Phase 1 would reduce the number of project-related evacuation trips and the associated total evacuation time with the project. Since the estate units would generate the most evacuation trips per unit, reducing the number of estate units would have the greatest impact on reducing project-related evacuation trips.

An alternative build-out evacuation approach that would be supported by enhanced communication systems is a managed and phased evacuation declaration for South Lake County communities rather than a single mass evacuation as analyzed. Evacuating in phases, based on vulnerability, location, or other factors, could enable subsequent traffic surges on major evacuation routes to be reduced and managed over a longer time frame. Perhaps the “worst case” scenario is a wildfire that encroaches upon the Guenoc Valley Project in a short time frame, with Grange Road becoming the only viable exit for Guenoc Valley Project evacuees due to blockages or hazards on Butts Canyon Road. In this scenario, or potentially under other scenarios in order to reduce traffic surges on Butts Canyone, law enforcement and the on-site Emergency Response Center staff would have the option to conduct a phased evacuation of Guenoc Valley Project evacuees, relocate evacuees within the project, and/or instruct evacuees to shelter at temporary refuge areas such as the maintained polo field, golf course, grazed areas, and vineyards.

Implementation of the combination of Mitigation Measures 5-1, 5-2, 5-3, 5-4, 5-5, and 5-6 would result in a **less-than-significant impact** on emergency response or emergency evacuation plans.

Appendix H-2

Wildfire Evacuation Vehicle Trip Demand Phase 1 Update Memorandum

FEHR PEERS

Memorandum

Date: February 9, 2024

To: Annalee Sanborn, Acorn Environmental

From: Bob Grandy, Fehr & Peers

Subject: Guenoc Valley Project Wildfire Risk and Evacuation Assessment – Evacuation Vehicle Trip Demand Phase 1 Update

SF23-1343

The purpose of this memorandum is to update the evacuation vehicle trip demand estimate for the Guenoc Valley Project, as documented in the *Guenoc Valley Mixed Use Planned Development Project: Wildfire Risk and Evacuation Assessment* (January 2024), for a minor update in the Phase 1 project description.

Project Description Update

The first phase of development (Phase 1) would include development of seven separate subdivisions throughout the Guenoc Valley Project site. The updated Phase 1 land use program is shown below, with a reduction of 16 residential estate units and an increase of 20 hotel rooms.

- 385 ~~401~~ residential estate units
- 141 resort residential units
- 147 ~~127~~ hotel rooms
- Middletown off-site employee housing for 221 employees
- 610 employees
- 100 visitors

There is no change in the build-out project description.

Phase 1 Evacuation Vehicle Trip Demand Estimate Update

The updated Phase 1 land use program would generate a total of 1,596 evacuation vehicle trips. **Table** identifies the number of evacuation vehicle trips by project population group generated by the updated Phase 1 land use program, with changes from prior values highlighted.

Table 1. Evacuation Trips for Updated Project Phase 1 Population Groups

Group	Units	Quantity	Trips
Estate Units	Dwelling Units	385	659
Resort Residential Units	Dwelling Units	141	141
Hotels	Hotel Rooms	147	103
Employees	Persons	610	610
Visitors	Persons	100	83
			1,596

Source: Fehr & Peers

Conclusion

The original Phase 1 land use program evaluated in *Guenoc Valley Mixed Use Planned Development Project: Wildfire Risk and Evacuation Assessment* (January 2024) was estimated to generate a total of 1,609 evacuation vehicle trips. The updated Phase 1 land use program would generate a total of 1,596 evacuation vehicle trips, approximately 1 percent fewer evacuation vehicle trips. This small change in Phase 1 land use program would not result in a change in evacuation time estimates, impact conclusions, or mitigations as identified in the January 2024 assessment.

Appendix H-3

Wildfire Risk Analysis (January 2025) and Relationship to Wildfire Evacuation Assessment

FEHR PEERS

Memorandum

Date: January 28, 2025

To: Annalee Sanborn, Acorn Environmental

From: Bob Grandy, Fehr & Peers

Subject: Wildfire Risk Analysis (January 2025) and Relationship to Wildfire Evacuation Assessment for Guenoc Valley Mixed Use Planned Development Project

SF23-1343

The purpose of this memorandum is to document how new information provided in the *Wildfire Risk Analysis*[1] (January 2025) relates to the Wildfire Evacuation Assessment (January 2024) prepared for the Guenoc Valley Mixed Use Planned Development Project. The focus of this review is on new modeling on fire pathways and analysis of fire response times provided in the *Wildfire Risk Analysis*.

Fire Pathway Modeling

The analysis of potential fire behavior and potential fire growth in the *Wildfire Risk Analysis* includes modeling that is an analytical approach to a fire risk assessment that characterizes likely fire behavior, given a fire ignition occurring on a high-severity fire weather day. Appendix W.1 includes full-sized images illustrating spatial fire behavior and projected changes across the project site.

Potential fire pathways are modeled under various conditions during both an east wind event and a west wind event. Attached to this memorandum are maps from the appendix of the *Wildfire Risk Analysis* showing the forecast fire pathways for both wind event directions.

- The projected fire pathways for an east wind event, with an ignition point southeast of the project site and winds blowing from east to west, could potentially result in the closure or limited use of Butts Canyon Road to the southeast of the project site and result in most evacuation trips traveling to the west/northwest on Butts Canyon Road towards State Route (SR) 29.

[1] *Wildfire Risk Analysis*; UC Berkeley | Disaster Lab, Willow Labs, Wildland Resilience Management, and Digital Mapping Solutions, January 2025.

- The projected fire pathways for a west wind event, with an ignition point west of the project site and winds blowing from west to east, could potentially result in the closure of Butts Canyon Road to the northwest of the project site and result in most evacuation trips traveling to the southeast/south on Butts Canyon Road towards Pope Valley in Napa County and beyond.

The wildfire evacuation assessment described in the Draft Partially Revised Environmental Impact Report (DPREIR) for the Guenoc Valley Mixed Use Planned Development Project (July 2024) includes forecast evacuation time estimates for two scenarios.

- **Wildfire Scenario A** (wildfire from north to south) is based on a wildfire that starts in Boggs Mountain Demonstration State Forest in the northwest portion of the Evacuation Area and moves to the southeast, similar to the 2015 Valley Fire that was a significant wind-driven weather event that traveled from northwest to southeast from Cobb Mountain into the valleys and communities of Middletown and Hidden Valley Lake.

- **Wildfire Scenario B** (wildfire from south to north) is based on a wildfire that starts on Mt. St. Helena in the southernmost portion of the Evacuation Area and moves to the north. This is somewhat similar to the LNU Lightning Complex fire that affected the southern portion of the Evacuation Area.

For Wildfire Scenario A with a wildfire traveling from northwest to southeast similar to the Valley Fire, the wildfire evacuation directional distribution pattern is based on 80-90 percent of project residents and hotel guests evacuating to the south on either Butts Canyon Road or State Route 29. This is a similar evacuation directional pattern that would occur as a result of the west wind event that is modeled in the *Wildfire Risk Analysis*.

For Wildfire Scenario B with a wildfire traveling from south to north similar to the LNU Lightning Complex Fire, the wildfire evacuation directional distribution pattern is based on 70-75 percent of project residents and hotel guests evacuating to the north on either Butts Canyon Road or Grange Road to State Route 29. This is a similar evacuation directional pattern that would occur as a result of the east wind event that is modeled in the *Wildfire Risk Analysis*.

Fire Response Times

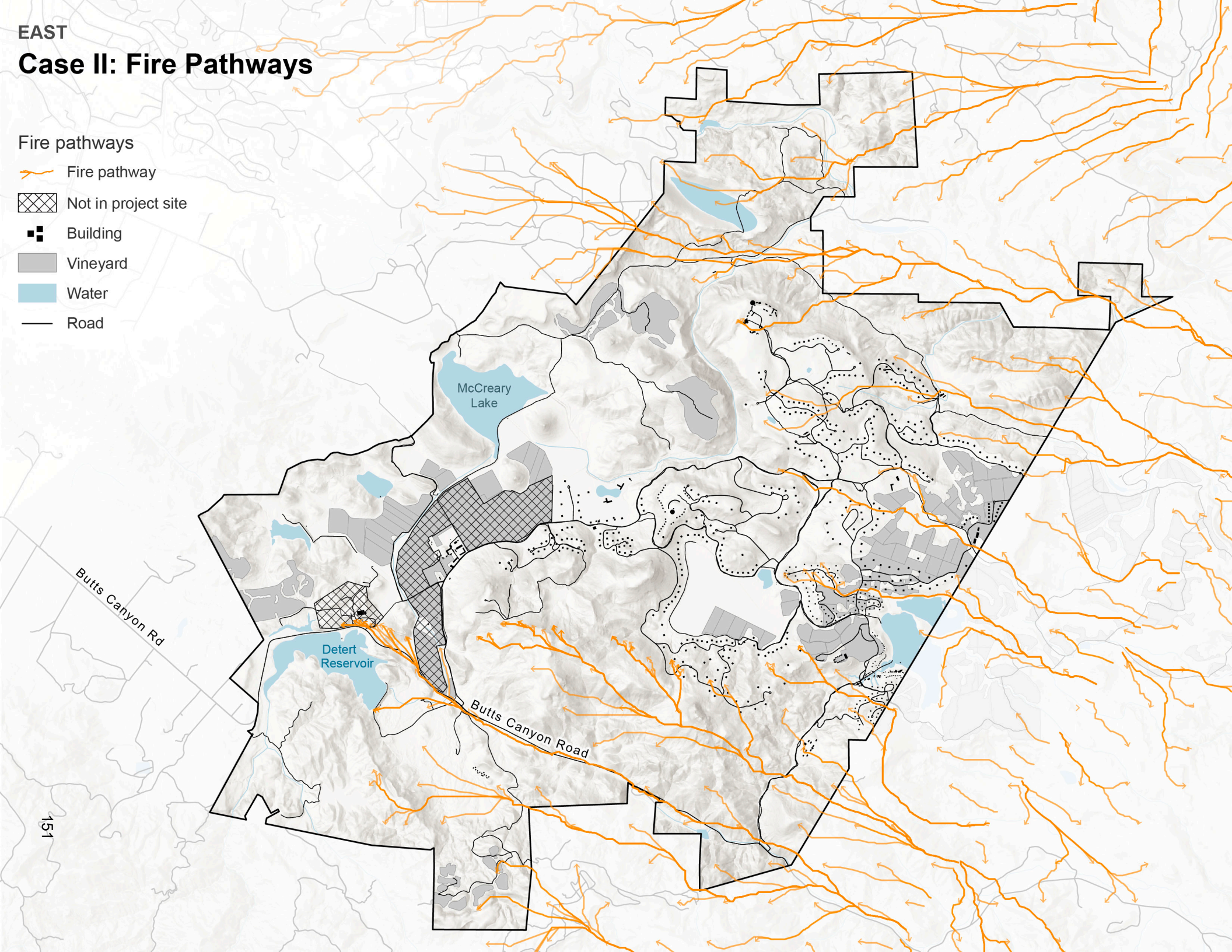
Fire response time estimates were computed in the *Wildfire Risk Analysis* by measuring the time from the originating station to various points along the road network, both within and adjacent to the site. In the existing baseline, the site of the project is first reached by firefighters between 15 and 30 minutes after departure. With the addition of a new Emergency Response Center and improved road network and surfacing, "design features" for phase 1 of the project, response times drop to less than 5 minutes for the center of the project site and are within 5 to 10 minutes for a majority of the site.

The *Wildfire Risk Analysis* estimates that the fringes of the site are first reached by firefighters within 10 to 15 minutes. The response times for areas west of Butts Canyon Road remain unchanged. Adjacent to the site, first response is improved from 15 to 30 minutes to within 15 minutes. Two proposed helipads will provide a re-fueling site for aerial fire apparatus dispatched to fires in the southern portion of Lake County. The new emergency access and evacuation route to Grange Road provides a more direct path for firefighters from the Hidden Valley fire station to access the project and conversely for firefighters from the new Emergency Response Center to access the Hidden Valley Lake community than Butts Canyon Road and SR 29.

The above information from the *Wildfire Risk Analysis* provides a quantitative assessment of reduced emergency response times to the project site and surrounding areas, compared to existing conditions, with the addition of a new Emergency Response Center and improved road network and surfacing, "design features" for phase 1 of the project. This information supplements the Assessment of Emergency Access to the Guenoc Valley Site provided on pages 49 and 50 of the DPREIR that concludes that impacts related to emergency vehicles accessing the Guenoc Valley Site are less than significant.

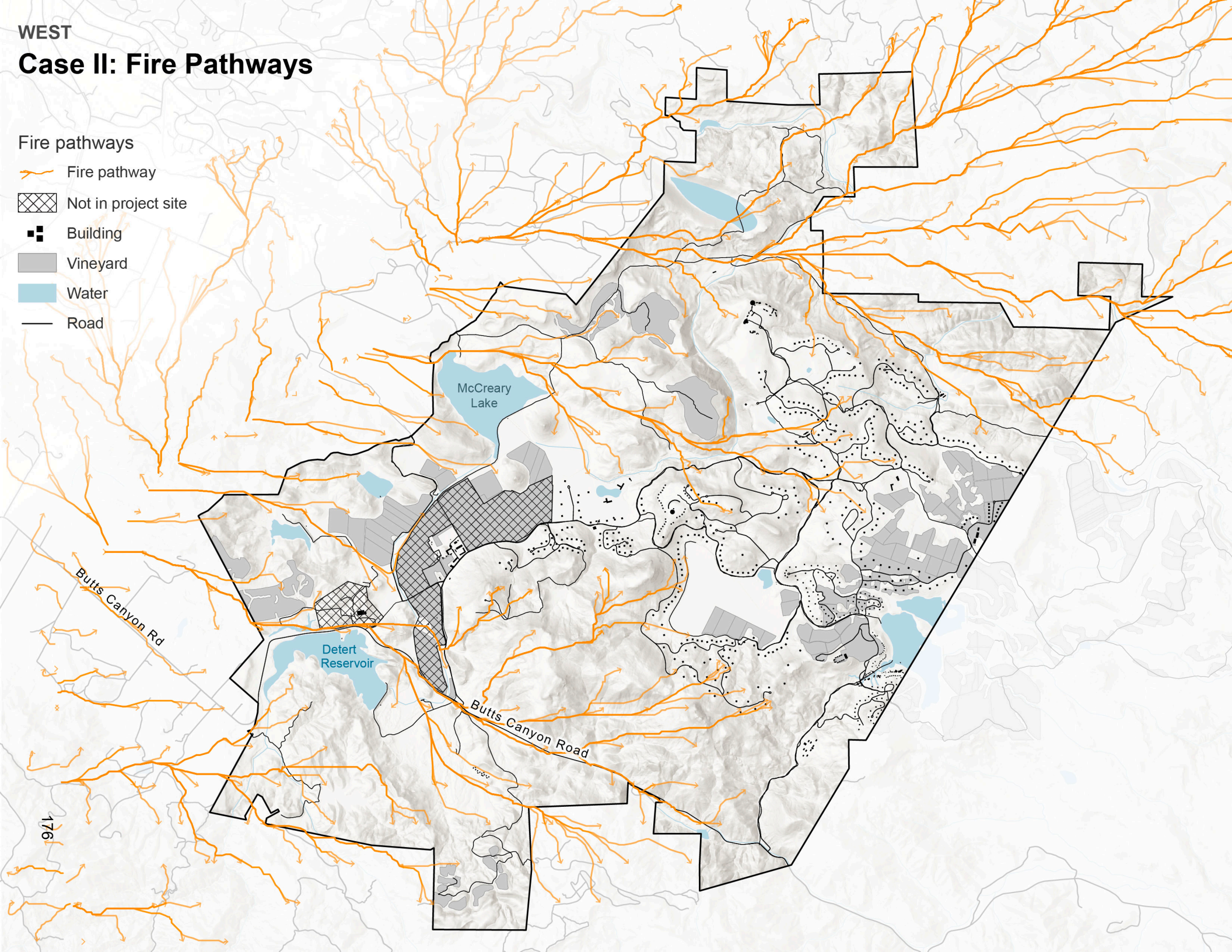
EAST

Case II: Fire Pathways



WEST

Case II: Fire Pathways



Appendix I-1

Biological Resources Assessment

Project Modifications Biological Resources Assessment

Guenoc Valley Mixed Use Planned Development Project

Lake County, California









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March 2024

WRA#27162

Contents

1.0 INTRODUCTION 1
1.1 Overview and Purpose 2
1.2 Modified APE Description 2
1.3 Summary of Results 3
2.0 REGULATORY BACKGROUND 7
2.1 Federal and State Regulatory Setting 7
2.1.1 Vegetation and Aquatic Communities 7
2.1.2 Special-status Species 8
2.2 Local Plans and Policies 10
3.0 ASSESSMENT METHODOLOGY 11
3.1 Vegetation Communities and Other Land Cover Types 12
3.2 Special-status Species 13
3.2.1 General Assessment 13
3.2.2 Special-status Plants 14
3.2.3 Special-status Wildlife 14
3.3 Wildlife Corridors and Native Wildlife Nursery Sites 14
3.4 Fire Impacts 15
4.0 ECOLOGICAL SETTING 15
4.1 Soils and Topography 15
4.2 Climate and Hydrology 15
4.3 Land Use 16
5.0 ASSESSMENT RESULTS 16
5.1 Vegetation Communities and Other Land Cover 16
5.1.1 Terrestrial Land Cover 19
5.1.2 Aquatic Resources 19
5.2 Special-status Species 20
5.2.1 Special-status Plants 20
5.2.2 Special-status Wildlife 27
5.3 Wildlife Corridors and Native Wildlife Nursery Sites 40
6.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA 42
7.0 IMPACTS AND MITIGATION EVALUATION 43
7.1 General Avoidance Measures 43
7.2 Special-status Species 45
7.2.1 Special-Status Plant Species 46

7.2.2 Special-status Wildlife Species 47
7.3 Sensitive Natural Communities and Land Cover Types 55
7.4 Aquatic Resources 59
7.5 Wildlife Corridors and Native Wildlife Nursery Sites 61
7.6 Local Policies and Ordinances 63
7.7 Habitat Conservation Plans 63
8.0 REFERENCES 65

List of Tables

Table 1. Acreage Summary of Survey and APE Areas 1
Table 2: Summary of Biological Resources Evaluation 5
Table 3: Vegetation Communities and Other Land Cover Types 17
Table 4: Potential Special-status Plants Not Observed 22
Table 5. Potential Special-Status Wildlife 28
Table 6. Special-Status Species to be Included In Environmental Awareness Training 44

List of Appendices

APPENDIX A. FIGURES 70
APPENDIX B. SPECIES OBSERVED IN AND AROUND THE MODIFIED APE 72
APPENDIX C. SPECIAL-STATUS SPECIES POTENTIAL TABLE 74
APPENDIX D. 2024 DATABASE RESULTS 76

Definitions

2020 Phase 1 Study Area: The approximately 4,977-acre area analyzed in the February 2020 Biological Resources Assessment prepared by WRA for Phase 1 of the Guenoc Valley Mixed Use Planned Development Project and in the 2020 Final Environmental Impact Report's analysis of impacts of Phase 1 of the Guenoc Valley Mixed Use Development Project. Note that more area was studied in the 2020 BRA than the 2020 Area of Potential Effects (APE)

2020 Project: The Guenoc Valley Mixed Use Planned Development Project as defined in the 2020 FEIR and analyzed in the 2020 Biological Resources Assessments prepared by WRA for the Guenoc Valley Mixed Use Planned Development Project. The 2020 Project APE was 2,958 acres.

Modified Area of Potential Effects (Modified APE): The approximately 2,453-acre area of the Guenoc Valley Mixed Use Planned Development Project after inclusion of the Project Modifications. This Biological Resources Assessment assesses the Modified APE, with particular focus on the 333 acres that are located outside of the 2020 APE.

Project Modifications: The project Applicant has modified the project to include the following:

- A new proposed emergency route called the Grange Road Connector that will connect the Guenoc Valley Site with the County-maintained Grange Road to the north. The Grange Road Connector will be approximately 3.9 miles, with 2.2 miles occurring on the Guenoc Valley Site and 1.7 miles sited on the off-site property to the north;

In addition, the following modifications to the 2020 Project have been incorporated pursuant to a 2022 settlement agreement between the State of California and the project applicant:

- Relocating 25 residential building sites that the 2020 Project would have located on a hilltop near the proposed Equestrian Center and 39 residential building sites that the 2020 Project would have located within the northeastern portion of the Project site such that they would be located further from the wildland/urban interface;
- Reconfiguring the roadway plan so that there are no dead-end, non-looped road segments that exceed 1-mile in length;
- Improving an area of approximately 10 feet on each side of roadways with hardscape, to the extent topography permits.
- Removal of the camping area in the northern portion of the property
- Funding and staffing commitments for the onsite Emergency Response Center; and
- Various renewable energy commitments and greenhouse gas reduction measures that will not change the development footprint.

List of Preparers

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Brian Freiermuth	Associate Wildlife Biologist
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Michael Rochelle	GIS Analyst

List of Acronyms

APN	Accessor's Parcel Number
BCC	USFWS Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BRA	Biological Resources Assessment
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	Lake County
Corps	U.S. Army Corps of Engineers
CSRL	California Soils Resource Lab
CWA	Clean Water Act
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
Inventory	California Native Plant Society Rare Plant Inventory
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation & Management Act
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measure
NETR	National Environmental Title Research
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NPPA	California Native Plant Protection Act
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary High Water Mark
Rank	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SC	State Candidate
SFEI	San Francisco Estuary Institute
SSC	Species of Special Concern
SSI	Special-status Invertebrates
SWRCB	State Water Resource Control Board
TOB	Top of Bank
USC	U.S. Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

This Biological Resources Assessment evaluates existing biological resources, potential impacts, and mitigation measures for the Project Modifications, which modify the project analyzed in the 2020 Final EIR (AES 2020) for the Guenoc Valley Mixed Use Planned Development Project (the 2020 Project) and the 2020 WRA Biological Resources Assessment for Phase 1 of the Guenoc Valley Planned Use Development Project (the 2020 BRA). The 2020 Project and the Project Modifications are located in Lake County, California (Appendix A – Figure 1). WRA previously conducted biological resource assessments across 4,977 acres for the Phase 1 portion of the original Project; the results are provided in the 2020 BRA. The 2020 APE encompassed 2,958 acres of those 4,977 acres. The Project Modifications result in a current Area of Potential Effects (APE) that is 2,453 acres, approximately 505 acres less than the 2020 Project APE. While the APE has decreased in size, approximately 333 acres of APE is proposed within areas that are located outside of the 2020 APE analyzed in the Final EIR. WRA has conducted biological resource assessments across the Guenoc Valley site since 2020 to provide updated botanical surveys and field assessments of areas that were assessed at a programmatic level within the 2020 Final EIR that are now subject to project-level review, as well as a portion of a newly-proposed emergency access route that has not been subject to previous environmental review. Approximately 55 acres of the Modified APE are desktop assessed and no field work has been conducted in those areas. These areas were outside the 2020 APE and the 2020 Phase 1 Study Area and not included in field assessment between 2020 and 2023.

The Project Modifications are modifications to the 2020 Project in the 2020 APE within the 2020 Phase 1 Study Area assessed in the 2020 BRA; as such, this report is a supplement to the 2020 BRA and the 2020 Final EIR. Table 1 below summarizes survey areas and APE areas.

Table 1. Acreage Summary of Survey and APE Areas

2020 BRA Phase 1 Study Area	2020 APE	Modified APE	Modified APE within 2020 APE	Modified APE outside 2020 APE	Modified APE Desktop Assessed
4,977	2,958	2,453	2,120	333	55

The Project Modifications encompass specific changes aimed at enhancing the wildfire risk reduction measures for the 2020 Project outlined in the 2020 BRA and the 2020 Final EIR. The project Applicant has modified the project to include the following:

- A new proposed emergency route called the Grange Road Connector will connect the Guenoc Valley Site with the County-maintained Grange Road to the north. The Grange Road Connector will be approximately 3.9 miles, with 2.2 miles occurring on the Guenoc Valley Site and 1.7 miles sited on the off-site property to the north;

In addition, the following alterations are in accordance with a settlement agreement reached in 2022 between the State of California and the project applicant.

- Relocating 25 residential building sites that the 2020 Project would have located on a hilltop near the proposed Equestrian Center and 39 residential building sites that the 2020 Project would have located within the northeastern portion of the Project site such that they would be located further from the wildland/urban interface;

- Reconfiguring the roadway plan so that there are no dead-end, non-looped road segments that exceed 1-mile in length;
- Improving an area of approximately 10 feet on each side of roadways with hardscape, to the extent topography permits;
- Removal of the camping area in the northern portion of the property;
- Funding and staffing commitments for the onsite Emergency Response Center; and
- Various renewable energy commitments and greenhouse gas reduction measures that will not change the development footprint.

1.1 Overview and Purpose

This report provides an assessment of biological resources within the Modified APE, focusing on the 333 acres of the Modified APE that were not previously analyzed in the 2020 BRA and 2020 EIR. Approximately 2,216 acres of the 2,453 Modified APE is included in the 2020 Phase 1 Study Area and 236 acres is outside the 2020 Phase 1 Study Area. Due to location of Modified APE in relation to the 2020 APE, 333 acres were not assessed at a project-level in the 2020 EIR; however, portions of these 333 acres were assessed in the 2020 BRA. A complete assessment of biological resources within the original 2020 APE can be found in the 2020 BRA. The purpose of this assessment was to develop and gather information on sensitive land cover types and special-status plant and wildlife species to support an evaluation of the Project Modifications under the California Environmental Quality Act (CEQA). This report describes the results of 2017 through 2023 site visits, which assessed the Modified APE[1] for (1) the presence of sensitive land cover types, special-status plant species, and special-status wildlife species, and (2) the potential to support special-status plant and wildlife species and highlights any new findings not previously observed in the 2020 BRA. This report also reports changes to biological resources in the APE since 2020 due to the 2020 LNU Lightning Complex Fire. Based on the results of the site assessments, potential impacts to sensitive land cover types and special-status species resulting from the Project Modifications were evaluated. If the Project Modifications have the potential to result in significant impacts to these biological resources, measures to avoid, minimize, or mitigate those significant impacts are identified and described.

A biological resources assessment provides general information on the presence, or potential presence, of sensitive species and habitats. Additional focused studies (such as protocol level species surveys or a wetland delineation) may be required to support regulatory permit applications or to implement mitigation measures included in this report. This assessment is based on information available at the time of the study and on-site conditions that were observed on the dates the site was visited. Conclusions are based on currently available information used in combination with the professional judgement of the biologists completing this study.

1.2 Modified APE Description

The Proposed Project is the Guenoc Valley Mixed Use Planned Development Project and includes the development of a master planned mixed-use resort and residential community within a portion of the Guenoc Valley Ranch property. The Project Modifications revise the 2020 Project

[1] Areas not assessed as follows are identified in Section 1.0 above.

analyzed in the 2020 BRA and 2020 Final EIR such that 25 building sites within the Equestrian Center area and 39 building sites within the northeastern portion of the project site would be relocated further from the wildland/urban interface, and various connector roads and road buffers would be added. The Project Modifications include voluntary measures (e.g., the Grange Road Connector) and some contained within a settlement agreement with the State of California, and which are intended to further reduce the wildfire risks associated with the Guenoc Valley Mixed Use Planned Development Project. Project modifications that change the proposed development footprint include: moving 64 residential building sites further from the wildland/urban interface; reconfiguring the roadway plan and adding 'Connector Roads' where necessary so that there are no dead-end, non-looped road segments that exceed 1-mile in length; a new proposed emergency route called the Grange Road Connector; removal of the camping area in the northern portion of the property; and improving an area of approximately 10 feet on each side of roadways with hardscape, to the extent topography permits. Additional Project Modifications such as funding commitments for the proposed onsite emergency center and renewable energy commitments will not change the APE or development footprint or otherwise impact biological resources. The Modified APE is 2,453 acres, of which 333 acres are located outside of the APE analyzed in the 2020 EIR.

1.3 Summary of Results

Eight sensitive terrestrial land communities and 12 aquatic resource types occur in the Modified APE. The same land cover types occur in the 333 acres of the Modified APE and each community and aquatic resource observed in the Modified APE was also observed and discussed under the 2020 BRA; however, some areas of the previously mapped land cover Rock Outcrop now meet the criteria of a new CDFW natural community that is considered sensitive. Development of the Project Modifications is intentionally sited to avoid these sensitive cover types to the greatest extent feasible. Mitigation measures are provided herein to minimize or avoid impacts to sensitive land cover types. The mitigation measures in this report for sensitive land cover types are the same mitigation measures provided in the 2020 Final EIR, with minor updates to reflect the updated regulatory and classification status of a previously-identified habitat type. No new measures are necessary or, therefore, included.

Protocol-level rare plant surveys in the Modified APE conducted during April, May, June, and/or August in 2017 through 2023 resulted in the detection eight CNPS Rank 1B plants, including one state-listed plant, and one federal-listed plant (Appendix B). Similar surveys in the 333 acres resulted in detection of the same eight special-status plants. No additional state- or federal-listed plant species have been observed since 2020 assessment. One additional CNPS Rank 1 plant has been observed since 2020, Porter's navarretia (*Navarretia paradoxinota*). Mitigation measures are provided herein to minimize impacts to special-status plants. The mitigation measures in this report for special-status plants are the same mitigation measures provided in the 2020 Final EIR. No new measures are warranted.

Eight special-status bats, 23 special-status birds, two special-status mammals, one special-status invertebrate, one special-status reptile, and one special-status amphibian, as well as non-status birds with baseline legal protections, have the potential to occur in the Modified APE. No additional special-status species have been observed. One new species has the potential to occur within the Modified APE: Monarch butterfly, which was identified as a Candidate for listing under the Federal Endangered Species Act following publication of the 2020 Final EIR. Although this species was newly identified as having the potential to occur within the Modified APE, no

significant impacts to this species was identified, and no additional mitigation measures are therefore identified. Mitigation measures and best management practices have been developed and provided herein to minimize or avoid impacts to sensitive biological resources that may be significantly impacted by the Proposed Project. The mitigation measures in this report for special-status wildlife are the same mitigation measures provided in the 2020 Final EIR, with minor updates to reflect changed regulatory status of previously analyzed species. No new measures are warranted.

Approximately 55 acres of the Modified APE are desktop assessed. Land cover for these areas were mapped using field assessed land covers immediately adjacent to these areas, topography data, and aerial imagery. No field-based special-status plant or wildlife assessments/surveys have been conducted in these areas. However, habitats in these areas are presumed to be similar in type and quality as other field assessed habitat and are unlikely to support any new/previously undocumented species of special-status plants or wildlife; these areas however may support new populations of previously observed special-status plants. Previously identified mitigation measures from the 2020 BRA and the 2023 Final EIR will be imposed, as applicable, and no new mitigation measures are needed.

Table 2: Summary of Biological Resources Evaluation

CEQA Assessment Category[2] IV – Biological Resources	Biological Resources Considered	Relevant Laws & Regulations	Responsible Regulatory Agency	Summary of Findings & Report Section[3]
Question A. **Special-status Species**	Special-status Plants Special-status Wildlife Designated Critical Habitat	Federal Endangered Species Act CA Endangered Species Act CA Native Plant Protection Act Migratory Bird Treaty Act Bald & Golden Eagle Protection Act	U.S. Fish & Wildlife Service National Marine Fisheries Service CA Department of Fish & Wildlife	Potentially significant impacts were identified, and mitigation measures are included that reduce those impacts to a level that is less than significant. **See Section 7.2 for more information.**
Question B. **Sensitive natural communities & riparian habitat**	Sensitive Natural Communities Streams, Lakes & Riparian Habitat	CA Fish & Game Code Oak Woodland Conservation Act Porter-Cologne Act Clean Water Act	CA Department of Fish & Wildlife U.S. Army Corps of Engineers U.S. Environmental Protection Agency State Water Resources Control Board Regional Water Quality Control Board	Potentially significant impacts were identified, and mitigation measures are included that reduce those impacts to a level that is less than significant. **See Section 7.3 for more information.**
Question C. **State and federally protected wetlands**	Wetlands Unvegetated surface waters	Clean Water Act: Sections 404/401 Rivers & Harbors Act: Section 10 Porter-Cologne Act	U.S. Army Corps of Engineers U.S. Environmental Protection Agency State Water Resources Control Board Regional Water Quality Control Board	Potentially significant impacts were identified, and mitigation measures are included that reduce those impacts to a level that is less than significant. **See Section 7.4 for more information**

[2] *CEQA Questions have been summarized here, see Section 7.0 for details.*
[3] *As given in this report, see Section 7.0 subheadings.*

Table 2: Summary of Biological Resources Evaluation

CEQA Assessment Category[2] IV – Biological Resources	Biological Resources Considered	Relevant Laws & Regulations	Responsible Regulatory Agency	Summary of Findings & Report Section[3]
Question D. **Fish & Wildlife corridors**	Essential Fish Habitat Wildlife Corridors	CA Fish & Game Code Magnuson-Stevens Fishery Conservation & Management Act	CA Department of Fish and Wildlife National Marine Fisheries Service	Potentially significant impacts were not identified, and mitigation measures are deemed unnecessary. **See Section 7.5 for more information**
Question E. **Local policies**	Protected Trees Coastal zone resources Other biological protections	Local Tree Ordinance General Plan (e.g., Stream & Wetland Setbacks) Local ordinances	Local and regional agencies CA Coastal Commission San Francisco Bay Conservation and Development Commission	Potentially significant impacts were identified, and mitigation measures are included that reduce those impacts to a level that is less than significant. **See Section 7.6 for more information**
Question F. **Local, state, federal conservation plans**	Habitat Conservation Plans Natural Community Conservation Plans	Federal Endangered Species Act Natural Community Conservation Planning Act	U.S. Fish and Wildlife Service CA Department of Fish and Wildlife	Potentially significant impacts were not identified, and mitigation measures are deemed unnecessary. **See Section 7.7 for more information**

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological resources assessment, including applicable laws and regulations that were applied to field investigations and analysis of potential new or increased impacts from the Project Modifications. Table 2 shows the correlation between these regulations and each Biological Resources question in the Environmental Checklist Form (Appendix G) of the CEQA guidelines.

2.1 Federal and State Regulatory Setting

2.1.1 Vegetation and Aquatic Communities

CEQA provides protections for certain vegetation types defined as sensitive by the California Department of Fish and Wildlife (CDFW) and aquatic features protected by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that provide protection for these resources are summarized below.

Sensitive Natural Communities: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFW 2023) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2024a). Natural communities are ranked 1 through 5 in the CNDDB based on NatureServe's (2024) methodology, with those communities ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW, or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (California Code of Regulations [CCR] Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act and Section 21083.4 of California Public Resources Code (CPRC).

Waters of the United States, Including Wetlands: The Corps regulates “Waters of the United States” under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, such as tributaries, lakes and ponds, impoundments of waters of the U.S., and wetlands that are hydrologically connected with these navigable features (33 CFR 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high-water mark (OHWM) identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

The Corps also regulates construction in navigable waterways of the U.S. through Section 10 of the Rivers and Harbors Act (RHA) of 1899 (33 U.S. Code [USC] 403). Section 10 of the RHA requires Corps approval and a permit for excavation or fill, or alteration or modification of the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States. Section 10 requirements apply only to navigable waters themselves, and are not applicable to tributaries, adjacent wetlands, and similar aquatic features not capable of supporting interstate commerce.

Waters of the State, Including Wetlands: The term "Waters of the State" is defined by the Porter-Cologne Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." The SWRCB and nine RWQCBs protect waters within this broad regulatory scope through many different regulatory programs. Waters of the State in the context of a CEQA Biological Resources evaluation include wetlands and other surface waters protected by the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (SWRCB 2019). The SWRCB and RWQCB issue permits for the discharge of fill material into surface waters through the State Water Quality Certification Program, which fulfills requirements of Section 401 of the CWA and the Porter-Cologne Water Quality Control Act. Projects that require a Clean Water Act permit are also required to obtain a Water Quality Certification. If a project does not require a federal permit but does involve discharge of dredge or fill material into surface waters of the State, the SWRCB and RWQCB may issue a permit in the form of Waste Discharge Requirements.

Sections 1600-1616 of California Fish and Game Code: Streams and lakes, as habitat for fish and wildlife species, are regulated by CDFW under Sections 1600-1616 of California Fish and Game Code (CFGC). Alterations to or work within or adjacent to streambeds or lakes generally require a 1602 Lake and Streambed Alteration Agreement. The term "stream," which includes creeks and rivers, is defined in the CCR as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 CCR 1.72). The term "stream" can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as "vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself" (CDFG 1994). Removal of riparian vegetation also requires a Section 1602 Lake and Streambed Alteration Agreement from CDFW.

2.1.2 Special-status Species

Endangered and Threatened Plants, Fish, and Wildlife. Specific species of plants, fish, and wildlife species may be designated as threatened or endangered by the federal Endangered Species Act (ESA), or the California Endangered Species Act (CESA). Specific protections and permitting mechanisms for these species differ under each of these acts, and a species' designation under one law does not automatically provide protection under the other.

The ESA (16 USC 1531 et seq.) is implemented by the USFWS and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of endangered and threatened plant and

animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. “Take” under the ESA is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Take under the ESA includes direct injury or mortality to individuals, disruptions in normal behavioral patterns resulting from factors such as noise and visual disturbance and impacts to habitat for listed species. Actions that may result in take of an ESA-listed species may obtain a permit under ESA Section 10, or via the interagency consultation described in ESA Section 7. Federally listed plant species are only protected when take occurs on federal land.

The ESA also provides for designation of critical habitat, which are specific geographic areas containing physical or biological features “essential to the conservation of the species.” Protections afforded to designated critical habitat apply only to actions that are funded, permitted, or carried out by federal agencies. Critical habitat designations do not affect activities by private landowners if there is no other federal agency involvement.

The CESA (CFGC 2050 et seq.) prohibits the take of any plant and animal species that the CFGC determines to be an endangered or threatened species in California. CESA regulations include take protection for threatened and endangered plants on private lands, as well as extending this protection to candidate species that are proposed for listing as threatened or endangered under CESA. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

Fully Protected Species and Designated Rare Plant Species. This category includes specific plant and wildlife species that are designated in the CFGC as protected even if not listed under CESA or ESA. Fully Protected Species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in CFGC. Fully protected species may not be taken or possessed at any time. No licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA. By law, CDFW may not issue an Incidental Take Permit for Fully Protected Species. Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 “rare” or “endangered” plant species, and prevents “take”, with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

Special Protections for Nesting Birds and Bats. The federal Bald and Golden Eagle Protection Act provides relatively broad protections to both of North America’s eagle species [bald eagle (*Haliaeetus leucocephalus*) and golden eagle (*Aquila chrysaetos*)] that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the intentional harm or collection of adult birds as well as the

intentional collection or destruction of active nests, eggs, and young is illegal. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given consideration under CEQA.

Essential Fish Habitat. The Magnuson-Stevens Fishery Conservation and Management Act provides for conservation and management of fishery resources in the U.S., administered by NMFS. This Act establishes a national program intended to prevent overfishing, rebuild overfished stocks, ensure conservation, and facilitate long-term protection through the establishment of Essential Fish Habitat (EFH). EFH consists of aquatic areas that contain habitat essential to the long-term survival and health of fisheries, which may include the water column, certain bottom types, vegetation (e.g., eelgrass (*Zostera* spp.)), or complex structures such as oyster beds. Any federal agency that authorizes, funds, or undertakes action that may adversely affect EFH is required to consult with NMFS.

Species of Special Concern, Movement Corridors, and Other Special-status Species under CEQA. To address additional species protections afforded under CEQA, CDFW has developed a list of special species as "a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status." This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Not all species identified on the list are considered Species of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare Plant Inventory (Inventory; CNPS 2024a) with California Rare Plant Ranks (Rank) of 1 and 2, as well as some with a Rank of 3 or 4, are also considered special-status plant species and must be considered under CEQA. Some Rank 3 and Rank 4 species are typically only afforded protection under CEQA when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Movement and migratory corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are given special consideration under CEQA.

2.2 Local Plans and Policies

Lake County General Plan. The Lake County General Plan contains policies pertaining to sensitive biological resources, including species, habitat, riparian corridors, and wetlands.

Lake County Code Section 30-21.1 Standard Grading. Standard grading criteria requires grading does not result in the clearing of oak trees to the extent that the clearing may have a significant effect on oak woodlands as defined in Section 21083.4 of the Public Resources Code.

Lake County Zoning Ordinance. Article 37 of the Lake County Zoning Ordinance identifies a "Waterway Combining District" zoning designation that applies to all perennial and intermittent streams, including adjacent wetlands and riparian vegetation. The County defines a protected riparian zone as an area extending:

- 30 feet from the top of bank any perennial stream,
- 20 feet from the top of bank of any intermittent stream,
- 20 feet from the edge of any adjacent wetlands or the ordinary high-water mark of other bodies of water, or

- To the outer extent of vegetation dominated by common riparian species such as Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), box elder (*Acer negundo*), dogwood (*Cornus* spp.), willow (*Salix* spp.), and big leaf maple (*Acer macrophyllum*) (this latter zone may extend beyond 30 feet).

The County restricts development and other activities within the riparian zone defined above, with a number of exemptions for agriculture, management, and other resource-dependent activities as outlined in Sections 37.5 and 37.6 of the zoning ordinance.[4]

3.0 ASSESSMENT METHODOLOGY

Approximately 2,216 acres of the Modified APE were surveyed between 2017 and 2019. An additional 181 acres have been surveyed between 2020 and 2023. On various dates from 2017 through 2023, WRA, Inc. (WRA) biologists visited the Modified APE to: map vegetation, aquatic features, and other land cover types; document plant and wildlife species present; and evaluate on-site habitat for the potential to support special-status species, wildlife corridors, and nursery sites as defined by CEQA. As noted in Section 1.0 above, this report is a supplement to the 2020 BRA; for a complete list of surveys conducted by WRA on the site between 2017 and 2019, refer to the 2020 BRA and 2020 EIR. Prior to the site visit, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive land cover types and special-status species, including:

- Soil Survey of Lake County, California (USDA 1989)
- Middletown and Detert Reservoir 7.5-minute U.S. Geological Survey (USGS) quadrangles (USGS 2022)
- Contemporary aerial photographs (Google Earth 1985-2024)
- Historical aerial photographs (NETR 2024)
- National Wetlands Inventory (USFWS 2024a)
- California Aquatic Resources Inventory (SFEI 2024)
- California Natural Diversity Database (CNDDB) (CDFW 2024a)
- Biogeographic Information and Observation System (BIOS) (CDFW 2024b)
- CNPS Inventory (CNPS 2024a)
- Consortium of California Herbaria (CCH1 2024, CCH2 2024)
- USFWS Information for Planning and Consultation (USFWS 2024b)
- eBird Online Database (Cornell Lab of Ornithology 2024)
- California Bird Species of Special Concern in California (Shuford and Gardali 2008)

[4] Section 30-9 of the County Municipal Code provides different watercourse setbacks based on stream class and erosion hazard ratings. Based on conversations with the Lake County Planning Department, WRA believes that the watercourse setbacks provided in Article 37 of the Zoning Ordinance take precedence.

- California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, Online Edition (CNPS 2024b)
- California Natural Community List (CDFW 2023)
- Updated database searches (i.e., CNDDB, CNPS) for special-status species focused on the Aetna Springs, Calistoga, Chiles Valley, Clearlake Highlands, Detert Reservoir, Glascock Mountain, Jericho Valley, Knoxville, Lower Lake, Mark West Springs, Middletown, Mount Saint Helena, Saint Helena, Walter Springs, Whispering Pines, and Wilson Valley USGS 7.5-minute quadrangles.

Following the remote assessment, WRA biologists completed a field review over the course of many days from 2017 to 2023 to document: (1) land cover types (e.g., vegetation communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic land cover types (e.g., wetlands) are present, (4) if special-status species are present[5], (5) suitable habitat for wildlife corridors and nursery sites.

3.1 Vegetation Communities and Other Land Cover Types

During the site visits, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic communities, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys. In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation) and follow the California Natural Community List (CDFW 2023) and A Manual of California Vegetation, Online Edition (CNPS 2024b). These resources cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, WRA biologists described vegetative communities as observed using similar classification nomenclatures as CDFW when a vegetative community did not fit within a described natural community. When undescribed variants are used, it is noted in the description and the closest natural community analog was referred to in order to determine sensitivity of the habitat. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled [S1/G1], imperiled [S2/G2], or vulnerable [S3/G3]) (CDFW 2023), were evaluated as sensitive as part of this evaluation.

The site was reviewed for the presence of wetlands and other aquatic resources according to the methods described in the Corps Manual (Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* (Corps 2008), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification

[5] Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 5.2 for further discussion regarding if the site assessment would constitute a formal or protocol-level species survey.

methods described above. Aquatic communities which are mapped in the NMFS EFH Mapper (NMFS 2024) or otherwise meet criteria for designation as EFH are indicated as such in the community description below in Section 5.1. The presence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994) and based on best professional judgement of biologists completing the field surveys.

Approximately 55 acres of the Modified APE were analyzed via desktop. These areas are immediately adjacent to field surveyed areas and therefore the data and familiarity from those areas along with topography and aerial imagery was used to map aquatics and land cover types. These areas, as with the totality of impact areas, will be field verified prior to land disturbance.

3.2 Special-status Species

3.2.1 General Assessment

The potential for special-status species to occur within the Modified APE was evaluated by first determining which special-status species occur in the vicinity of the Modified APE through a literature and database review as described above. The presence of suitable habitat for special-status species was evaluated based on physical and biological conditions of the site as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Modified APE was then determined according to the following criteria:

- **No Potential.** Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).
- **Unlikely.** Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.
- **Moderate Potential.** Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
- **High Potential.** All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
- **Present.** Species is observed on the site or has been recorded (i.e., CNDDB, other reports) on the site in the recent past.

If a special-status species was observed during the site visit, its presence was recorded and discussed below in Section 5.2. If designated critical habitat is present for a species, the extent of critical habitat present and an evaluation of critical habitat elements is provided as part of the species discussions below.

Approximately 55 acres of the Modified APE are desktop assessed and have had no field-based survey for special-status plants or special-status wildlife. These areas are immediately adjacent

to field assessed areas and conditions are presumed to contain similar habitats and potential special-status species are presumed to be similar. These areas will be field assessed prior to land disturbance and species will be documented.

3.2.2 Special-status Plants

Protocol-level surveys for special-status plants were conducted within the Modified APE on various dates in April, May, June and/or August 2017 through 2023. The surveys were performed in accordance with those methodologies described by resource experts and agencies (CNPS 2001, CDFW 2018). The culmination of all these surveys included the entire Modified APE[6] which was traversed on foot and surveyed for special-status plant species. The assessment was conducted by botanists familiar with the flora of Lake County and surrounding counties.

During the surveys, the Modified APE was traversed on foot using intuitively guided, meandering transects and all plant species observed were documented. Locations of observed special-status plant species were recorded using a combination of Trimble Geo XH GPS units with sub-meter accuracy and hand-drawn locations on field maps that contained recent and high-resolution (0.3- to 0.6-meter ground resolution) aerial photographs overlain with 10-foot contours. Hand-drawn locations were digitized in the office using ArcGIS software.

3.2.3 Special-status Wildlife

A general assessment for special-status wildlife species was conducted within the Modified APE on various dates in 2017 through 2023. Habitats within the Modified APE were assessed for their potential to support special-status wildlife species. Suitable habitats were assessed and surveyed for special-status wildlife presence. No protocol-level field studies have been conducted since 2020; see the 2020 BRA for protocol-level wildlife surveys conducted prior to 2020. An observed wildlife species list was not conducted since 2020; see the 2020 BRA for an observed wildlife species list during assessments prior to 2020.

3.3 Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), the Mayacamas to Berryessa (M2B) Study, and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (CDFW 2024b). Additionally, aerial imagery (Google Earth 2024) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Modified APE. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visit and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping

[6] Excluding the 55 acres that were desktop assessed only.

sites, and colonial roosting sites for other species (such as for monarch butterfly [*Danaus plexippus*]).

3.4 Fire Impacts

To assess biological resources that were impacted by the 2020 LNU Lightning Complex Fire, the CalFire final incident boundary was overlain on the Modified APE. Land cover types and special-status species populations within the fire boundary were identified.

4.0 ECOLOGICAL SETTING

The following sections describes the ecological setting of the Modified APE, with a focus on any new conditions not observed in the 2020 Phase 1 Study Area. For a complete description of the ecological setting of the 2020 APE, refer to the 2020 BRA and 2020 EIR. Additional details of the local setting are below.

4.1 Soils and Topography

The overall topography of the Modified APE has various terrain and includes all slope aspects. Elevations range from approximately 950 to 1005 feet above sea level. Topography remains similar to topography in the original 2020 APE.

According to the *Soil Survey of Lake County* (USDA 1989), the Modified APE is underlain by 16 soil mapping units comprised of 16 parent soil series: *Benridge variant loam, 2 to 15 percent slope*; *Sobrante-Hambright-Guenoc Complex, 30 to 50 percent slope; Henneke-Montara-Rock outcrop complex, 15 to 50 percent slope; Sobrante-Guenoc-Hambright complex, 2 to 15 percent slope; Kelsey fine sandy loam; Perkins gravelly loam, 5 to 9 percent slope; Benridge variant loam, 2 to 15 percent slope; Sobrante-Guenoc-Hambright complex 15 to 30 percent slope; Maxwell clay loam, 0 to 2 percent slope; Still loam, stratified substratum; Maxwell clay loam, 0 to 2 percent slope; Maxwell clay loam, 2 to 8 percent slopes; Riverwash; Millsholm-Bressa loams, 30 to 50 percent slope; Bressa-Millsholm loams, 15 to 30 percent slope; and Yorkville variant clay loam 2 to 8 percent slopes*. Soils within the Modified APE are shown in Appendix A – Figure 3. Each of these mapping units were previously observed and documented in the 2020 BRA and also observed in the 333 acres outside the 2020 APE.

4.2 Climate and Hydrology

The Modified APE experiences a Mediterranean climate, with cool, wet winters and hot, dry summers. Average annual rainfall is approximately 43 inches, as measured at the Natural Resources Conservation Service (NRCS) weather station in Middletown, approximately 3.5 miles to the west of the site. The majority of rain falls between November and March. The average annual temperature is 51 degrees Fahrenheit, as measured at the NRCS weather station in Clear Lake, approximately 10 miles to the northwest of the property. The average summer temperature (June through August) is 71 degrees Fahrenheit; the average winter temperature (December through February) is 44 degrees. Nearly all precipitation falls as rain.

The Modified APE is located in the Upper Putah (HUC 8: 18020162) regional watershed and in the Bucksnort Creek (HUC 12: 180201620307), Crazy-Creek-Putah Creek (HUC 12:

180201620307), or Butts Creek-Putah Creek (HUC 12: 180201620308) local watershed. The National Wetland Inventory (NWI), California Aquatic Resources Inventory (CARI) and USGS 7.5-minute quadrangle maps depict several aquatic resources in the Modified APE (USFWS 2024; SFEI 2024; USGS 2020). Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land Use

The Modified APE is characterized by widespread serpentine and volcanic soils experiencing relatively low rainfall and hot, dry summers; the resulting vegetation is dominated by a mix of chaparral, foothill pine woodland, and blue oak woodland, with grasslands in valley bottoms and alluvial positions. The offsite land use on the Comstock Ranch is agricultural/livestock grazing fields and old ranch roads, with several viticultural production areas in the surrounding south. Developed areas include existing ranch roads and areas associated with existing residence and livestock facilities. As is the case with the Guenoc Valley Ranch property, many of the valley bottoms and alluvial positions throughout the region were historically converted for grazing lands, vineyards, or other agricultural uses. No significant differences in land use were observed in the Modified APE, as compared to the 2020 APE and as reported in the 2020 BRA. Much of the vegetation across the property burned during the Valley Fire of 2015 and/or the LNU Lightning Complex Fire of 2020, leaving many communities in an early seral stage of development, often with relict snags and downed woody debris giving evidence of the climax community that was present before the fire and may return over time. The 2020 fire occurred from August through October, following the approval of the FEIR in July 2020. Details of fire impacts are provided in Section 5.1.1 below.

5.0 ASSESSMENT RESULTS

The following sections describe the assessment results of the Modified APE with a focus on new conditions not reported in the 2020 BRA. Approximately 2,216 acres of the 2,453 acre Modified APE is included in the 2020 Phase 1 Study Area and surveyed between 2017 and 2019, while approximately 236 acres is outside the 2020 Phase 1 Study Area. Due to location of Modified APE in relation to the 2020 APE, 333 acres were not assessed in the 2020 EIR; however, portions of these 333 acres were assessed in the 2020 BRA. An additional 181 acres have been surveyed between 2020 and 2023. Approximately 55 acres of the Modified APE have not been field assessed; for these areas, desktop assessment for land cover types was conducted. For a complete description of the ecological setting of the 2020 APE, refer to the 2020 BRA and 2020 EIR.

5.1 Vegetation Communities and Other Land Cover

WRA observed 30 land cover types within the Modified APE, including 18 terrestrial types and 12 aquatic resource types. Of the 18 terrestrial land cover types, a total of 10 non-sensitive and eight sensitive terrestrial land cover types are mapped. Land cover mapping conducted in the 333 acres areas not included in the 2020 APE resulted in no new land cover types; all had been previously identified elsewhere in the 2020 Phase 1 Study Area in previous biological surveys and reported in the 2020 BRA. No new land cover types were observed in the Modified APE; however, some areas of the previously mapped land cover Rock Outcrop meet the criteria of a new CDFW natural community that is considered sensitive. See below for further discussion. For a complete

description of the terrestrial land cover types in the Modified APE, refer to the 2020 BRA and 2020 EIR.

Table 3 below summarizes and compares land cover types of Modified APE. The land cover types are illustrated in Appendix A on Figure 4 set (Land Cover), Figure 5 set (Aquatic Resources), and Figure 6 (Fire Impacts).

Table 3: Vegetation Communities and Other Land Cover Types

COVER TYPE	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN MODIFIED APE	ACRES IN 333 ACRES	ACRES OF MODIFIED APE DESKTOP ASSESSED
TERRESTRIAL / COMMUNITY LAND COVER					
Agriculture	Non-Sensitive	Not Applicable	309.71	36.30	0
California Yerba Santa Scrub	Non-Sensitive	G5 S5	6.02	0	0
Chamise Chaparral[7]	Non-Sensitive	G5 S5	242.46	9.41	8.56
Developed	Non-Sensitive	Not Applicable	69.95	11.89	0.22
Foothill Pine Woodland	Non-Sensitive	G4 S4	126.08	18.52	5.71
Leather Oak Chaparral[8]	Non-Sensitive	G4 S4	169.95	52.25	7.77
Non-native Annual Grasslands	Non-Sensitive	GNA SNA	438.27	77.13	3.11
Rock Outcrop	Non-Sensitive	Not Applicable	1.98	0.02	0
Scrub Oak Chaparral	Non-Sensitive	G4 S4	31.25	1.92	0
Whiteleaf Manzanita Chaparral[9]	Non-Sensitive	G4 S4	61.31	4.29	1.18
Blue Oak Woodland	Sensitive	G4 S4	481.33	57.83	12.54
Blue Oak Savannah	Sensitive	G4 S4	276.17	30.36	5.46
Interior Live Oak Woodland	Sensitive	G4 S4	170.44	15.71	10.64

[7] Although the chamise chaparral alliance is listed as secure at the global (G5) and state (S5) levels, there may be sensitive associations within the alliance present. This was also identified in the 2020 BRA.
[8] Although the leather oak chaparral alliance is listed as apparently secure at the global (G4) and state (S4) levels, there may be sensitive associations within the alliance present such as the leather oak – chamise/Sonoma sage association. This was also identified in the 2020 BRA.
[9] Although the whiteleaf manzanita chaparral alliance is listed as apparently secure at the global (G4) and state (S4) levels, there may be sensitive associations within the alliance present such as the whiteleaf manzanita – musk brush provisional association. This was also identified in the 2020 BRA.

COVER TYPE	SENSITIVE STATUS	RARITY RANKING	ACRES WITHIN MODIFIED APE	ACRES IN 333 ACRES	ACRES OF MODIFIED APE DESKTOP ASSESSED
Musk Brush Chaparral[10]	Sensitive	Y (G3 S3)	2.84	0.03	0
Purple Needlegrass Grassland[11]	Sensitive	G4G3 S4S3	5.69	0.43	0
Valley Oak Woodland	Sensitive	G3 S3	9.83	0.50	0
Brewer Willow Thicket	Sensitive	G3 S3	1.12	1.10	0
Serpentine Rock Outcrop	Sensitive	G3G2 S3S2	3.92	0.18	0
AQUATIC RESOURCES					
Ponds/Reservoirs	Sensitive	Not Applicable	9.32	0.22	0
Perennial Stream	Sensitive	Not Applicable	6.53	4.72	0.01
Intermittent Stream	Sensitive	Not Applicable	9.73	3.63	0
Ephemeral Stream	Sensitive	Not Applicable	21.05	4.06	0.67
Ephemeral Ditch	Sensitive	Not Applicable	0.78	0.40	0
Seasonal Wetland Depressions	Sensitive	Not Applicable	0.12	0.05	0
Seasonal Wetland Ditches	Sensitive	Not Applicable	0.38	0.21	0
Seasonal Wetland Pond Fringe	Sensitive	Not Applicable	1.06	0	0
Seasonal Wetland Seeps/Swales	Sensitive	Not Applicable	8.81	3.51	0.06
Seasonal Wetland Wet Meadow	Sensitive	Not Applicable	7.92	0.68	0
Stream Fringe/In-Stream Wetland	Sensitive	Not Applicable	4.12	1.69	0
Riparian Woodland	Sensitive	Not Applicable	9.71	2.38	0

[10] This community is not described by Holland (1986), CDFW (2023), or CNPS (2024b), but may be considered part of the leather oak – musk brush provisional association and is being treated as part of the leather oak – musk brush association which is considered sensitive by the CDFW. This was also identified in the 2020 BRA.

[11] Although the Nassella – Melica herbaceous alliance is listed as apparently secure at the global (G4) and state (S4) levels, purple needlegrass grasslands are considered a sensitive plant association by the CDFW (2023) and native grasslands are generally protected under CEQA; therefore, purple needlegrass grasslands are treated as sensitive. This was also identified in the 2020 BRA.

5.1.1 Terrestrial Land Cover

A total of 10 non-sensitive and eight sensitive terrestrial land cover types were observed within the Modified APE; the same land cover types were observed in the 2020 APE. No new terrestrial land cover types are present in the Modified APE than those observed in the 2020 Phase 1 Study Area and the 2020 APE. Quality of habitats observed is similar to those observed in the 2020 APE. The sensitivity ranking for each of the land cover types has not changed since the 2020 BRA, except for Brewer Willow Thicket and areas of rock outcrop that are serpentine.

The 2020 BRA reports the rank of Brewer Willow Thicket as G2 S2; however, the Brewer Willow Thicket community has since been lumped into the *Frangula californica-Rhododendron occidentale-Salix breweri* Shrubland Alliance as an association. The alliance is ranked G3 S3 which is considered sensitive. The association is considered provisional and remains a sensitive community. Therefore, rank and hierarchal placement have changed but the community remains a sensitive community, as reported and analyzed in the 2020 BRA.

A total of 3.92 acres of previously mapped Rock Outcrop are now considered sensitive as these areas are of serpentine rock with sparse vegetation cover that is dominated by serpentine indicator plant species. See below for a full description.

Serpentine Rock Outcrop (*Allium* spp.-*Streptanthus* spp.-*Hesperolinon* spp. Serpentinite Sparsely Vegetated Alliance). CDFW Rank: G3G2 G3S3. This natural community occurs on rocky serpentine slopes, ridges, and outcrops in the California Coast Range, Klamath Mountains, Sierra Nevada Range and foothills, and southern Cascades (CNPS 2024b). Vegetation cover is sparse. Where vegetation is present, plant species are characterized by serpentine indicator species. (CNPS 2024b). Within the Modified APE, three small areas of serpentine rock outcrop are present, including 333 acres outside the 2020 APE. Plant species present include sickle leaf onion (*Allium falcifolium*), golden buckwheat (*Eriogonum luteolum* var. *luteolum*), western flax (*Hesperolinon* spp.) and Sonoma lessingia (*Lessingia ramulosa*).

2020 FIRE AREA

Impacts caused by fire vary greatly, due to many factors. In the area surveyed since the fire, observations of burned habitat include a healthy re-sprout of native plants, minimal area of invasive species dominance, and use by native wildlife. As no comparison studies have been conducted, any shift in natural community types is unknown. However, many of the natural community types of the Guenoc Valley Site are adapted to fire and the existing landscape is a result of pre-historic, historic, and contemporary fire activity.

5.1.2 Aquatic Resources

WRA observed 12 aquatic resource types within the Modified APE (Table 3). Aquatic resource mapping conducted in the 333 acres areas not included in the 2020 APE resulted in no new aquatic resource types. Each of the aquatic resources observed in the Modified APE had been previously identified elsewhere in the 2020 Phase 1 Study Area in previous biological surveys and reported in the 2020 BRA. No new aquatic resources were observed in the Modified APE. To provide a clear crosswalk of these aquatic resources to the broader types described in the 2020 BRA and EIR, the resources are placed within one of the three category types provided in the 2020 BRA: emergent wetlands, ponds and reservoirs, and streams:

EMERGENT WETLANDS

Seasonal Wetland Depressions
Seasonal Wetland Ditches
Seasonal Wetland Pond Fringes
Seasonal Wetland Seeps/Swales
Seasonal Wetland Wet Meadows
Stream Fringe/In-Stream Wetland
Riparian Woodland

PONDS AND RESERVOIRS

Open Water

STREAMS

Ephemeral Ditches
Ephemeral Streams
Intermittent Streams
Perennial Streams

For a complete description of the broader aquatic resource types in the Modified APE, refer to the 2020 BRA and 2020 EIR. For a complete description of the more specific aquatic types in the Modified APE, refer to the January 2020 Aquatic Resources Delineation Report drafted by WRA.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a 2024 review of the resource databases listed in Section 3.0, 77 special-status plant species[12] have been documented in the vicinity of the Modified APE. Database results from the same resource databases queried for the 2020 BRA assessments now include eight additional CNPS Rank 4 species; however, as these species are not considered special-status for the purposes of this report, no further assessment is conducted. Another change includes the ranking of one species observed in 2020 BRA assessments, serpentine sunflower (*Helianthus exilis*), which has been re-ranked from CNPS Rank 4.2 to 'Considered But Rejected' (CBR) by CNPS in 2022. Two special-status plants no longer have documented occurrences in the 7.5-minute quads used for the database search, presumably due to CNPS review and edits which indicated those species were erroneously mapped. For thoroughness, while no ultimate change has occurred, an additional species, Napa lomatium (*Lomatium repostum*) was re-ranked from Rank 4 to Rank 1B in 2021 but then returned to Rank 4 in 2023 (CNPS 2024a). Therefore, no new special-status plant species have been documented in the resource databases listed since 2020, and the 77 special-status plant species documented in the 2024 database searches were also identified in

[12] CNPS Rank 3 and 4 species are not considered special-status in this assessment. See Section 7.1 for further discussion on Rank 3 and 4 species.

the 2020 BRA. For a complete description of the special-status plants determined to have potential in the Modified APE within the 2020 APE, refer to the 2020 BRA and 2020 EIR.

The following section reports on the potential for special-status plants to occur in the 333 acres outside the 2020 APE. Of the 77 special-status plants identified in the database search, 57 of these species have the potential to occur in the new acres. Appendix C contains a table summarizing the potential for each species to occur in the new area. The remaining species documented from the greater vicinity are unlikely or have no potential to occur for one or more of the following reasons:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Modified APE.
- Edaphic (soil) conditions (e.g., volcanic tuff, alkaline) necessary to support the special-status plant species are not present in the Modified APE.
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the Modified APE.
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Modified APE.
- Associated natural communities (e.g., vernal pools, conifer forest) necessary to support the special-status plant species are not present in the Modified APE.
- The Modified APE is geographically isolated (e.g., below elevation, coastal environ) from the documented range of the special-status plant species;
- The historical landscape and/or habitat(s) of the Modified APE were not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species.
- Land use history and contemporary management (e.g., grading, intensive grazing) has degraded the localized habitat necessary to support the special-status plant species.

WRA biologists conducted protocol-level surveys of the Modified APE (including in the 333 acres outside the 2020 APE) in April, May, June, and/or August 2017 through 2023, a period sufficient to identify all 57 special-status plant species with the potential to occur. Each of the 57 plants were also considered to have potential to occur and were surveyed for under the 2020 BRA effort. None of the ranks for any of the species have changed. Eight special-status plants were observed during the surveys of the 333 acres and described below. Table 4 lists species determined to have potential but were not observed. All plant species observed within the surveyed portions of the Guenoc Valley Ranch property since 2017 are included in Appendix B. As the area surveyed encompasses a much larger area than the Modified APE, not all species listed are present in the Modified APE.

Porter's navarretia (*Navarretia paradoxinota*; Rank 1B.3) is the only newly observed special-status plant species within the Modified APE that was not previously observed during the 2020 BRA assessments.

Figure 7 set in Appendix A illustrates locations of populations in the Modified APE. Species with potential habitat and not observed in the Modified APE are summarized below. Refer to the 2020

BRA for a complete description of the special-status plants identified on the rest of the Guenoc Valley Site.

Table 4: Potential Special-status Plants Not Observed

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
FORMALLY LISTED PLANTS (FESA, CESA, CNPPA)			
Astragalus claranus	Clara Hunt's milk-vetch	FE, ST, Rank 1B.1	Chaparral, cismontane woodland, valley and foothill grassland
Eryngium constancei	Loch Lomond button-celery	FE, SE, Rank 1B.1	Seasonal wetlands
Gratiola heterosepala	Boggs Lake hedge-hyssop	SE, Rank 1B.2	Seasonal wetlands
Lasthenia burkei	Burke's goldfields	FE, SE, Rank 1B.1	Meadows and seeps
Limnanthes vinculans	Sebastopol meadowfoam	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland .
Sedella leiocarpa	Lake County stonecrop	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland
OTHER SPECIAL-STATUS PLANTS (CEQA, OTHER)			
Amorpha californica* var. *napensis	Napa false indigo	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland.
Amsinckia lunaris	bent-flowered fiddleneck	Rank 1B.2	Cismontane woodland, valley and foothill grassland
Arctostaphylos manzanita* ssp. *elegans	Konocti manzanita	Rank 1B.3	Chaparral, cismontane woodland

[13] Inclusive of the 333 acres of the Modified APE outside the 2020 APE.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
Balsamorhiza macrolepis	big-scale balsamroot	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland
Brasenia schreberi	Watershield	Rank 2B.3	Marshes and swamps (freshwater)
Brodiaea leptandra	narrow-anthered brodiaea	Rank 1B.2	cismontane woodland, valley and foothill grassland
Castilleja rubicundula var. ***rubicundula***	pink creamsacs	Rank 1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland
Ceanothus confusus	Rincon Ridge ceanothus	Rank 1B.1	Chaparral, cismontane woodland
Ceanothus divergens	Calistoga ceanothus	Rank 1B.2	Chaparral
Ceanothus purpureus	holly-leaved ceanothus	Rank 1B.2	Chaparral, cismontane woodland
Ceanothus sonomensis	Sonoma ceanothus	Rank 1B.2	Chaparral, cismontane woodland
Chlorogalum pomeridianum var. ***minus***	Dwarf soaproot	Rank 1B.2	Chaparral
Cryptantha dissita	serpentine cryptantha	Rank 1B.2	Chaparral
Cryptantha excavata	deep-scarred cryptantha	Rank 1B.1	Cismontane woodland
Downingia willamettensis	Cascade downingia	Rank 2B.2	Cismontane woodland (lake margins), valley and foothill grassland (lake margins), vernal pools

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
Eriastrum brandegeeae	Brandegee's eriastrum	Rank 1B.1	Chaparral, cismontane woodland
Eriogonum nervulosum	Snow Mountain buckwheat	Rank 1B.2	Chaparral
Eryngium jepsonii	Jepson's coyote-thistle	Rank 1B.2	Valley and foothill grassland
Fritillaria pluriflora	adobe-lily	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland
Harmonia hallii	Hall's harmonia	Rank 1B.2	Chaparral
Hemizonia congesta* ssp. *congesta	congested-headed hayfield tarplant	Rank 1B.2	Valley and foothill grassland
Hesperolinon adenophyllum	Glandular western flax	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland
Hesperolinon drymarioides	drymaria-like western flax	Rank 1B.2	Chaparral, cismontane woodland
Hesperolinon sharsmithiae	Sharsmith's western flax	Rank 1B.2	Chaparral
Horkelia bolanderi	Bolander's horkelia	Rank 1B.2	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland
Juncus luciensis	Santa Lucia dwarf rush	Rank 1B.2	Chaparral, meadows and seeps
Leptosiphon jepsonii	Jepson's leptosiphon	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
Lupinus sericatus	Cobb Mountain lupine	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland
Microseris paludosa	Marsh microseris	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland
Navarretia leucocephala* ssp. *bakeri	Baker's navarretia	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland
Navarretia rosulata	Marin County navarretia	Rank 1B.2	Chaparral
Penstemon newberryi* var. *sonomensis	Sonoma beardtongue	Rank 1B.3	Chaparral
Potamogeton zosteriformis	eel-grass pondweed	Rank 2B.2	Marshes and swamps
Plagiobothrys hystriculus	bearded popcornflower	Rank 1B.1	Valley and foothill grassland
Sidalcea hickmanii* ssp. *napensis	Napa checkerbloom	Rank 1B.1	Chaparral
Streptanthus brachiatus* ssp. *brachiatus	Socrates Mine jewelflower	Rank 1B.2	Chaparral
Streptanthus brachiatus* ssp. *hoffmanii	Freed's jewelflower	Rank 1B.2	Chaparral, cismontane woodland
Streptanthus morrisonii* ssp. *elatus	Three Peaks jewelflower	Rank 1B.2	Chaparral
Streptanthus morrisonii* ssp. *kruckebergii	Kruckeberg's jewelflower	Rank 1B.2	Cismontane woodland
Streptanthus vernalis	early jewelflower	Rank 1B.2	Chaparral
Stuckenia filiformis* ssp. *alpina	Northern slender pondweed	Rank 2B.2	Marshes and swamps (assorted shallow freshwater)

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE NEW ACRES[13]
Trichostema ruygtii	Napa bluecurls	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland
Viburnum ellipticum	Oval-leaved viburnum	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest

NEWLY OBSERVED SPECIES

The following species had not been previously observed in the 2020 APE and was observed in the Modified APE, including the 333 acres outside the 2020 APE. This species was determined to have potential to occur during the 2020 BRA effort but was not observed in surveys conducted prior to the 2020 BRA.

Porter's navarretia (*Navarretia paradoxinota*). Rank 1B.3. Porter's navarretia is an annual forb in the Phlox family (Polemoniaceae) that blooms May through June. It typically occurs in meadows and seeps at elevations ranging from 540 to 2755 feet elevation (CNPS 2024a). The nearest documented occurrence in the vicinity of the Modified APE is from 2009 on Butts Canyon Road (CDFW 2024a). The most recent documented occurrence in the vicinity of the property is from May 2018 on St. Helena Creek Road in Middletown (CDFW 2024a). Known associated species include buckbrush (*Ceanothus cuneatus*), small tarweed (*Madia exigua*), slender woolly heads (*Psilocarphus tenellus*), hawksbit (*Leontodon saxatilis*), black oak (*Quercus kelloggii*), mountain dandelion (*Agoseris heterophylla*), soft chess (*Bromus hordeaceus*), wild oat (*Avena barbata*), larkspur (*Delphinium* sp.), and yampah (*Periderdia* sp.)(CDFW 2024a).

Surveys conducted since 2020 have identified populations of this species in the Modified APE. Populations of this species are situated in wetlands along Butts Canyon Road and the margins of the pond at central bowl. Approximately 0.24 acre with 577 individuals are present in the Modified APE, 0.04 acres (303 individuals) of which are located in the 333 acres outside the 2020 APE.

OBSERVED POPULATIONS

The following special-status plant species were observed in the Modified APE, including the new 333 acres, and were also observed during the 2020 BRA assessments. Refer to the 2020 BRA for a complete description of the special-status plants.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	MODIFIED APE (acres/numbers)	NEW ACRES (acres/numbers)
Astragalus rattanii* var. *jepsonianus	Jepson's milk-vetch	Rank 1B.2	0.07 acres (184 individuals)	0.07 acres (184 individuals)

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	MODIFIED APE (acres/numbers)	NEW ACRES (acres/numbers)
Erigeron greenei	Greene's narrow-leaved fleabane	Rank 1B.2	3.08 acres (635 individuals)	2.97 acres (285 individuals)
Hesperolinon bicarpellatum	Two carpellate western flax	Rank 1B	48.91 acres (50,277 individuals)	13.87 acres (16,967 individuals)
Hesperolinon didymocarpum	Lake County western flax	SE, Rank 1B.2	4.42 acres (16,863 individuals)	2.52 acres (14,856 individuals)
Layia septentrionalis	Colusa layia	Rank 1B.2	6.45 acres(29,357 individuals)	0.07 acres (370 individuals)
Sidalcea keckii	Keck's checkerbloom	FE, Rank 1B.1	0.05 acres (23 individuals)	0
Streptanthus hesperidis	Green jewelflower	Rank 1B.2.	8.81 acres (2,531 acres)	0.95 acres (370 individuals)

Of note, big-scale balsamroot (*Balsamorhiza macrolepis*; Rank 1B.2) was observed in the 2020 APE but is not within the Modified APE.

5.2.2 Special-status Wildlife

Based upon a review of the resources listed in Section 3.0, it was determined that 62 special-status wildlife species have been documented in one or more of the referenced 7.5-minute quadrangles in the vicinity of the Modified APE (see Section 3.0). Each of these species was also documented and assessed in the 2020 BRA, except for three invertebrates: Monarch butterfly (*Danaus plexippus*), Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*), and California linderiella (*Linderiella occidentalis*). Monarch butterfly is addressed below, and the other two species have no potential to occur and are not discussed further. Appendix C summarizes the potential for each of these species to occur.

Table 5 summarizes the special-status wildlife observed, presumed present, or determined to have potential to occur in the Modified APE, including the 333 acres outside the 2020 APE. Refer to the 2020 BRA for a complete description of the special-status wildlife.

Table 5. Potential Special-Status Wildlife

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
FORMALLY LISTED WILDLIFE (FESA, CESA)			
Bassariscus astutus	Ring-tailed cat (Ringtail)	CFP	**Moderate Potential**. There is a large amount of oak woodland, scrub and chaparral within the Modified APE that provides potentially suitable habitat for this species. Additionally, these densely vegetated areas are directly connected to additional large, undeveloped habitat areas that may provide suitable habitat for the species.
Aquila chrysaetos	Golden eagle	BCC, CFP	**Present**. This species was observed nesting just south of property in 2018 and was documented in the 2020 BRA. Adult and juvenile golden eagles were observed in oak woodland communities within the property. The Modified APE contains suitable open areas with large trees to support nesting and foraging.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Elanus leucurus	White-tailed kite	CFP	**Present**. This species has been observed flying over the Modified APE and this species is known to occur in the region (CDFW 2024a) and was previously observed and documented in the 2020 BRA. The Modified APE provides open foraging habitat for this species and large trees and shrubs that may provide suitable nesting substrates.
Falco peregrinus anatum	American peregrine falcon	FD, SD, CFP, BCC	**High Potential/Unlikely to Nest**. The Modified APE contains open areas and low rocky outcrops that provide potential foraging habitat for this species. However, sheer rocky cliffs with suitable ledges for nesting are absent in the Modified APE and its immediate surroundings.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Haliaeetus leucocephalus	Bald eagle	FD, SE, CFP, BCC	**High Potential/Unlikely to Nest**. Adult and juvenile bald eagles were observed flying and roosting adjacent to multiple reservoirs near the Modified APE and was documented in the 2020 BRA. Bald eagles have been observed nesting around reservoirs. The Modified APE is near these nesting sites and may have line of site to them. Bald eagle is unlikely to nest in the Modified APE but suitable foraging habitat is present.
Agelaius tricolor	Tricolored blackbird	BCC, SSC, ST	**Moderate Potential**. The Modified APE is adjacent to several reservoirs and includes reservoirs containing extensive amounts of emergent vegetation that may support nesting. The species has been documented to nest within 1 mile of the property (CDFW 2024a).
Actinemys marmorata var. marmorata	northwestern pond turtle	FP,SSC	**Moderate Potential**. The species was observed in areas near the Modified APE. For areas near aquatic features (within 300 feet), this species has some potential to be present. This species was observed and documented in the 2020 BRA.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Danaus plexippus	Monarch butterfly	FC, winter roosts are protected by CDFW	**Assumed Present**. This species may be seen migrating across the Modified APE, but the project will not remove roost sites.
OTHER SPECIAL-STATUS WILDLIFE (CEQA, OTHER)			
Antrozous pallidus	Pallid bat	SSC, WBWG	**High Potential**. The Modified APE contains shrubland, forested habitats, and rocky outcroppings, that are typically associated with the species. Stream and grassland bordering open water provide foraging for this species. This species was observed and documented in the 2020 BRA.
Corynorhinus townsendii	Townsend's big-eared bat	SSC, WBWG	**Moderate Potential**. The Modified APE contains trees that may be suitable for roosting, along with the mixed forest and many water features which provide foraging habitat. There are also many occurrences of this species within five miles of the APE (CDFW 2024a).
Lasionycteris noctivagans	Silver-haired bat	WBWG	**High Potential**. The Modified APE includes woodland, forest, and open habitat suitable for this species. The Modified APE could also support roosting in hollow trees, snags, and rock crevices. This species was observed and documented in the 2020 BRA.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Lasiurus blossevillii	Western red bat	SSC, WBWG	**Moderate Potential**. The Modified APE includes broad-leaved tree species typically associated with this species. Stream channels, open water, and edge habitats provide foraging for this species.
Lasiurus cinereus	Hoary bat	WBWG	**High Potential**. The Modified APE includes forested habitats and habitat mosaics, with oak trees. Grassland bordering open water and edge habitats along forested areas provide foraging for this species.
Myotis evotis	Long-eared myotis	WBWG	**High Potential**. The Modified APE includes shrubland, forested habitats, rocky outcroppings, chaparral, and agricultural areas that are typically associated with the species. Grassland bordering open water and edge habitats along forested areas provide foraging for this species.
Myotis thysanodes	Fringed myotis	WBWG	**Moderate Potential**. The Modified APE includes dry woodland and grassland habitat that could provide suitable foraging for this species. Trees within the APE could also provide suitable roosting habitat for this species.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Myotis volans	Long-legged myotis	WBWG	**Moderate Potential**. The Modified APE contains dry woodland and grassland habitat that could provide suitable foraging for this species. Rock crevices, and trees within the APE could also provide suitable roosting habitat for this species.
Taxidea taxus	American badger	SSC	**Moderate Potential**. The Modified APE includes, and is surrounded by, large expanses of uncultivated open ground with shrubs, grassland, and forest habitat. Burrowing rodents were observed within the APE, which may support a prey base for the species.
Ammodramus savannarum	Grasshopper sparrow	BCC, SSC	**High Potential**. The Modified APE is within this species' breeding range, and includes large areas of grasslands to support foraging and nesting. This species has been documented near the APE (eBird 2024).
Asio otus	Long-eared owl	SSC	**Moderate Potential**. The Modified APE includes oak and riparian habitats adjacent to open lands that could support foraging and nesting.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Athene cunicularia	Burrowing owl	SSC, BCC	**Moderate Potential/Unlikely to Nest**. This species does not breed in Lake County (CDFW 2024a, eBird 2024). This species may occasionally winter within uncanopied grassland areas within the Modified APE with suitable burrows. This species has been documented to winter approximately 7 miles southeast of the parcel (CDFW 2024a). Although burrows suitable for burrowing owl occupation were rarely observed during the site visits, ground squirrels are present within the APE and suitable burrow habitat for owls may arise in the future.
Baeolophus inornatus	Oak titmouse	BCC	**Present/Likely to Nest**. This species has been observed within the woodland communities in the Modified APE and was previously observed and documented in the 2020 BRA. The APE includes woodland and tree cavities suitable for nesting.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Circus cyaneus	Northern harrier	SSC	**Moderate Potential/Unlikely to Nest**. Although this species was observed foraging near the Modified APE, the APE does not contain dense, dry herbaceous vegetation near water that typically supports nesting. This species was observed and documented in the 2020 BRA.
Contopus cooperi	Olive-sided flycatcher	SSC, BCC	**Moderate Potential**. The Modified APE includes woodland habitat that may support nesting.
Falco mexicanus	Prairie falcon	BCC	**Moderate Potential/Unlikely to Nest**. The Modified APE includes open areas and low rocky outcrops that provide potential foraging habitat for this species. However, sheer rocky cliffs with suitable ledges for nesting are absent in the APE and its immediate surroundings.
Icteria virens	Yellow-breasted chat	SSC	**Moderate Potential.** The Modified APE includes areas of dense vegetation adjacent to perennial stream habitat to support nesting, and this species has been documented south of the APE.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Ixobrychus exilis	Least bittern	SSC, BCC	**Moderate Potential.** The Modified APE is adjacent to several deep reservoirs containing extensive emergent vegetation. This species has not been observed in the vicinity of the Modified APE.
Lanius ludovicianus	Loggerhead shrike	BCC, SSC	**Moderate Potential**. The Modified APE includes open areas for foraging as well as suitably dense vegetation in scrub and woodland communities to support nesting. This species has been documented near the APE (eBird 2024), though has not been observed during site visits.
Melanerpes lewis	Lewis's woodpecker	BCC	**High Potential**. The Modified APE contains oak savannah and woodland habitat to support this species, and the APE is within the known breeding range of this species (CDFW 2024a). This species has been documented near the APE (eBird 2024).

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Picoides nuttallii	Nuttall's woodpecker	BCC	**Present**. This species was observed within the woodland communities in the Modified APE and was previously observed and documented in the 2020 BRA. The APE contains woodland and tree cavities suitable for nesting.
Progne subis	Purple martin	SSC	**Moderate Potential**. The Modified APE includes woodlands with snags and cavities to support nesting, and this species has been documented to nest near the APE (CDFW 2024a).
Selasphorus sasin	Allen's hummingbird	BCC	**High Potential**. This species was observed in the Modified APE during site assessments. The APE includes woodland habitat with nectar sources that may support nesting. This species was observed and documented in the 2020 BRA.
Setophaga* [*Dendroica*] *petechia brewsteri	Yellow warbler	SSC, BCC	**High Potential**. This species was observed near Modified APE and includes areas of dense vegetation adjacent to perennial stream habitat to support nesting. This species was observed and documented in the 2020 BRA.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Spinus* [*Carduelis*] *lawrencei	Lawrence's goldfinch	BCC	**Moderate Potential**. The Modified APE includes large amounts of undisturbed oak savannah, which provides breeding habitat for this species, and this species is regularly documented in the region (eBird 2024).
Spizella atrogularis	Black-chinned sparrow	BCC	**High Potential**. The Modified APE is within this species' breeding range, and includes large amounts of dense shrub and chaparral habitats this species requires for nesting (CDFW 2024a, eBird 2024).
Xanthocephalus xanthocephalus	Yellow-headed blackbird	SSC	**Present**. This species was observed nesting in emergent vegetation in the Guenoc Valley Site, directly adjacent to the 2020 Phase 1 Study Area in 2018 and 2019 and was documented in the 2020 BRA. The Modified APE has freshwater emergent vegetation and may support nesting by this species.

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL FOR OCCURRENCE IN THE MODIFIED APE
Rana boylii	Foothill yellow-legged frog	SSC	**Moderate Potential**. The species was observed adjacent to portions of the Modified APE, in association with Butts Creek and was documented in the 2020 BRA. Streams with rocky substrate provide potentially suitable habitat for the species, including areas within the Modified APE. This species has also been documented in CNDDB within and in close proximity to the APE (CDFW 2024a).

CHANGES SINCE 2020

Since the 2020 BRA and EIR, changes to special-status wildlife protection have occurred. Monarch butterfly became a candidate for federal listing under the FESA in December 2020, and the northwestern pond turtle (NPT; formerly western pond turtle) was proposed for federal Threatened status on October 3, 2023 (88 FR Vol 190, 68370) with a rule under section 4(d) of the Endangered Species Act. Critical Habitat for NPT has not been designated, nor has a Recovery Plan been completed. A formal issuance of a proposed rule in the federal register states: ESA protections limited to "Procedural protections" and a "conference opinion" can be received and this becomes a Section 7 BO if the species becomes listed (final rule effective) during the project period. The monarch is a candidate which is a species that is considered for listing but not warranted at this time. No proposed rule has been published. No ESA protections for monarchs, although some lead agencies may have guidance or plans for protections. No permits can be received but candidate conservation agreements can be formed. Monarch butterfly did not appear in 2020 database searches and now does and is therefore considered a newly documented potential species and is discussed below.

Monarch butterfly (*Danaus plexippus*). Federal Candidate, winter roosts protected by CDFW. Assumed Present**.** This large, showy butterfly is found throughout the United States, southern Canada, and Central America. It also occurs in parts of South America and other continents. In North America, this species spends spring and summer months breeding and foraging across much of its range. The monarch butterfly generally uses milkweed (*Asclepias spp.*) for both breeding and nectaring, although nectar may also be obtained from a variety of additional plant species. From August to October, monarchs will migrate thousands of miles to winter roost sites located along the California coast and central Mexico. At roost sites, monarchs will congregate in thousands or millions on a tree or group of trees (Opler et al. 2011). Western monarchs prefer overwintering habitat comprised of a relatively dense grove of trees with some understory, located near water and nectar sources and protected from the wind by topographic landforms or trees (Sakai and Calvert 1991). Winter roost sites are often on south, southwest, or west facing slopes which may provide more favorable temperature regimes and wind protection (Leong et al. 2004). Monarch butterflies typically arrive in mid-October to overwintering sites along the California coast and remain until late February or March (Jepsen et al. 2015). Monarchs roost along the coast, which is outside the Modified APE; therefore, there is no potential for roosting. This species may be seen migrating across the Modified APE, but the Project Modifications will not remove roost sites. Host and nectar plants are present in the Modified APE and monarchs may breed in the Modified APE in spring/early summer.

Foothill yellow-legged frog north coast DPS populations in northern California are no longer candidates for state-listing and are only species of special concern (SSC). Two special-status invertebrates (SSI) have been recently documented in the vicinity of the Modified APE and were added to the potentials table; however, the species were considered unlikely to occur in the Modified APE. Crotch bumblebee was removed due to absence of recent and historic occurrences in Lake and Napa Counties (CDFW 2024a).

5.3 Wildlife Corridors and Native Wildlife Nursery Sites

An assessment of publicly available, regional wildlife connectivity studies (CDFW 2024a, M2B 2018) was performed as part of this study. The Mayacamas to Berryessa (M2B) study

(Attachment WILDLIFE in the 2020 FEIR) indicates that a potentially important pathway of transit for wildlife intersects the Modified APE and that the area has relatively high permeability, which makes it suitable for wildlife to use the area for transit between larger habitat nodes (M2B 2018). Additionally, the Modified APE is adjacent to wildlife corridor areas identified in the California Essential Habitat Connectivity and California Bay Area Linkage Network (CDFW 2024b).

In addition to the special-status wildlife species that may occur, non-status wildlife species occur and may use portions of the Modified APE as a migration corridor. Large expanses of uncultivated land can be used by native species, such as mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), and black bear (*Ursus americanus*), to move to various territories seasonally and throughout their life cycle. Within the Modified APE, habitats may facilitate wildlife movement. Additionally, the reservoirs within close proximity to the Modified APE are anticipated to attract native wildlife species. The Modified APE contains portions of maintained and un-maintained barbed wire fencing used to contain livestock. Otherwise, no limitations of wildlife movement are present. Within the Modified APE habitats including, but not limited to, open grassland valleys, oak woodlands, chaparral, and stream corridors may facilitate wildlife movement. Additionally, the many lakes, reservoirs, and ponds in and within close proximity to the Modified APE are anticipated to attract native wildlife species. Therefore, portions of the Modified APE may occur within one or more wildlife migration corridors. A wildlife corridor assessment was conducted for the 2020 APE and is included as Appendix WILDLIFE in the 2020 Final EIR. As the Modified APE has similar circumstances for wildlife access as the 2020 APE, results of the previous wildlife corridor assessment apply to the Modified APE analyzed in this assessment.

There are no known significant wildlife breeding locations within the Modified APE. However, the Modified APE is likely used incidentally by individuals during migratory or dispersal activities as well as for birthing and rearing of young.

6.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

1. 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 CDFW or U.S. Fish and Wildlife Service.
2. 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 CDFW or U.S. Fish and Wildlife Service.
3. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
4. 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.
5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,
6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

These thresholds were utilized in completing the analysis of the potential impacts of the Project Modifications for CEQA purposes. For the purposes of this analysis, a "substantial adverse effect" is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing biological communities may be considered less than significant if those impacts are speculative, beneficial, de minimis, and/or would not affect the resiliency of a local population.

7.0 IMPACTS AND MITIGATION EVALUATION

Using the CEQA analysis methodology outlined in Section 6.0 above, the following section describes potential significant impacts due to implementation of the Proposed Project, as modified, as well as suggested mitigation measures which are expected to reduce impacts to less than significant. Potential impacts of the Original Project were analyzed and mitigated in the 2020 BRA and 2020 EIR; the impact analysis below focuses on whether the Project Modifications would result in new significant impacts or substantially more severe significant impacts compared to what was previously assessed. These mitigation measures are substantively identical to those identified for the 2020 Project in the 2020 BRA and the 2020 Final EIR and would also apply to the Project Modifications[14]. Only minor changes have been made to reflect updates in regulatory status for species or habitats, as appropriate.

7.1 General Avoidance Measures

BIO IMPACT 01: The Project Modifications may inadvertently impact biological resources, including aquatic features, sensitive land cover types, special-status species, and habitat conditions.

The Project Modifications result in an overall smaller APE by approximately 505 acres as compared to the project analyzed in the 2020 BRA and 2020 Final EIR. However, there would still be the potential for similar inadvertent significant impacts to biological resources through construction-related activities, compared to 2020. The following mitigation measures from the 2020 EIR are recommended to reduce inadvertent impacts to sensitive resources during construction.

MM BIO 01a Construction Best Management Practices (2020 EIR MM 3.4-1)

The following general Best Management Practices (BMPs) and avoidance and minimization measures are recommended to avoid accidental impacts:

- Construction and staging areas shall not be larger than necessary and to the degree feasible shall be within areas otherwise scheduled for development. These areas shall be visibly demarcated prior to construction activities to prevent unnecessary impacts. Equipment shall not be kept outside established areas.
- Construction areas shall be kept serviceably clean. Sufficient closed bins shall be provided for trash and debris. Washout, track out, and dust control BMPs shall be implemented as necessary. Construction vehicles and equipment shall be clean and free of mud or vegetation that could introduce plant pathogens or propagules of non-native plants. This includes equipment hauled onto the site.
- Pets shall not be allowed within construction areas.
- Construction activities shall be carried out such that sensitive habitats are avoided. Materials shall not be placed where they may enter sensitive habitat, receiving waters, or a storm drain, or be subject to wind or runoff erosion and dispersion.

[14] References to the "Project" or "Proposed Project" in the mitigation measures should be interpreted as applying to the 2020 Project as modified by the Project Modifications.

- Equipment use shall be limited to the hours from 7:00 a.m. to 7:00 p.m. to the extent possible. Exceptions may be made if approved by the County for situations where a longer construction schedule would alleviate the potential for adverse environmental effects.

MM BIO 01b Worker Environmental Awareness Training (2020 EIR MM 3.4-2)

Construction personnel working on the Proposed Project shall be provided with Environmental Awareness Training tailored to the location they will be working at prior to the commencement of construction work by that personnel. This training shall include materials that describe the sensitive habitats and special-status wildlife species with the potential to occur. Table 6 dictates species for which environmental awareness training shall occur, based on location.

Topics covered shall include relevant biological information on these species, and the appropriate actions that shall be taken in the event of an occurrence. Training shall also include a description of construction best management practices and the importance of environmentally conscious construction. Training materials shall be prepared by a qualified biologist who shall train a member of the contractor's crew to provide follow-up training to newly hired employees during the construction period. The qualified biologist shall attend the Environmental Awareness Training quarterly, at a minimum, to ensure that the training sufficiently covers the necessary materials. These materials may be updated as new information is available. Construction personnel shall sign a training log stating that they have received this training. Copies of this training log shall be maintained on the Guenoc Valley Site and shall be made available to inquiring agencies upon request.

Construction personnel will also be trained to identify nesting bird behavior that indicates construction activities are causing a significant disturbance to nesting birds. This behavior includes vocalizing, making defensive flights at intruders, getting up from a brooding position, or flying off the nest. Should these behaviors be identified, construction workers will be trained to halt work in the vicinity of the nest until a qualified biologist determines a suitable nest buffer.

Should a special-status species be observed by construction personnel, the qualified biologist will verify the observation and report the observation to CNDDB. The qualified biologist shall also report observations of special-status species identified during preconstruction surveys, if any.

Table 6. Special-Status Species to be Included In Environmental Awareness Training

SPECIES[15]	GUENOC VALLEY SITE (ALL PHASES)PLUS GRANGE ROAD CONNECTOR
Pallid bat (*Antrozous pallidus)*	x
Ring-tailed cat *(Bassariscus astutus)*	x

[15] While Monarch butterfly may be observed within the Modified APE, no significant impacts to the species is anticipated as no winter roosts are present and no impacts to winter roosts will occur and is therefore not included in this list.

SPECIES[15]	GUENOC VALLEY SITE (ALL PHASES)PLUS GRANGE ROAD CONNECTOR
Townsend's big-eared bat *(Corynorhinus townsendii)*	x
Western red bat *(Lasiurus blossevillii)*	x
American badger *(Taxidea taxus)*	x
Tricolored blackbird *(Agelaius tricolor)*	x
Grasshopper sparrow *(Ammodramus savannarum)*	x
Golden eagle *(Aquila chrysaetos)*	x
Long-eared owl *(Asio otus)*	x
Burrowing owl (*Athene cunicularia*)	x
Northern harrier (*Circus cyaneus*)	x
Olive-sided flycatcher (*Contopus cooperi*)	x
White-tailed kite (*Elanus leucurus*)	x
American peregrine falcon (*Falco peregrinus anatum*)	x
Bald eagle (*Haliaeetus leucocephalus*)	x
Yellow-breasted chat (*Icteria virens*)	x
Least bittern *(Ixobrychus exilis)*	x
Loggerhead shrike (*Lanius ludovicianus*)	x
Purple martin (*Progne subis*)	x
Yellow warbler (*Setophaga* [*Dendroica*] *petechia brewsteri*)	x
Yellow-headed blackbird (*Xanthocephalus xanthocephalus)*	x
Western pond turtle (*Actinemys marmorata*)	x
Foothill yellow-legged frog (*Rana boylii*)	x

Incorporation of these mitigation measures would reduce the overall potential for construction of the proposed action to result in direct impacts to special-status species, or in indirect habitat loss or degradation that could result in significant impacts to special-status species to **less-than-significant**

7.2 Special-status Species

This section analyzes the potential impacts of the Project Modifications and mitigation for special-status species in reference to the significance threshold outlined in CEQA Appendix G, Part IV (a):

Does the project have the potential to 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 CDFW or U.S. Fish and Wildlife Service?

Potential impacts and mitigation for potentially significant impacts are discussed below.

7.2.1 Special-Status Plant Species

The Project Modifications result in an overall smaller APE by approximately 505 acres as compared to the project analyzed in the 2020 BRA and 2020 Final EIR. Project Modifications occur in habitat types of similar quality to the 2020 project. Only one newly observed special-status plant has been observed since the 2020 BRA, Porters navarretia. All other special-status plants in the Modified APE have been documented and assessed in the 2020 BRA and Final EIR. However, there would still be the potential for similar significant impacts to special-status plants through construction-related activities, compared to 2020. WRA documented 23 CNPS Rank 4 plant species throughout the Guenoc Valley Site during surveys conducted from 2017 through 2023 (Appendix B); while Rank 4 species are not considered threatened or endangered and are not afforded federal, state, or local protections, they will be avoided to the greatest extent feasible.

BIO IMPACT 02: WRA documented eight Rank 1B, including one state-listed and one federal-listed special-status plants in the Modified APE during surveys conducted between 2017 and 2023. Seven of these species have been previously identified on the property during surveys conducted between 2017 and 2019 and impacts to such were previously analyzed and mitigated in the 2020 BRA and 2020 Final EIR. Only one new Rank 1B plant was identified after completion of the 2020 analysis. Additionally, approximately 55 acres of the Modified APE was not field assessed for special-status plants for either spring or both spring and late season. Special-status plants may be impacted through construction-related activities. Removal of special-status plants would constitute a potentially significant impact; however, this impact is not a new impact as special-status plants were assessed and mitigated in the 2020 EIR and the mitigation measures are also applicable to the new plant species to reduce potential impacts to less-than-significant. The following mitigation measures from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to special-status plants.

MM BIO 02 Special-Status Plants (2020 EIR MM 3.4-3)

1) Pre-construction botanical surveys of herb-dominated habitats (i.e., grasslands, wetlands) with the potential to support special-status plants shall be conducted within those areas scheduled for groundbreaking during one of the two appropriate identification seasons prior to groundbreaking. Pre-construction surveys of shrub or woodland dominated habitats with the potential to support special-status plants shall be surveyed within one of the four appropriate identification seasons prior to groundbreaking for each specific component of the Proposed Project. Initial vegetation clearing along proposed roadways for fire management shall also be subject to these standards. Pre-construction surveys shall be completed by a qualified biologist during the appropriate identification period for plants with the potential to occur in the area scheduled for groundbreaking. Results of the pre-construction survey shall be maintained on the Guenoc Valley Site and available to agencies upon request.

2) In the event that the results of the pre-construction special-status plant surveys identify the presence of individual special-status plants within areas identified for ground disturbance activities, one of the following measures shall be conducted.
   a) Individual occurrences of special-status plants shall be avoided by a minimum of 20 feet when possible. This buffer shall be demarcated by a qualified biologist with high-visibility fencing. Where ground disturbance would occur within 100 feet upslope of occurrences of special-status plants during the wet season (October 1 through April 1), silt fencing or straw wattles shall be installed between the work area and the 20-foot setback and shall not be removed until the disturbed areas have been revegetated or otherwise stabilized.
      OR
   b) When avoidance of a special-status plant is not feasible, mitigation shall occur through transplanting or compensatory planting of in-kind species. Mitigation for special-status plants shall follow the general outline below.
      i) For compensatory plantings, in-kind species shall be planted at a minimum ratio of 2:1. Monitoring of mitigation activities shall be performed by a qualified biologist for a minimum of three years. The qualified biologist shall prepare an annual report on the progress of mitigation with recommended management actions. Mitigation shall be deemed complete once the qualified biologist has determined that the mitigation has achieved or exceeded 80 percent success following the minimum three years of monitoring. Additional years of monitoring and management shall occur should mitigation fail to meet success criteria.
      ii) Should transplanting of individual plants be considered, the transplanting shall be overseen by a qualified biologist. Plants shall be relocated to suitable habitats and shall be within designated open space as possible. A qualified biologist shall monitor all transplanted individuals for a minimum of three years to ensure successful establishment. The qualified biologist shall prepare an annual report on the success of transplanted plants. Should transplanting fail, compensatory actions shall occur as outlined under (i).
      iii) Consultation with CDFW or USFWS shall occur as necessary, based on regulatory jurisdiction, should a special-status plant that does not have a history of successful transplantation and was not previously identified within the Phase 1 Area of Potential Effects be observed during preconstruction botanical surveys. For species with a demonstrated history of successful transplantation, then mitigation shall follow steps (i) and (ii) above.

Incorporation of this mitigation measure would reduce the overall impact by identification of location and establishment of suitable buffers for avoidance or provide for compensatory mitigation actions for populations that would not be avoided, thereby reducing potential impacts to **less-than-significant.**

7.2.2 Special-status Wildlife Species

The Project Modifications result in an overall smaller APE by approximately 505 acres as compared to the project analyzed in the 2020 BRA and 2020 Final EIR. As described in Section 5.2 above, changes to the status or consideration of special-status wildlife with potential to occur in the Modified APE have occurred since 2020. While monarch is now considered a

candidate for federal listing, no ESA protections apply; therefore, no significant or substantial impacts by the Project Modifications will occur to monarch butterfly. Northwestern pond turtle (NPT) is now proposed for federal listing as Threatened. The species was previously considered special-status in the 2020 BRA and mitigation measures to avoid impacts were provided. See MM08 for further discussion regarding pond turtle. All other special-status wildlife that may occur in the Modified APE have been documented and assessed in the 2020 BRA and Final EIR, have had no tightening in regulatory protection. The 333 acres of the Modified APE provides suitable habitat for special-status wildlife. The added areas include similar habitats of similar quality as the 2020 APE and the Project Modifications are considered to have no significant or substantial changes in impacts from those outlined in the 2020 BRA and Final EIR. However, there would still be the potential for similar significant impacts to special-status wildlife through construction-related activities, compared to 2020.

Thirty-six special-status wildlife species were determined to have potential to occur in or within the vicinity of the Modified APE or are assumed to be present based on existing habitat and/or directly observed. Additionally, the Modified APE has the potential to support nesting birds. Each of these special-status wildlife species were previously identified, presumed present, or presumed to have potential to occur on the project site based on surveys conducted between 2017 and 2019 (except as noted above), and impacts to such were previously analyzed and mitigated in the 2020 BRA and 202 Final EIR. The Modified APE is not located within Critical Habitat as designated by USFWS or NMFS. The following recommendations and potential constraints are provided based on the potential for special-status species and their habitat to occur within the Modified APE. Where applicable, species with similar requirements and guidance are grouped together.

BIO IMPACT 3: American badger is an SSC with moderate potential to occur in the Modified APE. Project Modifications occur in habitat types of similar quality to the 2020 project. Construction activities could impact badgers or badger dens should they occur within the Modified APE or within the immediate vicinity. Destruction of an active birthing den would be a significant impact. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to American badger.

MM BIO 3 American Badger (2020 EIR MM 3.4-4)

- No more than 14 days before the start of ground disturbance activities on or within 200 feet of open grassland, a qualified biologist shall conduct pre-construction surveys to determine if American badger dens are present. If no dens are observed, no further mitigation is necessary. If American badger dens are determined to be present, the biologist shall monitor for activity to determine whether the den is active. If the den is determined to be occupied by a female with young, a 50-foot buffer shall be demarcated with high-visibility flagging until the qualified biologist has determined that young have matured and dispersed. No construction activities shall occur within the buffer while the den is actively supporting dependent young.

- If the den is determined to be active, but a female with young is not present, CDFW shall be contacted to determine if burrow exclusion using passive measures such as one-way doors or equivalent may be utilized. Exclusion activities shall be attempted for a minimum of three days to discourage their use prior to any project-related ground disturbances. If the biologist determines that the dens have become inactive as a result of the exclusion methods, dens shall be excavated by hand to prevent them from being re-occupied during construction.

Incorporation of this mitigation measure would require identification of potential dens in pre-construction surveys and appropriate avoidance measures in the event an occupied den is detected, thereby reducing potential impacts to **less-than-significant.**

BIO IMPACT 04: Ringtail is a CFP species with moderate potential to occur in the Modified APE. Project Modifications occur in habitat types of similar quality to the 2020 project. The Modified APE contains suitable habitat for ringtail. Construction activities could impact ringtail or ringtail dens should they occur within the Modified APE or immediate vicinity. Destruction of an active birthing den would constitute a significant impact. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to ringtail.

MM BIO 4 Ringtail Impacts (2020 EIR MM 3.4-5)

- No more than 14 days before the start of ground disturbance activities within open grassland, oak woodland, or riparian forest habitat, a qualified biologist shall conduct pre-construction surveys to determine if ringtail dens are present. If no active ringtail dens are observed, no further mitigation shall be recommended. If ringtail dens with young are determined to be present within the work area, the biologist shall establish a clearly marked exclusionary buffer of no less than 50 feet with high-visibility flagging. No ground disturbance shall take place within the buffer until the biologist determines the den no longer supports dependent young.

Incorporation of this mitigation measure would require identification of potential dens in pre-construction surveys and appropriate avoidance measures in the event an occupied den is detected, thereby reducing potential impacts to **less-than-significant**.

BIO IMPACT 05: Three special-status bat species and five non-status bat species have a moderate or high potential to occur within the Modified APE. Project Modifications occur in habitat types of similar quality to the 2020 project. Direct impacts to roosting special-status bat species could occur due to the removal or modification of large trees (diameter at breast height [DBH] >12 inches), and/or snags. The destruction or injury of special-status bats or loss of a maternity roost would constitute a potentially significant impact and is a violation of the CFGC. Indirect impacts to maternity roosting and/or roosting bat species may include roost abandonment due to noise, increased nighttime lighting and/or other human disturbances during construction and would also constitute a potentially significant impact under CEQA. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impact to bats.

MM BIO 05: Bat Maternity Roosts and Special-Status Bat Impacts (2020 EIR MM3.4-6)

Pre-construction survey(s) for bat roosts shall be conducted no more than 14 days prior to the start of construction in locations suitable for roosts or tree removal. Surveys of potential bat roost habitat shall concentrate on large trees (DBH >12 inches) specifically looking for relevant bat use features such as loose bark or cavities, broadleaf trees in riparian woodland habitat, buildings, bridges, and cliffs/rocky outcroppings on or within 100 feet of any planned work areas.

Prior to construction on the Middletown Housing Site, foliage suitable for western red bat roosting shall also be surveyed. If no potential bat roosts are observed, no further mitigation shall be necessary. For trees proposed for removal that have been identified as potentially suitable habitat for special-status bat species, the following shall apply:

- Trees proposed for removal that have been identified as potentially suitable special-status bat habitat shall be removed using the two-day phased removal method described below:
    - On day 1, branches and small limbs not containing potential bat roost habitat (cavities, crevices, exfoliating bark, etc.) shall be removed using chainsaws only. The remainder of the tree shall be removed on day 2.
- Removal shall occur during seasonal periods of bat activity. Removal shall occur as possible outside of maternity season. The maternity roosting season for bats is approximately February 1 through September 1 (but varies due to rainfall and temperature). The best time for removal of structures that may support maternity roosting is between February 1 and April 15.

If an active maternity roost is detected, the tree(s) or structures shall be retained until after the young bats are no longer dependent on their parents for care as determined by a qualified biologist. If a special-status bat roost is observed during preconstruction surveys, appropriate avoidance or exclusion measures shall be developed in consultation with CDFW.

Incorporation of this mitigation measure would require identification of potential day or maternity roosts in pre-construction surveys and appropriate avoidance measures in the event an occupied day or maternity roost is detected, thereby reducing potential impacts to **less-than-significant.**

BIO IMPACT 06: Burrowing owl is listed as an SSC by the CDFW. Project Modifications occur in habitat types of similar quality to the 2020 project. While the species was not observed during the site assessment, ground squirrels and potentially suitable habitat are present, and suitable burrows may exist in the future. This species is migratory and may occur in portions of the Modified APE. Construction activities that would remove or destroy burrows and impact grassland habitat containing suitable burrows, may result in a direct impact to burrowing owl, which would constitute a significant impact. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to burrowing owl.

MM BIO 06: Burrowing Owls (2020 EIR MM 3.4-9)
A pre-construction survey shall be performed by a qualified biologist prior to the start of ground-disturbing activities where suitable burrowing owl burrows (such as ground squirrel complexes) are present. The survey shall be performed according to the standards set forth by the Staff Report for Burrowing Owl Mitigation (CDFW 2012). Pre-construction surveys shall occur no more than 14 days prior to ground disturbance. Should a burrow be observed in use by a burrowing owl, or if a burrow shows signs of use (pellets, whitewash, feathers), project activities shall be excluded within a 250-foot high-visibility buffer until the qualified biologist determines the owls are no longer present.

For active burrows within an area of impact, passive exclusion techniques, such as one-way doors, may be used to exclude burrowing owls from occupied burrows outside the nesting season or if the qualified biologist determines the burrow does not support an active nest. Once exclusion is completed and the biologist determines that the burrow is not occupied, the burrows shall be collapsed.

Incorporation of this mitigation measure would require identification of potential burrows in pre-construction surveys and appropriate avoidance measures in the event an occupied burrow is detected, thereby reducing potential impacts to **less-than-significant**.

BIO IMPACT 07: Golden eagle, bald eagle, white-tailed kite, and American peregrine falcon nest in the greater area surrounding the Modified APE. Project Modifications occur in habitat types of similar quality to the 2020 project. Though the Modified APE provides foraging habitat for many raptor species, it is unlikely to support nesting for special-status raptors, other than white-tailed kite, golden eagle. Several common raptor species may also forage and nest within the Modified APE. White-tailed kite and raptor nests in general are protected by the MBTA and CFGC. Protective exclusion buffers around active raptor nests can vary greatly and may extend up to 0.25 mile in the case of white-tailed kite and golden eagle.

In addition to the aforementioned raptor species, the site assessment determined that special status bird species Allen's hummingbird, Nuttall's woodpecker, oak titmouse, may be present in the Modified APE. Other special status bird species, in addition to burrowing owl previously discussed, were determined to have a moderate to high potential to occur within the Modified APE. A variety of native bird species protected under the MBTA as well as the CFCG may use the Modified APE for nesting.

Avoidance of nesting birds is considered a general biological resources "best practice" in California and avoids potential enforcement action by the CDFW. Nesting bird pre-construction survey obligations are a common component of various permits and authorizations, including

local grading permits, and such, may be deemed applicable to activities associated with the Project Modifications.

Initial vegetation removal, clearing, and grubbing activities, along with building removal and demolition of structures, have the potential to affect nesting migratory birds. Adverse effects to nesting birds covered by the CFGC, including active nests, eggs and young, would constitute a potentially significant impact that may occur as a result of these activities. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to nesting birds.

MM BIO 07: Nesting Birds (2020 EIR MM 3.4-8)
Should any groundbreaking or construction-related work begin within the general nesting season (February 1 through August 31), a pre-construction nesting bird survey on and within 200 feet of ground-disturbing activities shall be completed by a qualified biologist no more than five days prior to the start of work. If no active nests are observed, no further mitigation shall be recommended.

If active nests are observed during the pre-construction survey, a qualified biologist shall demarcate a protective, high-visibility buffer around the nest. Buffer size shall be determined by the biologist based on species, nest location, planned disturbance footprint, and presence of any visual or auditory buffers. The qualified biologist shall also consider any species-specific plans related to acceptable nest-avoidance measures compared to anticipated disturbance levels of construction. The exclusionary buffer shall remain in place until the chicks have fledged, are feeding independently and are no longer dependent on the nest as determined by a qualified biologist.

Due to the known presence of several nesting raptor species, including eagles, in the vicinity of the Study Area, targeted surveys for active raptor nests shall be conducted. For construction activities planned on the Guenoc Valley Site, Grange Road Connector, Middletown Housing Site, or the Off-Site Infrastructure Improvement Areas within 0.5 miles of a documented eagle or protected falcon species nest, pre-construction surveys shall be conducted in accordance with the most current guidance available from USFWS and CDFW. If a special-status raptor nest is determined to be present on or within 0.5 miles of the work area, consultation with the USFWS and/or CDFW, based on regulatory jurisdiction, shall occur and any measures recommended or required by those agencies shall be incorporated into the project design.

Incorporation of this mitigation measure would require identification of nests in pre-construction surveys and appropriate avoidance measures in the event an occupied nest is detected, thereby reducing potential impacts to **less-than-significant.**

BIO IMPACT 08: This assessment determined that NPT has a moderate potential to occur in the Modified APE. Project Modifications occur in habitat types of similar quality to the 2020 project. Construction in and around suitable habitat has the potential to impact NPT through displacement, direct injury or mortality, or disruption of nesting, foraging and other behaviors. Impact levels to NPT is considered potentially significant. Additionally, nests could be destroyed during earthwork if they are present but not detected and avoided. Due to changes in the regulatory status of NPT since 2020, one additional pre-construction survey is necessary. The

following mitigation measure has been revised from the 2020 EIR and will reduce impacts to NPT.

MM BIO 08: Northwestern Pond Turtle-Construction (2020 EIR MM 3.4-10)
To the extent possible, initial ground disturbance, vegetation clearing, and associated project activities within 300 feet of ponds, reservoirs, or wetted streams where ~~western~~ northwestern pond turtle has been documented or may potentially occupy, as determined by a USFWS-approved qualified biologist shall occur between July 1 and October 31 to avoid the peak nesting season and winter inactivity periods for western pond turtle.

If work must occur within 300 feet of occupied or potentially occupied aquatic habitat between November 1 and June 31, a qualified biologist will conduct a preconstruction survey and identify areas with potential to support nesting or occupation by overwintering turtles, as applicable, depending on the season. These specific areas will be avoided if feasible. If these areas cannot be avoided, a qualified biologist will conduct a pre-construction survey within 48 hours of the start of construction in these identified areas to survey for nests. Any active nests will be flagged and avoided. If nests cannot be avoided, the USFWS-approved qualified biologist will contact the USFWS to determine next steps. Any measures prescribed by USFWS to avoid take of nesting northwestern pond turtle shall be adhered to. ~~Monitor their initial disturbance and relocate any pond turtles or turtle eggs that are uncovered or install an exclusion fence around the area, whichever is determined to be the best option to ensure survival of the turtle via discretion of the qualified biologist. If relocation is deemed appropriate, the qualified biologist will coordinate with CDFW to develop the relocation strategy.~~

During the active period and outside of peak nesting (July 1 to October 31), a pre-construction survey for NPT ~~western pond turtle~~ shall be completed by a qualified biologist no more than 14 days prior to the start of work within 300 feet of ponds, reservoirs, or wetted streams with the potential to support ~~western pond turtle~~ NPT. If the species is observed, the biologist shall provide measures to avoid direct impacts based on the planned work. Such measures may include a protective no-work buffer, exclusion fencing, monitoring, or coordination with CDFW and USFWS if relocation is required. These measures shall be implemented in the following manner:

- If a no-work buffer of 300 feet is feasible, it shall be applied, and no work shall occur within it.
- If a no-work buffer of 300 feet is not feasible, work may occur with an on-site biological monitor, or after the installation of an exclusion fence facilitated by the qualified biologist that encircles areas with potential to support pond turtles or otherwise prevents pond turtles from entering the impact area. Exclusionary fence shall be constructed of silt fence no lower than 24 inches in height and the bottom edge will be buried or otherwise secured to the ground to prevent turtles from crossing under it. A qualified biologist will inspect the exclusion fence after its installation.
- If a pond turtle would be reasonably expected to incur injury from project work, a qualified biologist may relocate a pond turtle after coordinating with CDFW and USFWS.

Incorporation of this mitigation measure would require identification of nests or individuals in pre-construction surveys and appropriate avoidance measures in the event an occupied nest or individual is detected, thereby reducing potential impacts to **less-than-significant.** Additionally, MM BIO-01b Worker Awareness Training reduces potential construction impacts.

BIO IMPACT 09: Work within streams and along streamside corridors could impact FYLF by disrupting migratory movements, rearing, or breeding and could result in direct injury or mortality of individuals. Additional impacts may occur from the removal or altering of habitat, such as those associated with the loss of cover or altering localized water flow. Project Modifications occur in habitat types of similar quality to the 2020 project. Although there is no time of year when complete avoidance of FYLF is possible if working in an area where the species is known to occur, there are periods when encountering the species is less likely. Conducting work outside the typical FYLF breeding season away from wetted features allows for the greatest opportunity for avoidance. Construction in and around suitable habitat has the potential to impact FYLF through displacement, direct injury or mortality, or disruption of nesting, foraging and other behaviors. Impact levels to FYLF is considered potentially significant. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to FYLF.

MM BIO 09: **Foothill Yellow-Legged Frog Impacts-Construction (2020 EIR MM 3.4-11)** Work within 100 feet of any wetted stream feature or associated riparian area where foothill yellow-legged frog (FYLF) has been documented shall occur during the dry months (July 1 through October 31) as possible. Timing shall also occur outside of the FYLF breeding season (March 1 to June 30) to the extent possible. If work must occur between October 31 and June 30, a monitor shall be present, or FYLF shall be excluded from active work areas by an exclusionary fence that is at least 24 inches tall and has a no-climb barrier installed along the top. Prior to commencement of work, a qualified biologist will inspect the fence and work area to ensure proper installation and clearance of FYLF.

Pre-construction surveys for FYLF within any wetted stream feature near a work area shall be conducted by a qualified biologist within 5 days of the onset of construction activities. Surveys shall cover between left and right bankfull at least 500 feet upstream and 500 feet downstream of the work area for presence of all life stages. Surveys shall extend up to 30 feet above bankfull within 100 feet of work areas when suitable, accessible habitat is present. Surveys shall be conducted during the day and under optimal conditions for detecting FYLF. Additional pre-construction surveys may be required as determined by the qualified biologist. If FYLF is detected, measures to avoid the species shall be implemented. Such measures may include, but are not limited to, a protective no-work buffer, exclusion fencing, monitoring, and/or coordination with CDFW. These measures shall be implemented in the following manner:

- If a work area is within 100 feet of a perennial or intermittent stream with potential to support FYLF and work must occur between November 1 and March 1, a monitor will be present during work and will ensure that no FYLF are harmed by project work. If FYLF are located during preconstruction surveys within 500 feet of a work area that is within 30 feet of a wetted stream between March 1 and July 1, a monitor will be present during work. If FYLF are located within 100 feet of a work area that is located within 30 feet of a stream between July 1 and November 1, a monitor will be present. Any FYLF detected will be avoided by

construction activities by at least 50 feet unless the monitor is positioned between the FYLF and the construction activity.

- Work areas can optionally be enclosed with an exclusion fence as described above and no monitoring would be required.
- If a FYLF is found to be in a work area and cannot be avoided, the qualified biologist will coordinate with CDFW to develop an acceptable relocation strategy.

Incorporation of this mitigation measure would require identification of nests or individuals in pre-construction surveys and appropriate avoidance measures in the event an occupied nest or individual is detected, thereby reducing potential impacts to **less-than-significant.** Additionally, MM BIO-01b Worker Awareness Training reduces potential construction impacts.

7.3 Sensitive Natural Communities and Land Cover Types

This section addresses the question:

> *b) Does the Project 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 CDFW or U.S. Fish and Wildlife Service;*

The Modified APE includes eight sensitive communities; each of these were observed in the 333 acres added to the 2020 APE, including blue oak woodland, blue oak savannah, interior live oak woodland, valley oak woodland, purple needlegrass grassland, serpentine rock outcrop, and Brewer willow thicket. Since 2020, one of the previously mapped land cover types, rock outcrop, has since been re-designated as sensitive if the outcrop is serpentine with serpentine indicator plants (CNPS 2024a). Based on this change, 0.18 acre of rock outcrop is now considered sensitive. This community occurs in the Modified APE, including the 333 acres outside the 2020 APE. Project modifications would not constitute a new impact as sensitive natural communities we assessed and mitigated in the 2020 EIR and the mitigation measures (MM BIO 10b and MM BIO 10c) are also applicable to the new community to reduce potential impacts to less-than-significant, when applied to serpentine rock outcrop.

The Modified APE is 505 acres smaller than the 2020 APE, resulting in avoidance of two sensitive natural communities: White Alder Grove and Sargent Cypress Woodland. Project Modifications occur in habitat types of similar quality to the 2020 project.

BIO IMPACT 10: The Project Modifications were designed to reduce impacts to sensitive communities to the extent feasible. However, impacts to these natural communities are anticipated. Each of the sensitive communities were previously mapped on the project site based on surveys conducted between 2017 and 2019 and impacts to such were previously analyzed and mitigated in the 2020 BRA and 2020 Final EIR, except as noted above. The following mitigation measures from the 2020 EIR, as applicable to the Project Modifications, would continue to apply to the Project Modifications and will reduce potential impacts to a level that is **less-than-significant**.

MM BIO 10a: Oak Mitigation Plan (2020 EIR MM 3.4-16)

All project activities shall be subject to compliance with the Oak Mitigation Plan, dated June 2020, included as Appendix OAK to the Final EIR (AES 2020). Prior to approval of final maps, the Applicant shall demonstrate compliance within the Oak Mitigation Plan related to impacts to oaks and oak woodland canopy. Prior to issuance of grading and building permits, the Applicant or applicants for grading and building permits shall demonstrate compliance with the Oak Mitigation Plan related to impacts to oaks, mitigation compliance, building envelope and deed restrictions. The Oak Mitigation Plan for this project addresses impacts to oaks as a result of the Proposed Project. The Oak Mitigation Plan was prepared in accordance with the Lake County General Plan. The Oak Mitigation Plan includes the following:

- Goals of the mitigation plan;
- Method of impact identification appropriate for all phases of construction;
- Discussion on compliance with the Lake County General Plan and 2008 Oak Tree Replacement Plan per the 2009 FEIR;
- Proposed compensatory action suitable to meet mitigation goals;
- Compensatory planting ratios of 2:1 for smaller trees and 5:1 for larger trees;
- Success criteria for mitigation such that compensatory plantings for impacts to individual trees achieve a minimum of 80 percent success rate;
- Preservation for impacts to valley oak woodland, when applied, shall be no less than 3:1 of in-kind habitat type acreage, and 2:1 for all other types of oak woodland;
- A requirement of at least 7 years of monitoring, adaptive management, and reporting throughout the mitigation process; and
- Limitation of the total impact to oak woodlands to 1 acre on residential lots consistent with the design guidelines.

The Oak Mitigation Plan shall be subject to Lake County review and approval prior to ground disturbance.

Oaks present in the Middletown Housing Site and Modified APE shall be avoided. If full avoidance of oaks is not feasible, the measures in the Oak Mitigation Plan prepared for the Guenoc Valley Site shall apply. Replanting for oaks removed on the Middletown Housing Site and/or the Modified APE may occur in the Middletown Housing Site or the Guenoc Valley Site, the Comstock Ranch property or Guenoc Valley Site.

Incorporation of this mitigation measure would reduce the overall impact by identification of location and establishment of suitable buffers for avoidance or provide for compensatory mitigation actions for areas that would not be avoided, thereby reducing potential impacts to **less-than-significant.**

MM BIO 10b: Impacts to Sensitive Habitats (2020 EIR MM 3.4-15)
Sensitive habitats shall be avoided to the maximum extent feasible. In areas where full avoidance of sensitive habitat types is not possible, mitigation shall occur as described below. This mitigation shall be applicable to impacts for purple needlegrass, musk-brush chaparral, white alder grove, Brewer willow thicket, Sargent cypress forest, serpentine rock outcrops, and native grasslands:

1) Preservation of in-kind habitat shall occur at a minimum ratio of 2 acre:1 acre.
2) Areas designated for preservation shall be maximized within identified protection areas,

such as sensitive habitats within Habitat Connectivity Easement Areas. Sensitive habitats within the Open Space Combining District that are not required to mitigate impacts to POU resulting from vineyard development approved in the 2009 FEIR may be used for the purpose of this mitigation.

3) Preservation of in-kind habitat that occurs within residential lots shall occur only within open space prohibited from development (including landscaping and agricultural uses) by the Design Guidelines, or through the establishment of habitat easements within the residential lots. Preservation of sensitive habitat for the purposes of mitigation that occurs within deed-restricted open space shall be identified within the deed restriction and shall prohibit the development of that area identified for preservation. Preservation within deed-restrictions shall be preserved in perpetuity as a condition of the deed.
4) Areas that are preserved for in-kind habitat that occurs outside of residential lots, Habitat Connectivity Easement Areas, and the Open Space Combining District shall be avoided during future phases of development. Should unavoidable impacts to in-kind habitat preservation areas occur during future phases of construction, those impacts shall be subject to additional compensatory actions set forth in this mitigation. Should insufficient habitat occur to offset future impacts, a compensatory habitat restoration, enhancement, and/or creation mitigation measure shall be prepared and approved by the County prior to on the ground impacts of future development phases.
5) Those areas selected for preservation shall be provided on a map to the County and approved by the County.

The Applicant may additionally satisfy the 2:1 mitigation ratio through restoration, creation, and/or enhancement of in-kind habitat. Mitigation performed through restoration, creation, or enhancement shall be monitored for a minimum of three years by a qualified biologist. The biologist shall prepare an annual report on the status of mitigation activities along with adaptive management recommendations as necessary. These reports shall be maintained by the Applicant and available to agencies upon request. Success criteria shall be as follows and shall require additional years of monitoring and management should mitigation fail to meet success criteria:

- Purple needlegrass and native grasslands shall achieve a percent native plant cover that meets or exceeds that of the habitat impacted. Non-sensitive grasslands and herb-dominated habitat types are suitable for restoration and creation activities.
- Musk-brush chaparral shall be restored in non-sensitive suitable habitat. Mitigation shall occur at a 2:1 acre ratio and shall achieve a 75 percent acreage establishment. The monitoring biologist shall consider percent cover, species composition, overall health of plantings, and other indicators when determining success of establishment.
- White alder grove and Brewer willow thicket may be restored along riparian corridors where invasive species or bank stabilization issues have occurred. Mitigation shall occur at a 2:1 acre ratio and shall achieve a 75 percent acreage enhancement. The monitoring biologist shall consider percent cover, species composition, bank stability, overall health of plantings, and other indicators when determining success of establishment.
- Sargent cypress forest shall be enhanced through the removal of competing foothill pines at an acreage ratio of 2:1 once annually for a total of five years and/or Sargent cypress trees shall be replanted at a 2:1 ratio and monitored for a total of five years. Replanting shall achieve a 75 percent success rate.
- Serpentine rock outcrop shall be enhanced through the removal of invasive species at an acreage ratio of 2:1 in similar habitat that has a dominant invasive species relative cover

to achieve a percent native plant cover that meet or exceeds that of the habitat impacted.

MM BIO 10c: Sensitive Habitat Impacts from Wildfire Clearing (2020 EIR MM 3.4-18)
Sensitive habitats included below shall be avoided during removal of dead vegetation and fire fuel load reduction necessary for safety purposes in managing wildfire risk to the degree feasible. The following sensitive habitats shall be addressed in the following manner as it relates to fire management fire breaks, lop and scatter, and masticating outside of development areas:

- Purple needlegrass grasslands – This habitat does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- Musk brush chaparral – This habitat does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- White alder grove – Due to limited distribution and association with natural riparian fire breaks, this habitat type should not require ongoing wildfire risk fuel reduction activities and shall be avoided as possible. Equipment and vehicles shall not be used or staged within this habitat type. If determined necessary by safety personnel, hand-clearing of dead vegetation may occur.
- Brewer willow thicket - Due to the limited distribution and association with natural riparian fire breaks, this habitat type does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- Sargent cypress forest – This habitat may require occasional management for wildfire risk. Due to the sensitive nature of this habitat type, hand tools shall be the only acceptable use of vegetation management. No live Sargent cypress trees shall be felled. Equipment and vehicles shall not be used or staged within this habitat type.
- Serpentine rock outcrop - Due to the limited distribution and low vegetation cover, this habitat type does not require wildfire risk fuel reduction activities. This habitat shall be avoided to the degree feasible. Equipment and vehicles shall not be used or staged within this habitat type.
- Oak woodland - This habitat may require occasional management for wildfire risk. Due to the sensitive nature of this habitat type, hand tools or grazing shall be the only acceptable use of vegetation management. Should impacts to any living oak trees occur, they shall be mitigated for as outlined within the Oak Mitigation Plan. Equipment and vehicles shall not be used or staged within this habitat type.
- Oak savanna – Cover for this habitat type is dominated by non-native annual grasses and would not likely require management for wildfire risk except limited grazing or mowing immediately adjacent to high risk fire areas such as within 50 feet of roads. Equipment use and staging may occur within areas of non-native annual grassland provided that the driplines of oaks are not impacted. Should impacts to any living oak trees occur, mitigation shall occur as outlined within the Oak Mitigation Plan.

Incorporation of these mitigation measures would reduce the overall impact by identification of location and establishment of suitable buffers for avoidance or provide for compensatory

mitigation actions for areas that would not be avoided, thereby reducing potential impacts to **less-than-significant**.

7.4 Aquatic Resources

This section analyzes the Project Modifications' potential impacts and mitigation for wetlands and other areas presumed or determined to be within the jurisdiction of the Corps or BCDC in reference to the significance threshold outlined in CEQA Appendix G, Part IV (c):

> *c) Does the Project have the potential to have a substantial adverse effect on state or 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;*

The Modified APE, including the 333 acres added to the 2020 APE includes 12 aquatic features; including: riparian woodland, ponds/reservoirs, perennial stream, intermittent stream, ephemeral stream, ephemeral ditch, seasonal wetland depressions, seasonal wetland ditches, seasonal wetland pond fringe, seasonal wetland seeps/swales, seasonal wetland wet meadow, and stream fringe/in-stream wetland. The aquatic resources are subcategories of the three aquatic resource types presented in the 2020 Final EIR; no new aquatic resource types occur in the Modified APE. Project Modifications occur in or adjacent to aquatic resources of similar quality to the 2020 project.

BIO IMPACT 11: The Modified APE contains several aquatic features which are variously regulated by the Corps, RWQCB, and/or CDFW. Each of the aquatic resources were previously mapped on the project site based on surveys conducted between 2017 and 2019 and impacts to such were previously analyzed and mitigated in the 2020 BRA and 2020 Final EIR. Project Modifications occur in habitat types of similar quality to the 2020 project. Aquatic feature setbacks, as outlined by the County of Lake (summarized below), have been incorporated into development design for features which will not be directly impacted through project activities. However, as construction activities are planned within aquatic features, direct impacts are expected. Direct impacts to aquatic resources are considered potentially significant. The following mitigation measure from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to aquatic resources.

MM BIO 11: **Aquatic Resources Protection and Management (2020 EIR MM 3.4-17)**
Consistent with governing regulations and policies, the following setbacks shall be incorporated into the project design:

- 30 feet from the top of bank of perennial streams;
- 20 feet from the top of bank of any intermittent stream;
- 20 feet from the edge of any adjacent wetlands or the ordinary high-water mark of ephemeral streams or other bodies of water (including reservoirs and lakes); or
- To the outer extent of a riparian corridor.

No setback is required or recommended for man-made stormwater or irrigation ditches. Should additional analysis of these features performed by a qualified biologist that determines larger setbacks are needed to ensure full protection of habitat based on

factors such as slope, setbacks up to fifty feet may be required as possible and dictated by the conditions observed and analyzed.

The setback distances identified above shall be delineated by a qualified biologist with high visibility fencing or flagging prior to any construction activities occurring within 200 feet of the aquatic habitat features. No construction work or equipment staging shall occur within the setbacks unless a variance or permit is authorized to allow it. Prior to impacts, consultation shall occur with USACE and the RWQCB to determine the extent of federal and state jurisdictional wetlands and waters. A CWA Section 404 permit shall be obtained from USACE for impacts to any identified wetlands and waters subject to CWA jurisdiction, along with RWQCB state water quality certification for such permit under CWA Section 401, as necessary. An LSAA with CDFW shall be entered for those impacts to any identified streams subject to Fish and Game Code Section 1600 jurisdiction. Any necessary permits and approvals shall be obtained prior to the respective impacts for which they are required, and the conditions of permits and approvals acquired for the Proposed Project shall be met. Mitigation shall occur consistent with the necessary permits and approval conditions required for the Proposed Project. Mitigation for direct impacts to aquatic habitats shall occur through a combination of habitat preservation, creation, or restoration/enhancement and shall, at a minimum, include the following:

- Should mitigation for aquatic resources occur through preservation, preservation shall occur at a minimum ratio of 2:1. Areas designated for preservation shall be maximized within the Open Space Combining District or within Habitat Connectivity Easement Areas, and may only occur within residential lots if preservation in perpetuity as a condition of the deed-restricted open space for the lot. Those areas selected for preservation shall be approved by the County and be subject to the compensatory actions set forth in this mitigation and necessary permit or approval conditions should future impacts to preserved habitats be identified.
- When mitigation occurs through the restoration or enhancement of habitat, mitigation shall occur at a minimum ratio of 2:1. Restoration and/or enhancement of habitat shall occur within the Open Space Combining District or within Habitat Connectivity Easement Areas, as possible. Monitoring of mitigation activities shall be performed by a qualified biologist for a minimum of three years consistent with the terms of necessary permits. The qualified biologist shall prepare an annual report on the progress of mitigation with recommended management actions. Mitigation shall be deemed complete once the qualified biologist has determined that the success of restoration or habitat creation activities meets or exceeds 80 percent.
- When mitigation occurs through the creation of habitat, creation shall occur at a minimum ratio of 1:1. A qualified biologist shall monitor habitat creation activities on an annual basis and shall provide an annual report of these monitoring activities along with recommendations in order to ensure success of habitat creation. Following completion of habitat creation activities, a qualified biologist shall prepare an annual report on the progress of mitigation with recommended management actions.

- In cases of conflict between permit terms and measures presented herein, those permit terms and conditions shall supersede those presented within this EIR. Alternative forms of mitigation not detailed above may serve to satisfy mitigating requirements to jurisdictional wetlands and waters as dictated by the appropriate permit(s). Alternative forms of mitigation include purchase of habitat credits from an approved mitigation bank at a ratio not less than 2:1, or payment of in-lieu fees as set by the appropriate agency.

Incorporation of this mitigation measure would reduce impacts through avoidance where possible and construction setbacks to prevent impacts from nearby construction activities. Clearly defined preservation, restoration, and habitat creation mitigation provide for appropriate goals and long-term management to ensure efficacy of mitigation such that impacts would be **less-than-significant**.

7.5 Wildlife Corridors and Native Wildlife Nursery Sites

This section analyzes the Project Modifications' potential impacts and mitigation for habitat corridors and linkages in reference to the significance threshold outlined in CEQA Appendix G, Part IV (d):

> *d) Does the Project have the potential to 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;*

In addition to the special-status wildlife species that may occur, non-status wildlife species occur and may use portions of the Modified APE as a migration corridor. Large expanses of uncultivated land can be used by native species, such as mule deer (*Odocoileus hemionus*), mountain lion (*Puma concolor*), and black bear (*Ursus americanus*), to move to various territories seasonally and throughout their life cycle. Minimization measures for potential impacts to wildlife corridors were identified in the 2020 Final EIR, including the designation of preservation of open space, establishment of Habitat Connectivity Easements, and design guidelines that clusters development. However, fencing and increase in artificial lighting have potential significant impacts to wildlife corridors. Potential nursery sites include nesting birds or maternity bat roosts. Potential impacts to such places are mitigated under MM BIO 07 (Nesting Birds) and MM BIO 05 (Roosting Bats).

BIO IMPACT 12: Project Modifications occur in habitat types of similar quality to the 2020 project. The use of fencing has the potential to result in wildlife entrapment or exclusion and high levels would restrict wildlife movement or cause habitat fragmentation. Also, an increase in artificial lighting has the potential to impact wildlife movement through stranding, disorienting, attracting or otherwise altering natural dispersal and migratory behavior. Impacts to wildlife movement would constitute a potentially significant impact. The following mitigation measures from the 2020 EIR would continue to apply to the Project Modifications and would reduce impacts to wildlife movement.

MM BIO 12a: Wildlife Movement-Fencing (2020 EIR MM 3.4-19)

Use of fencing shall be minimized throughout the Guenoc Valley Site and shall adhere to those restrictions set forth in the Design Guidelines for all phases of development. Fencing shall not be installed for the purpose of wildlife exclusion except in the case of safety or protection of agricultural resources or residential development areas, and shall be designed to allow for continued movement of non-target species as possible. Unless approved by the Home Owner's Association or for ongoing protection of agricultural resources or property, fencing exceeding six feet in height shall not be used. Fencing materials designed for the purpose of wildlife entrapment or injury shall not be used.

Full perimeter fencing for residential lots exceeding two acres in size shall be prohibited unless consistent with the following wildlife-friendly fencing measures:

- Fencing shall be reasonably visible to travelling wildlife to prevent collision with fencing,
- Fencing shall not include low rails or wires that would prevent smaller dispersing animals from passing,
- Fencing shall not present a top rail clearance exceeding six feet and shall not exceed four feet when possible. Clearance height shall consider the ground slope approaching the fence such that the height of a jump required to clear the fence from the downslope side does not exceed six feet, and
- Materials that entangle or otherwise entrap wildlife, such as loose wire, top or bottom barbed wires, shall be prohibited.

MM BIO 12b: Artificial Lighting Impacts- Construction and Operation (2020 EIR MM 3.4-7)
Lighting fixtures associated with the construction and operation of the Proposed Project shall be designed to ensure maximum efficiency, eliminate direct upward light, and reduce spill consistent with Design Guidelines and shall follow the general principles below:

- Site-wide lighting shall promote dark sky policies;
- Lighting along roadways, pathways, and within parking areas shall only be used to the extent necessary to guide nighttime navigation and ensure safety and security;
- Lighting shall be not be placed or illuminate higher than necessary to provide efficient lighting for its intended purpose;
- Lighting shall be deliberately directed downward and away from sensitive habitat types;
- Nighttime lighting shall also be reduced to the maximum extent feasible by turning off lights from the hours of 11 p.m. to 7 a.m., unless they are essential for safety or security purposes and are properly designed and installed to reduce light spillage. Lights that must be used during these designated nighttime hours shall be dimmed in order to reduce the intensity of light projected by the Proposed Project as possible and shall be minimized as appropriate through motion- sensitive lighting, lower intensity lights, and appropriately programmed timed lights.

Appropriate lighting consistent with these measures and the Proposed Project's Design Guidelines shall be adhered to for all phases of construction at project-related sites.

These mitigation measures allow for minimal use of fencing, preventing complete wildlife barriers except where necessary (i.e., around agriculture), and provide for passageways between developed areas. Additionally, these measures reduce artificial lighting during construction and

development. Incorporation of the mitigation measures would reduce impacts to **less-than-significant**.

7.6 Local Policies and Ordinances

This section analyzes the Project Modifications' potential impacts and mitigation based on conflicts with local policies and ordinances in reference to the significance threshold outlined in CEQA Appendix G, Part IV (e):

> *e) Does the Project have the potential to conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;*

Local plans and policies related to biological resources examined in this analysis are:

- Lake County Code Section 30-21 provides for the protection of oak trees and prohibits activities resulting in the clearing of oak trees such that a significant effect on oak woodland would occur.
- Lake County Zoning Ordinance Article 37 requires minimum setbacks from aquatic resources as defined below:

  a) 30 feet from the top of bank any perennial stream,
  b) 20 feet from the top of bank of any intermittent stream,
  c) 20 feet from the edge of any adjacent wetlands or the ordinary high-water mark of other bodies of water, or
  d) To the outer extent of vegetation dominated by common riparian species such as Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), box elder (*Acer negundo*), dogwood (*Cornus* spp.), willow (*Salix* spp.), and big leaf maple (*Acer macrophyllum*) (this latter zone may extend beyond 30 feet).

Oak trees and aquatic resources have been avoided to the greatest extent feasible during development design. County aquatic setbacks have been incorporated into the development design. Mitigation measures MM Bio 01 and MM Bio 11 reduce potential impacts to aquatic resources to less than significant. Mitigation measure MM Bio 10 reduces potential impacts to oak woodland to less than significant. No significant conflict with local policies or ordinances protecting biological resources shall occur due to incorporation of those measures into the Project Modifications.

7.7 Habitat Conservation Plans

This section analyzes the Project Modifications' potential impacts and mitigation based on conflicts with any adopted local, regional, and state habitat conservation plans in reference to the significance threshold outlined in CEQA Appendix G, Part IV (f):

> *f) Does the Project have the potential to conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

The Project Modifications are not in conflict with any local, regional or state habitat conservation plans and therefore will not significantly conflict with any local, regional, or state habitat conservation plans.

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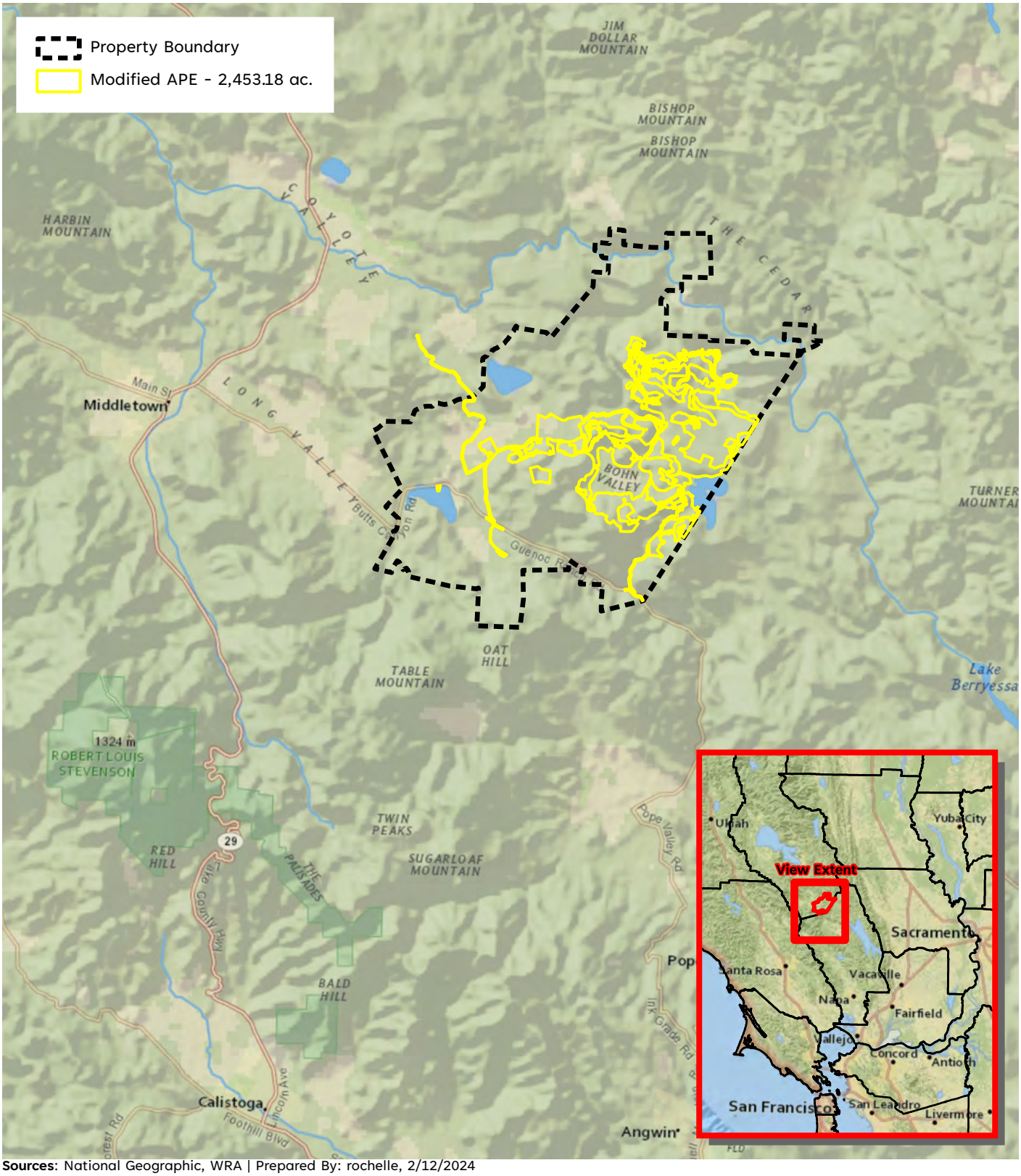
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APPENDIX A. FIGURES

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Sources: National Geographic, WRA | Prepared By: rochelle, 2/12/2024

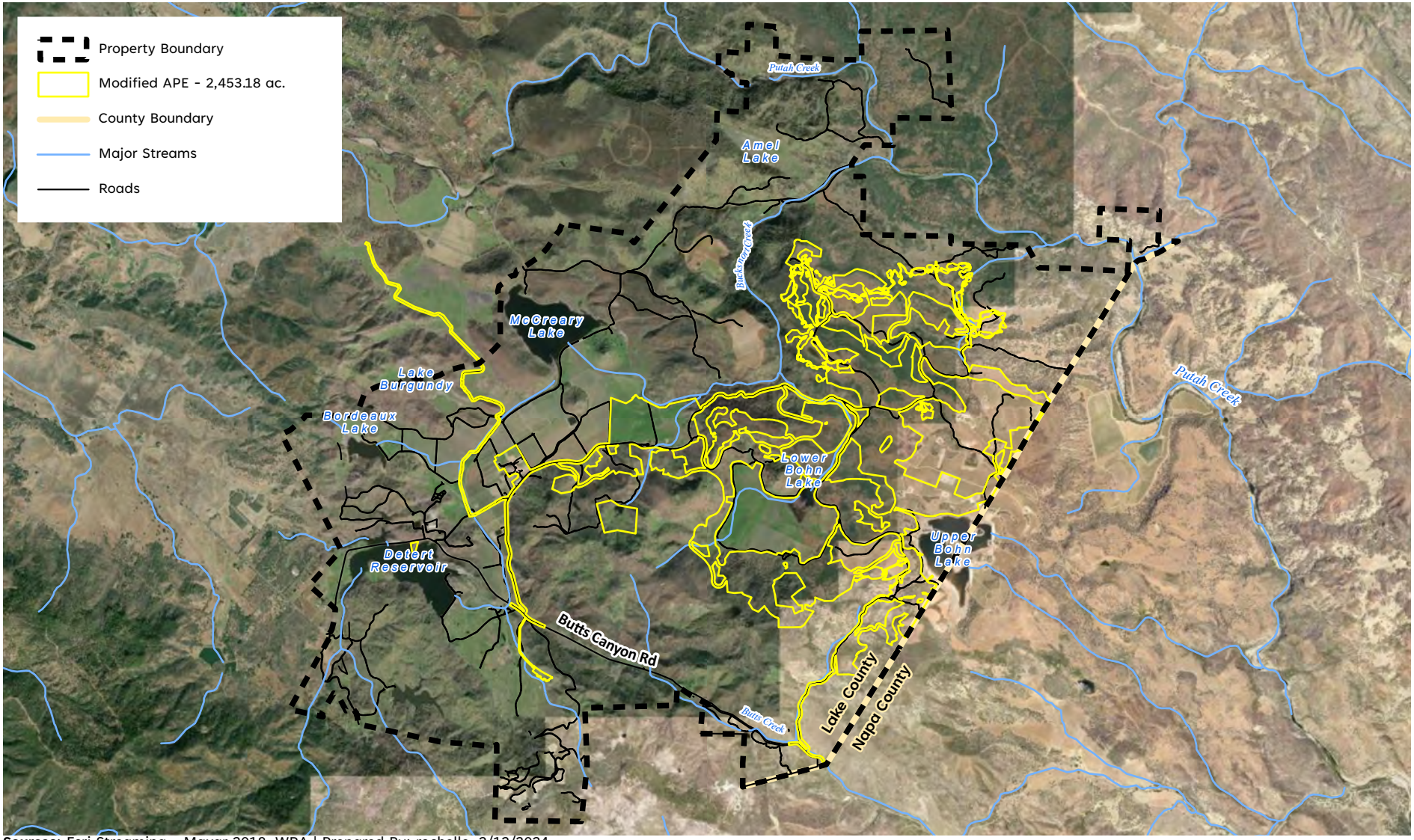
Figure 1. Modified APE Regional Location Map

2024 Project Modifications
Guenoc Valley Mixed Use
Planned Development Project
Lake County, California

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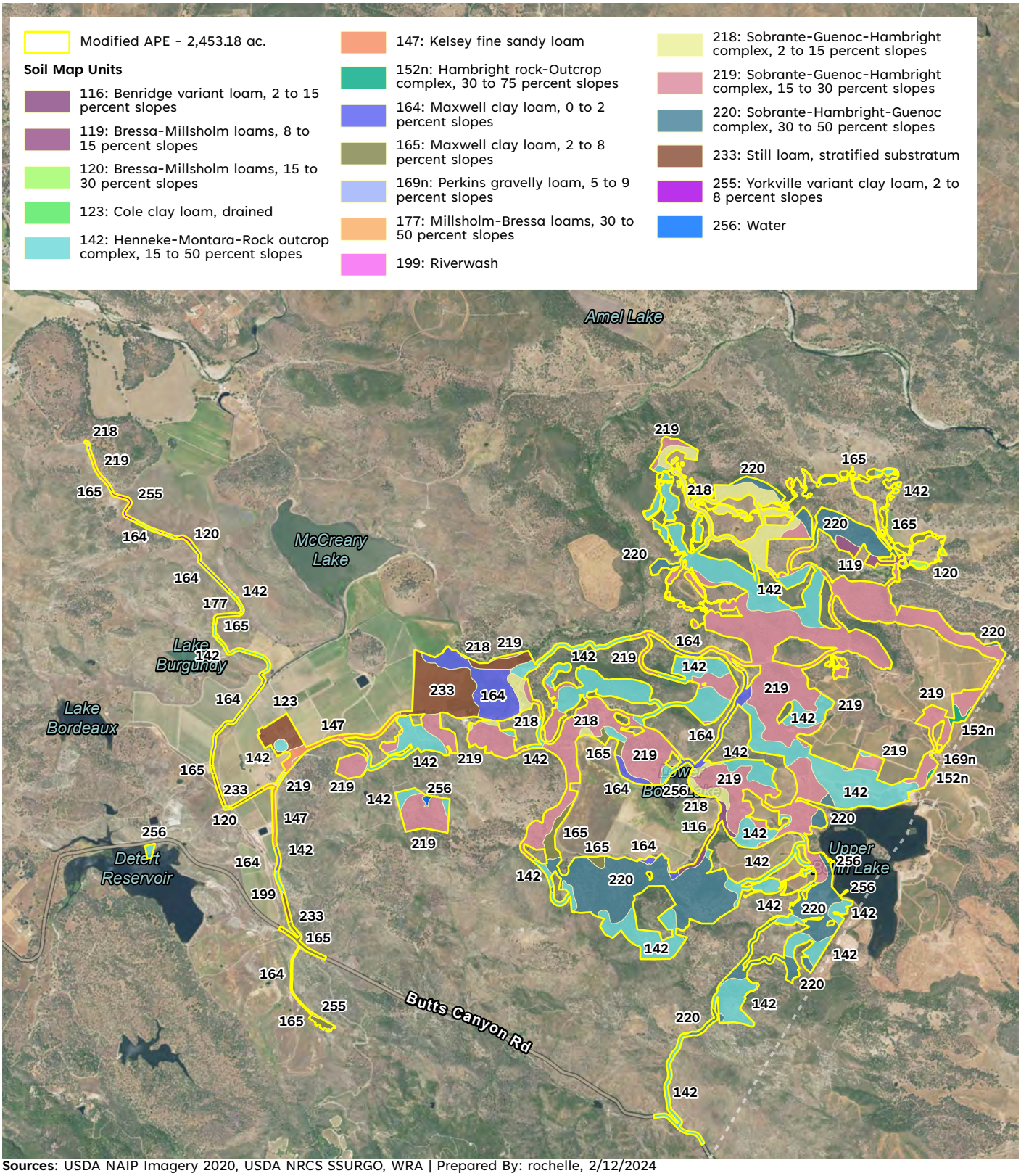
Figure 2. Modified APE Site Overview

2024 Project Modifications
Guenoc Valley Mixed Use
Planned Development Project
Lake County, California

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Sources: USDA NAIP Imagery 2020, USDA NRCS SSURGO, WRA | Prepared By: rochelle, 2/12/2024

Figure 3. Soil Types within the Modified APE

2024 Project Modifications
Guenoc Valley Mixed Use
Planned Development Project
Lake County, California

wra Environmental Consultants

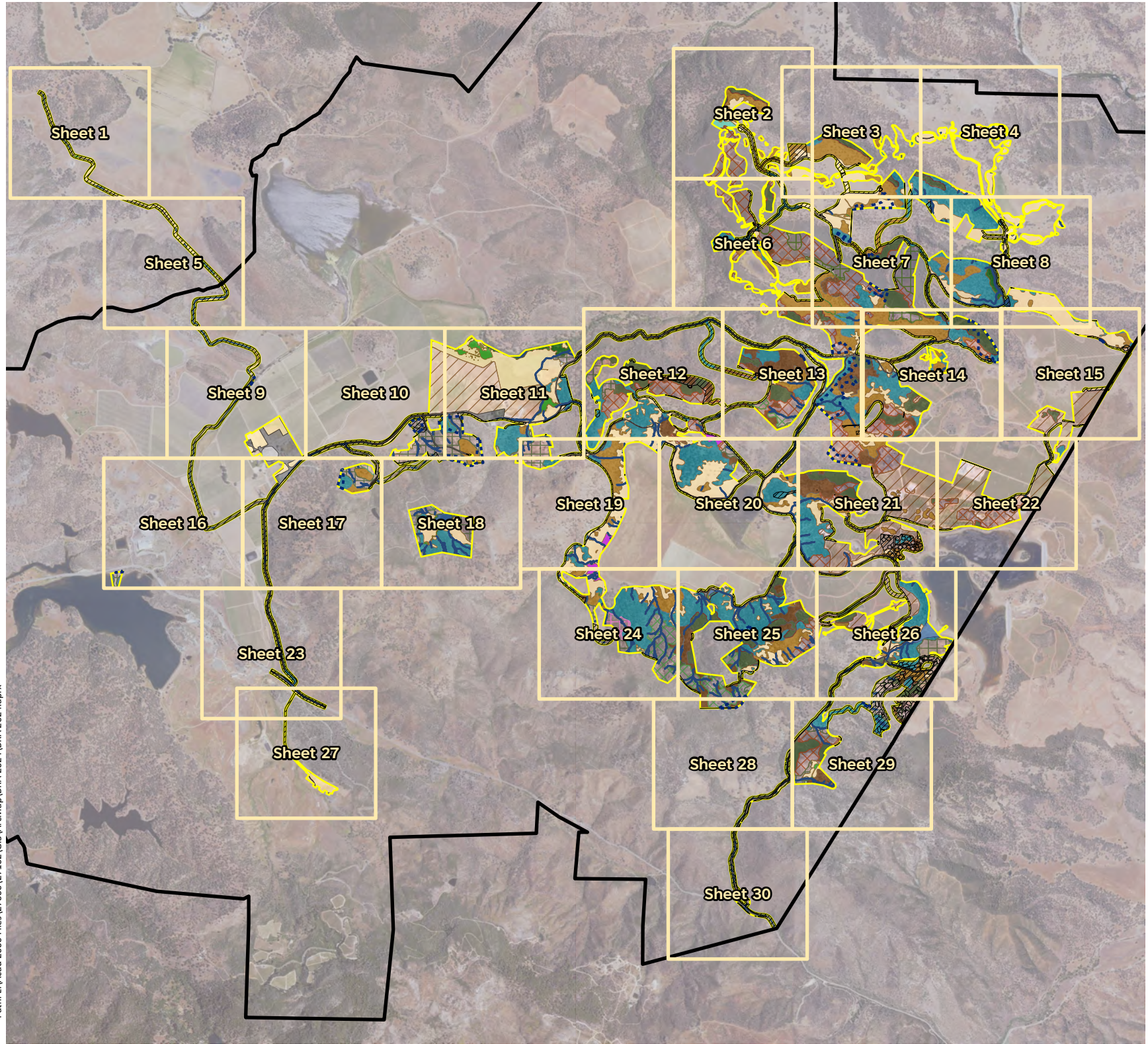


Figure 4-1. Land Cover Types Mapped within the Modified APE (Overview)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Property Boundary
- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Mapbook Grid

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grasssland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-2. Land Cover Types Mapped within the Modified APE (Sheet 1)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
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- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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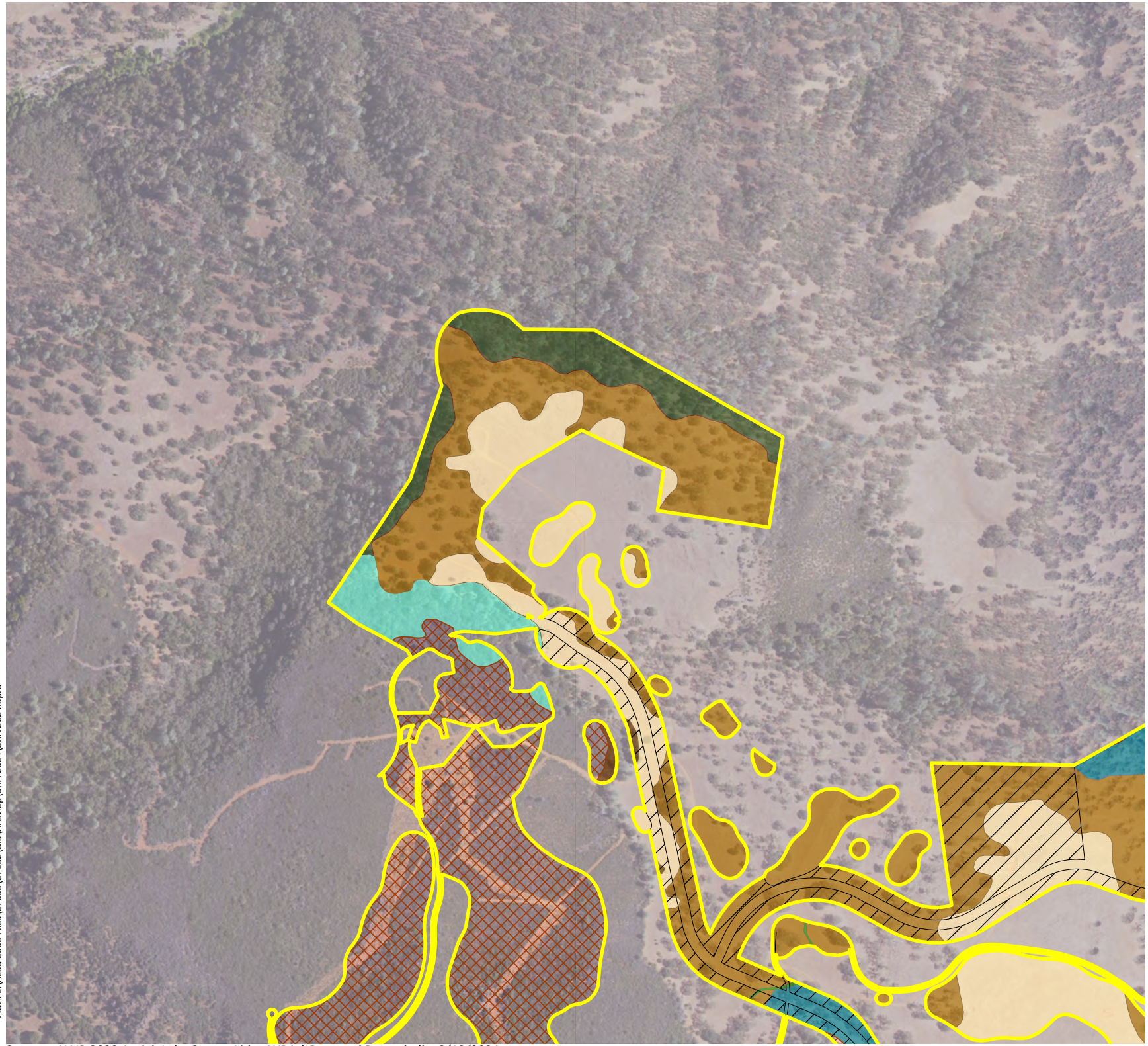
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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-3. Land Cover Types Mapped within the Modified APE (Sheet 2)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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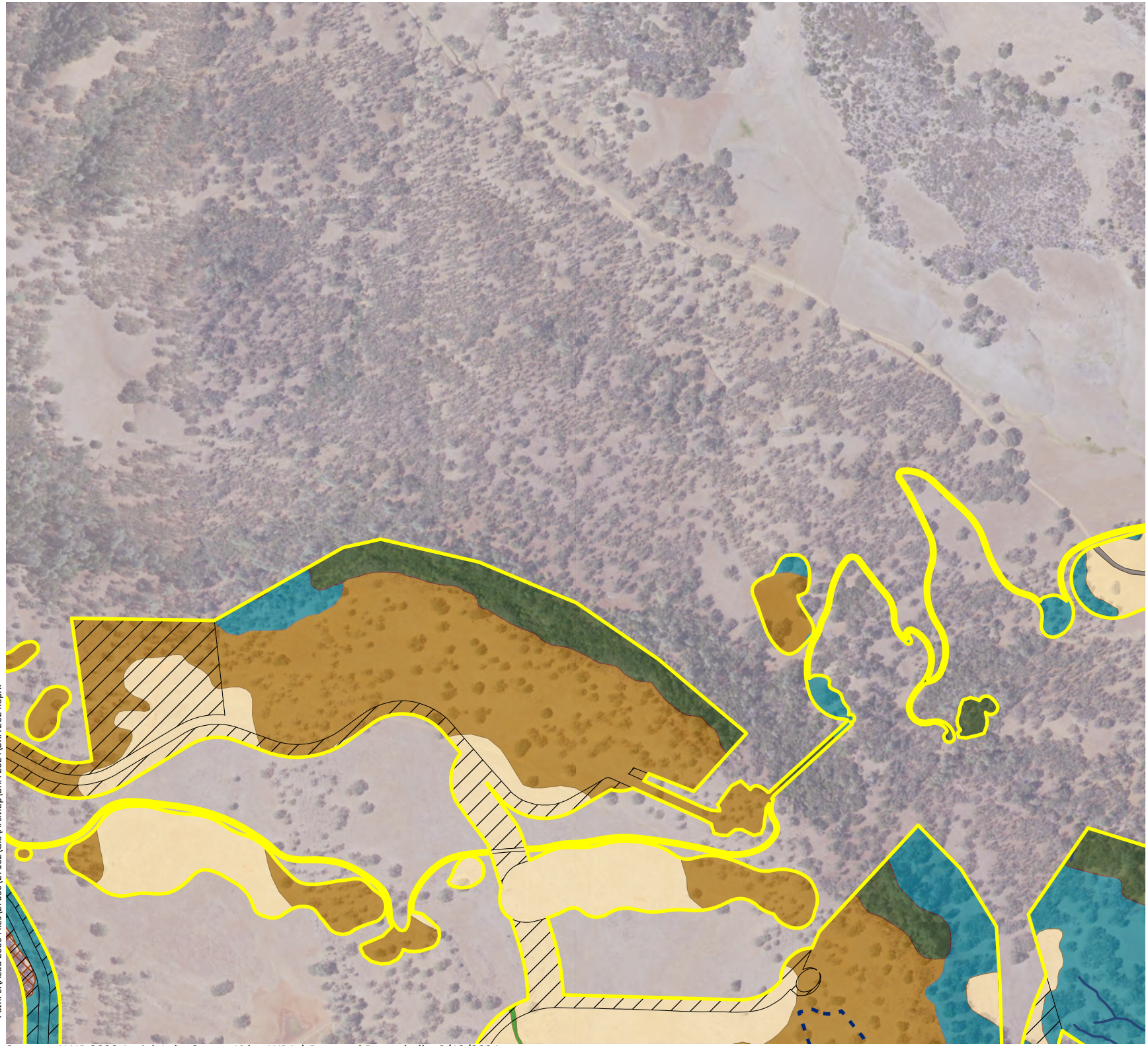


Figure 4-4. Land Cover Types Mapped within the Modified APE (Sheet 3)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-5. Land Cover Types Mapped within the Modified APE (Sheet 4)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-6. Land Cover Types Mapped within the Modified APE (Sheet 5)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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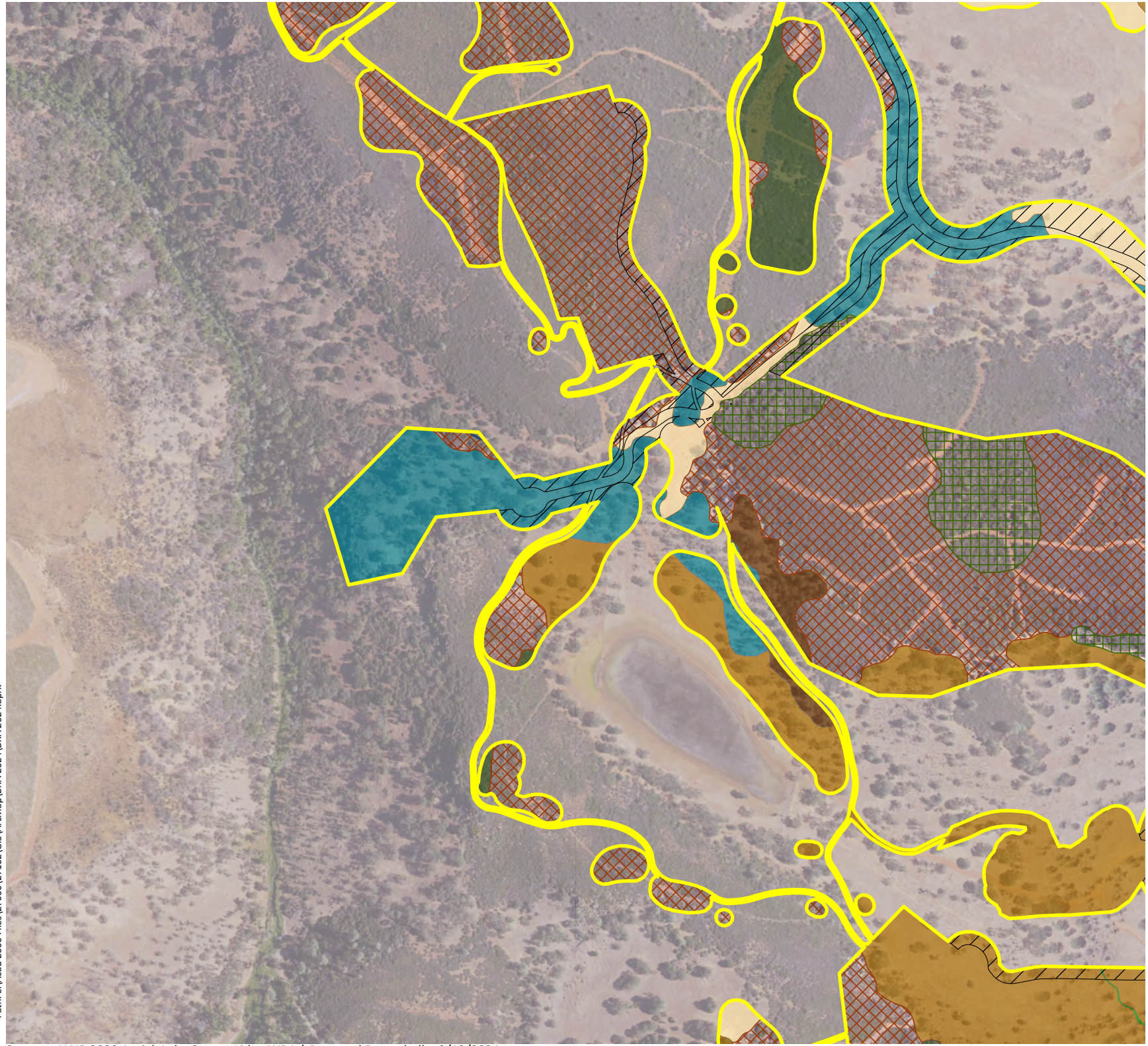
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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-7. Land Cover Types Mapped within the Modified APE (Sheet 6)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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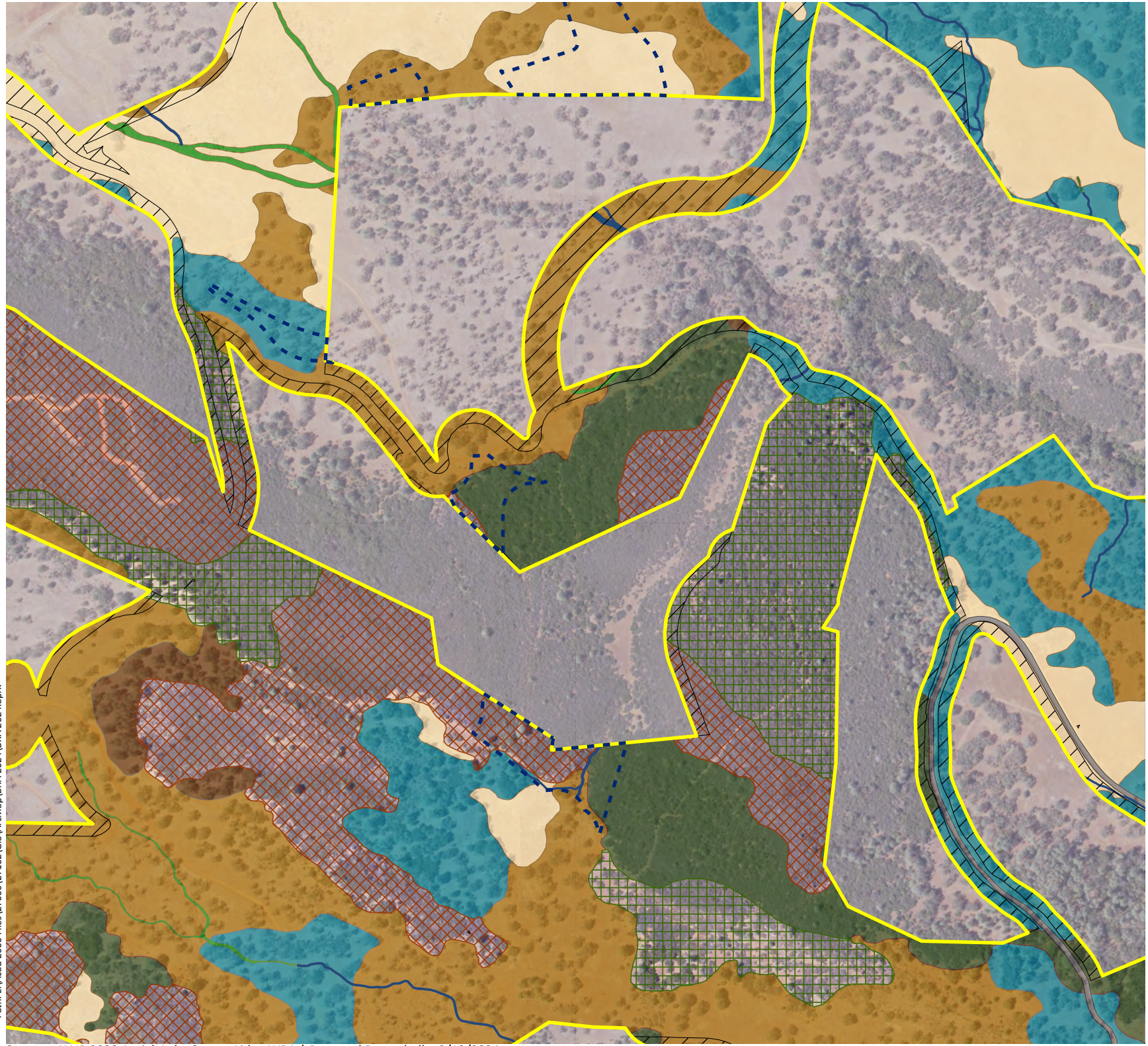


Figure 4-8. Land Cover Types Mapped within the Modified APE (Sheet 7)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

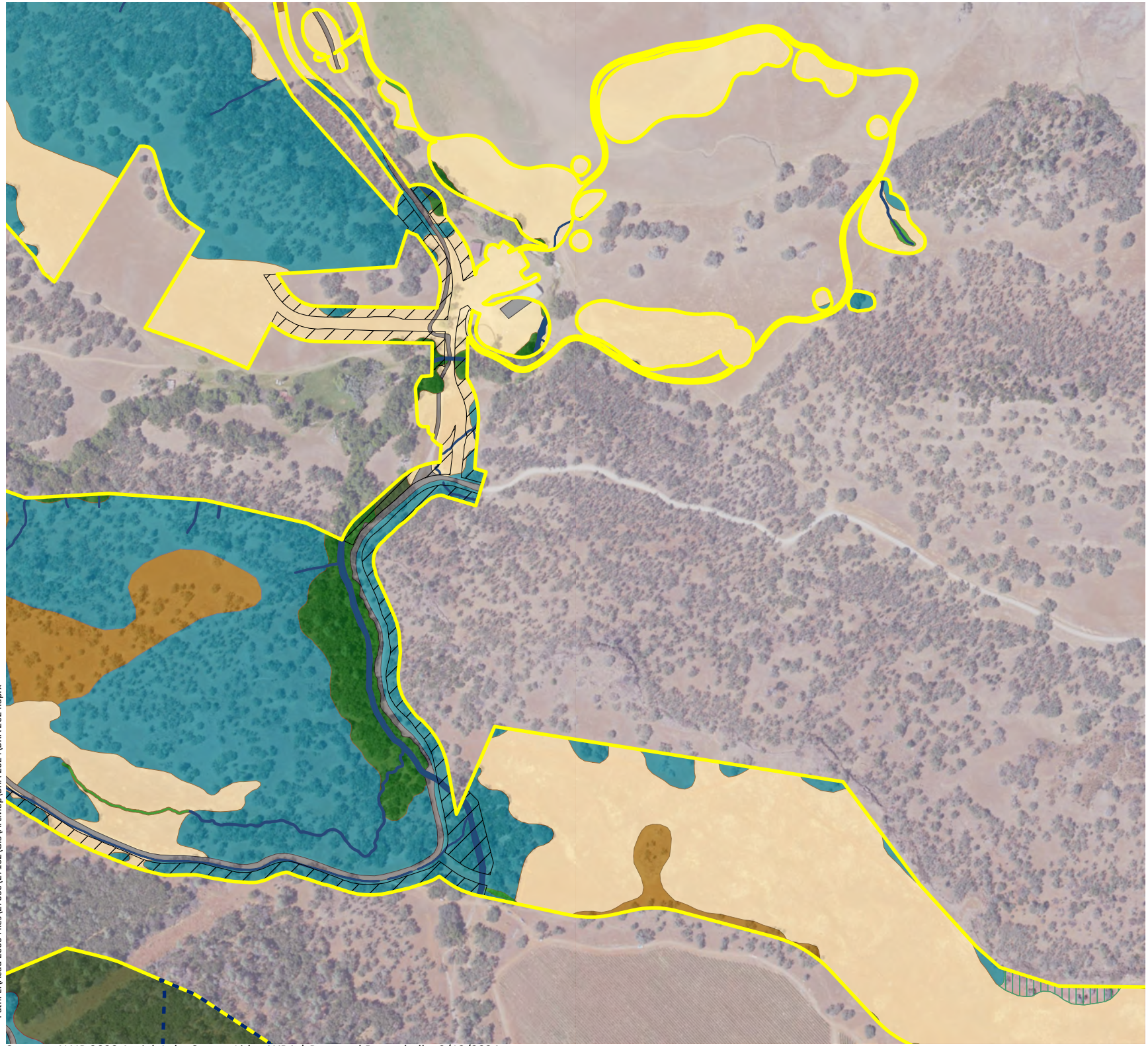


Figure 4-9. Land Cover Types Mapped within the Modified APE (Sheet 8)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-10. Land Cover Types Mapped within the Modified APE (Sheet 9)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

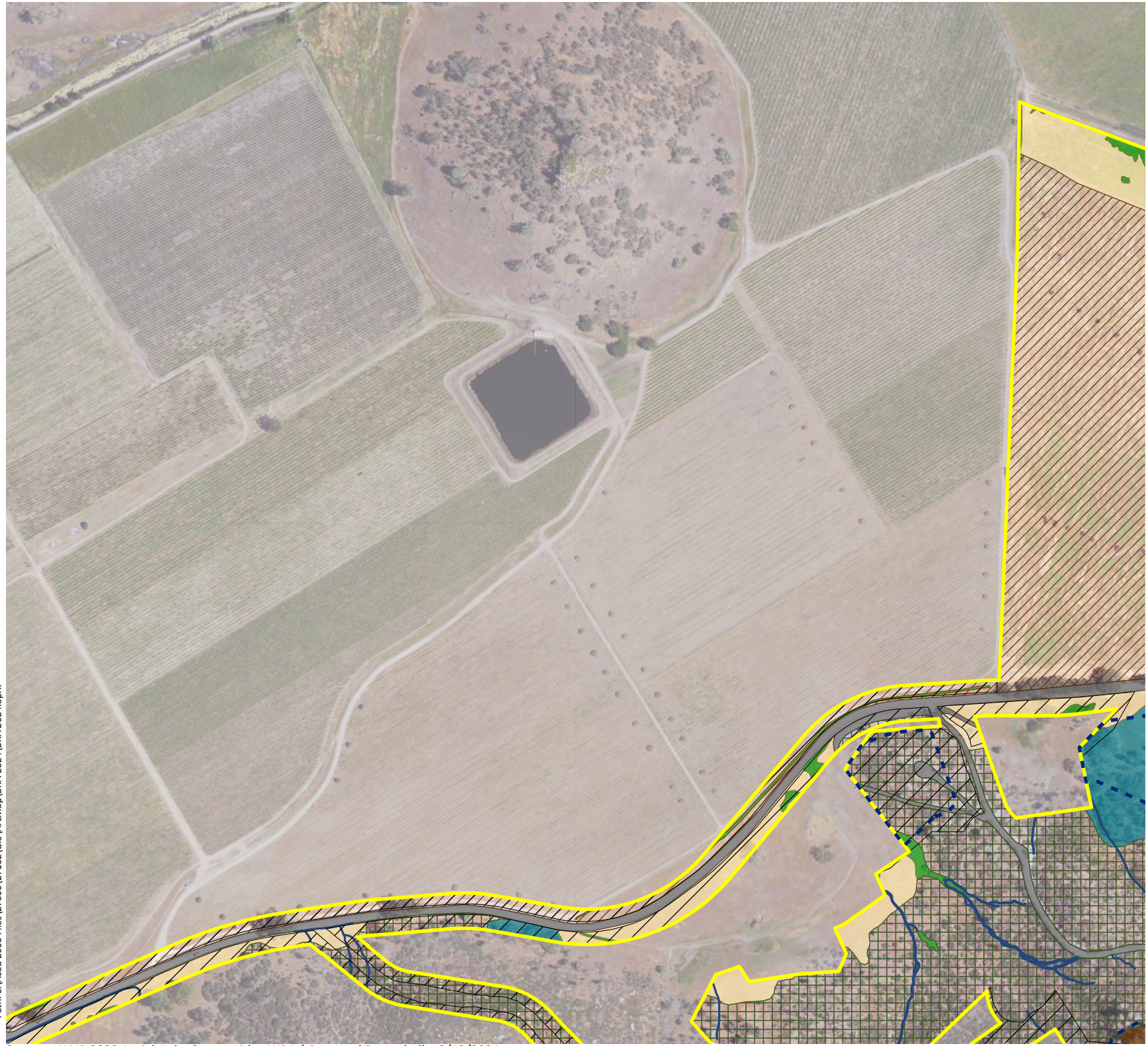


Figure 4-11. Land Cover Types Mapped within the Modified APE (Sheet 10)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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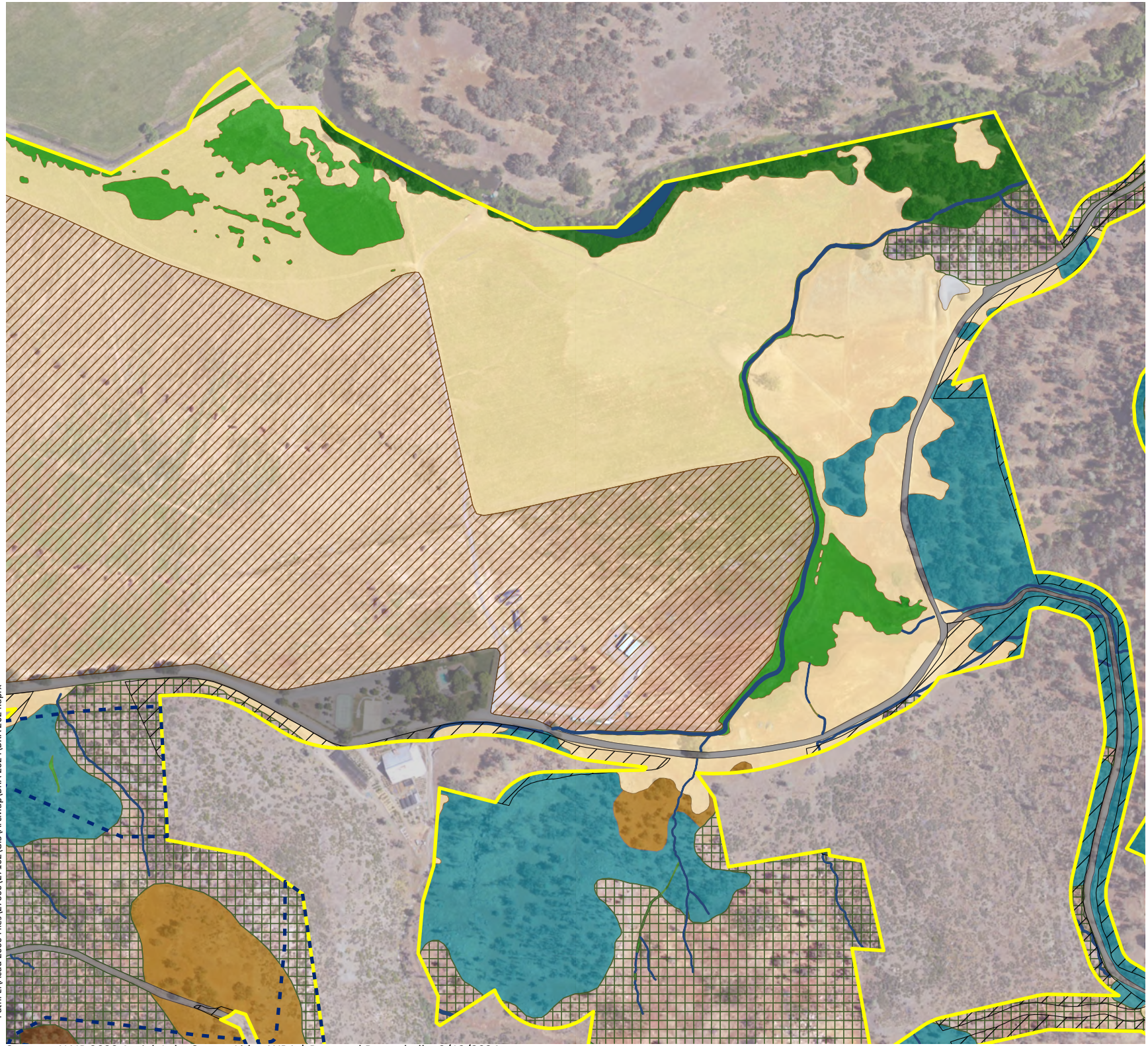
wra Environmental Consultants

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-12. Land Cover Types Mapped within the Modified APE (Sheet 11)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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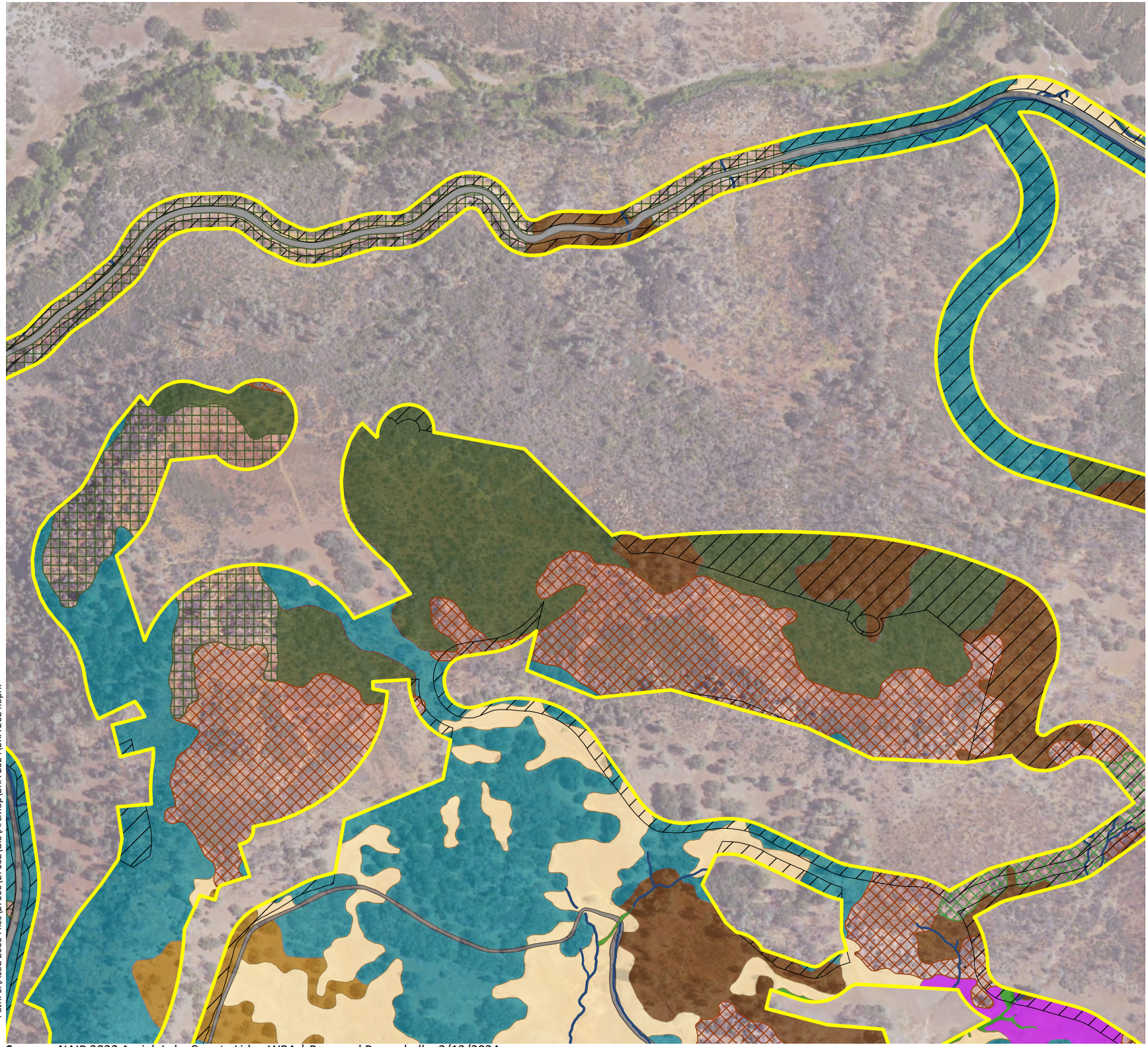
wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-13. Land Cover Types Mapped within the Modified APE (Sheet 12)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Interior Live Oak Woodland - 170.44 ac.
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- Musk Brush Chaparral - 2.84 ac.
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- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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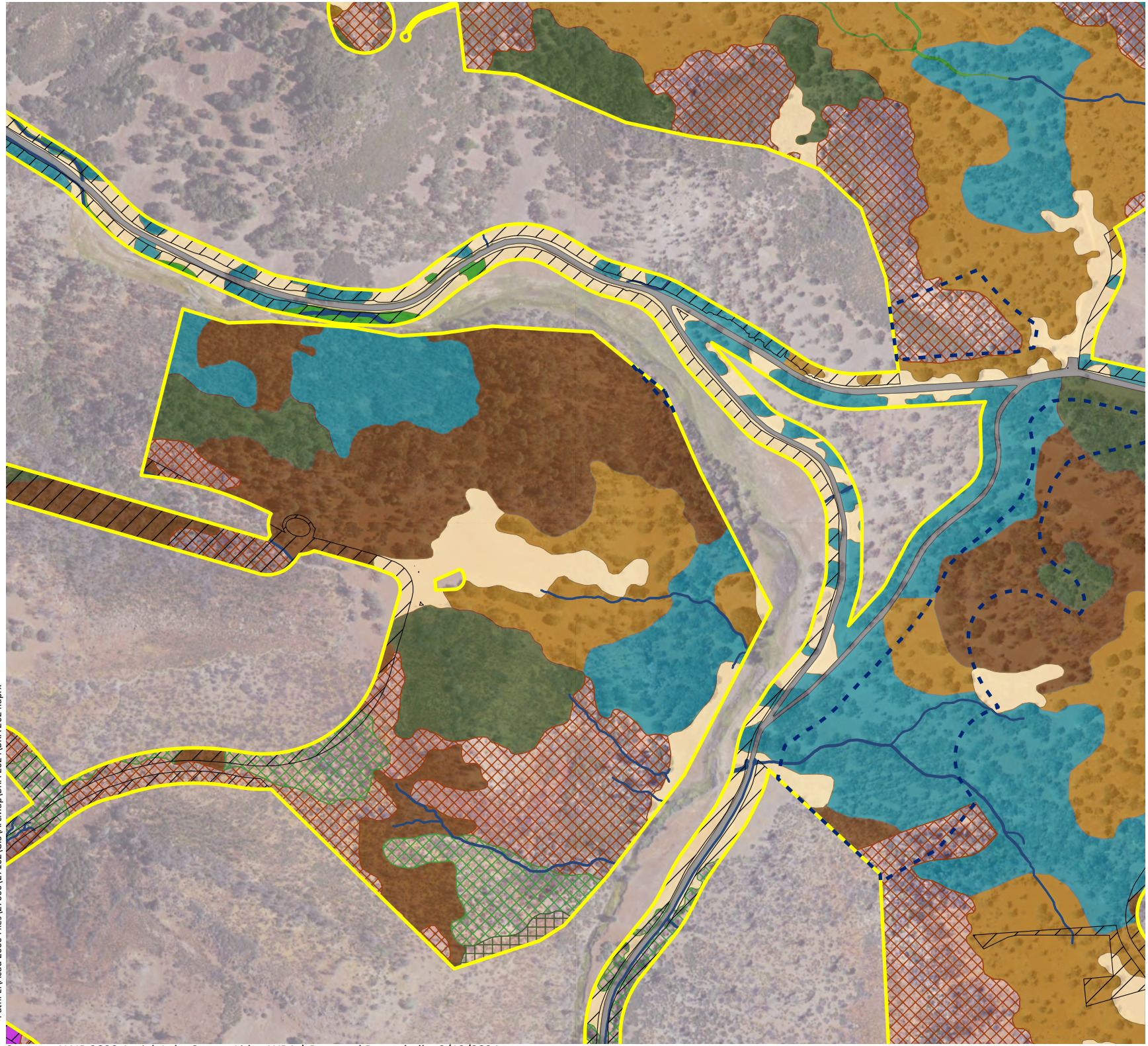
wra Environmental Consultants

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-14. Land Cover Types Mapped within the Modified APE (Sheet 13)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
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- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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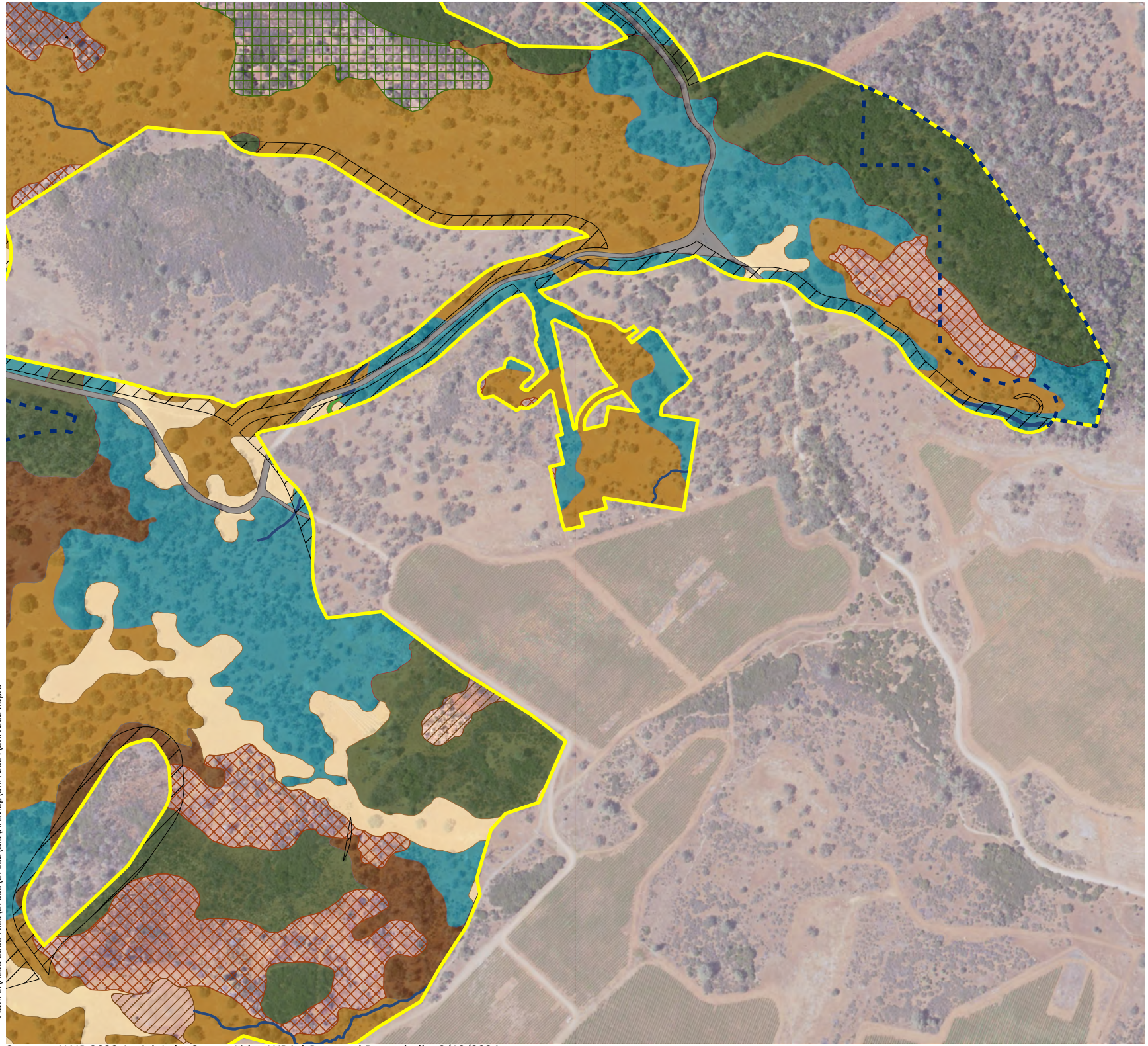
wra Environmental Consultants

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-15. Land Cover Types Mapped within the Modified APE (Sheet 14)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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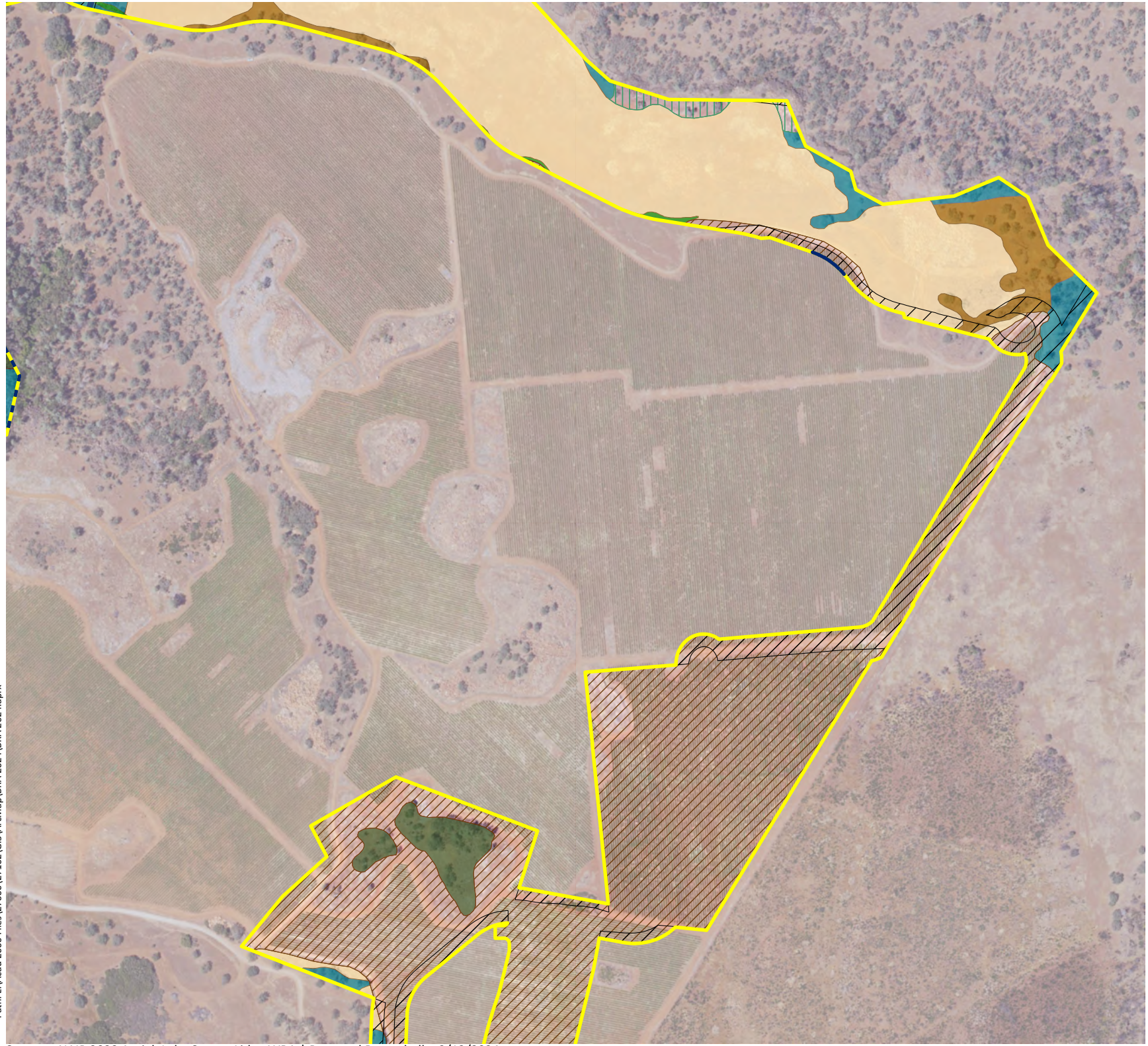
wra Environmental Consultants

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Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-16. Land Cover Types Mapped within the Modified APE (Sheet 15)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-17. Land Cover Types Mapped within the Modified APE (Sheet 16)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
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- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-18. Land Cover Types Mapped within the Modified APE (Sheet 17)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

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- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

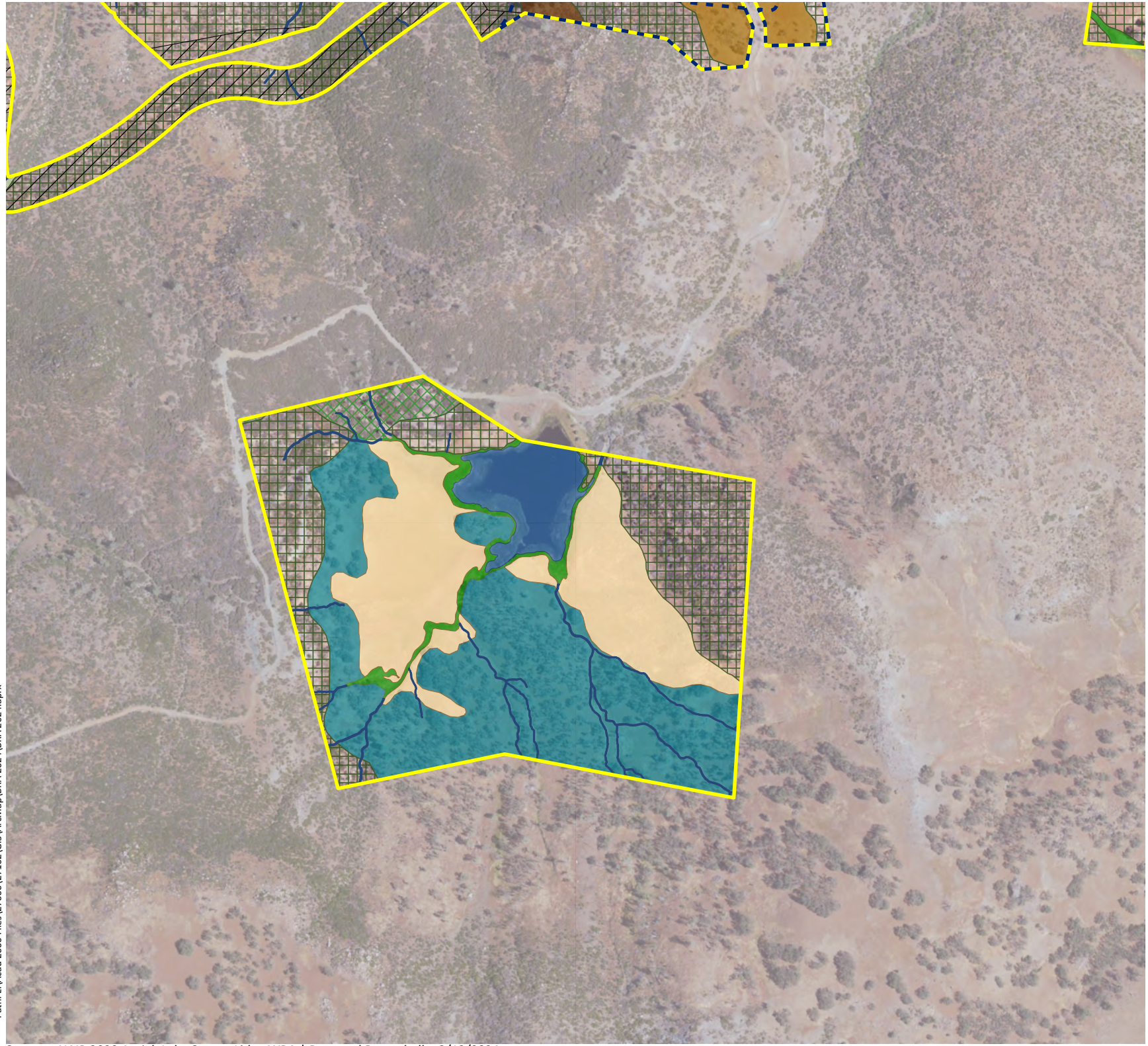


Figure 4-19. Land Cover Types Mapped within the Modified APE (Sheet 18)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

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- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

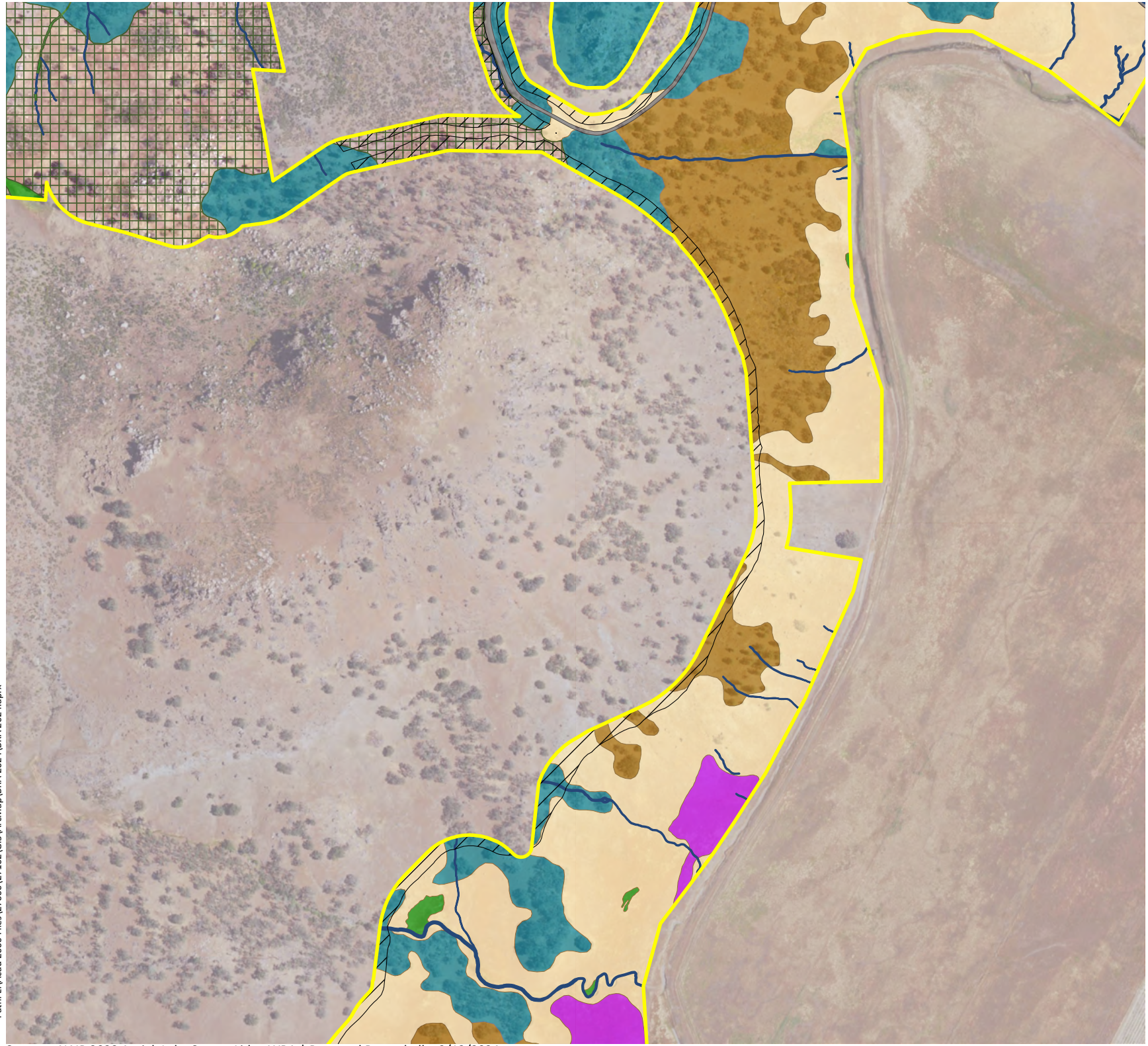


Figure 4-20. Land Cover Types Mapped within the Modified APE (Sheet 19)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-21. Land Cover Types Mapped within the Modified APE (Sheet 20)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
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- Valley Oak Woodland - 9.83 ac.
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- Serpentine Rock Outcrop - 3.92 ac.
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Non-Sensitive Land Cover Types

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- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-22. Land Cover Types Mapped within the Modified APE (Sheet 21)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
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- Serpentine Rock Outcrop - 3.92 ac.
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- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
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Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-23. Land Cover Types Mapped within the Modified APE (Sheet 22)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 4-24. Land Cover Types Mapped within the Modified APE (Sheet 23)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

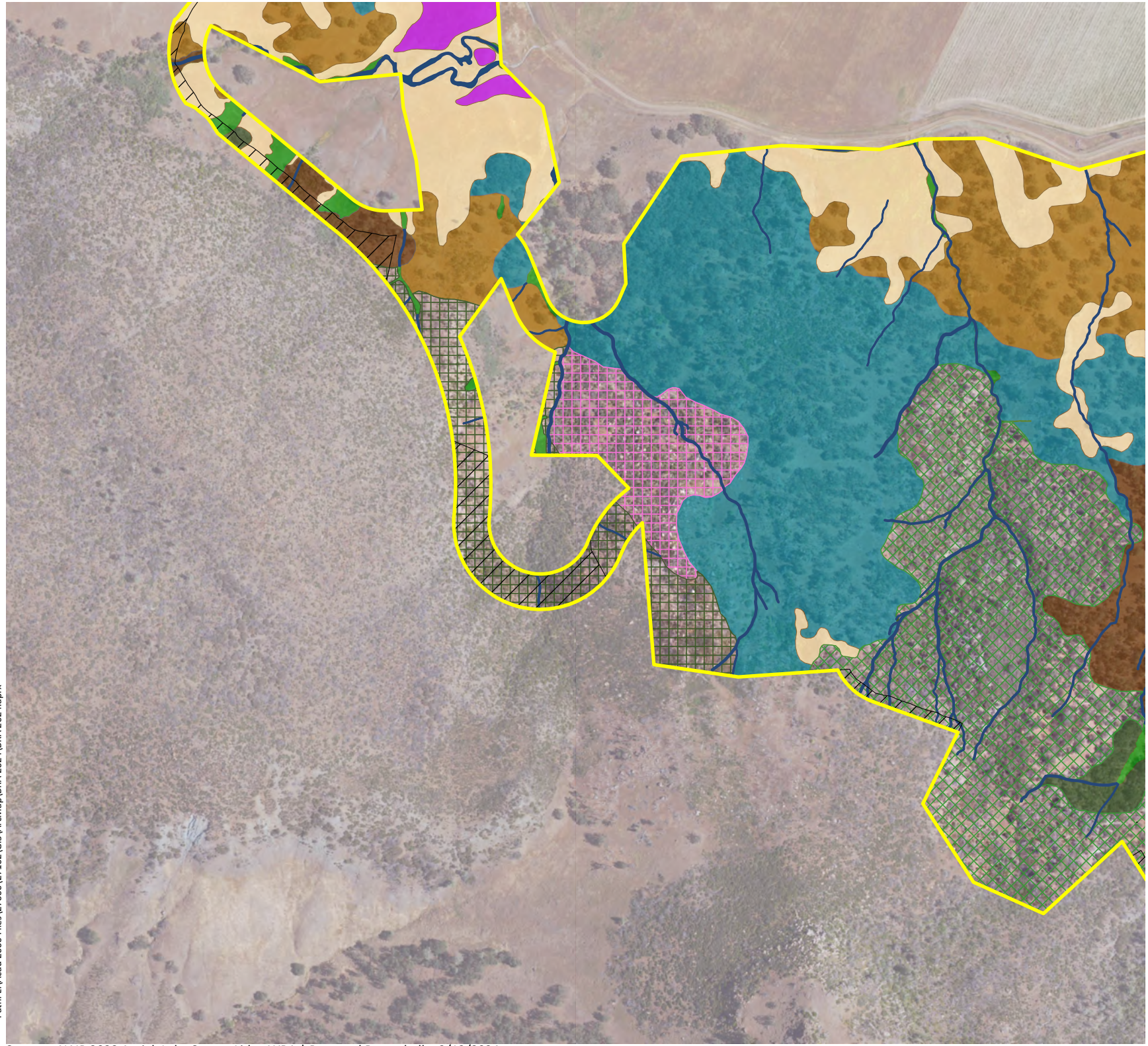


Figure 4-25. Land Cover Types Mapped within the Modified APE (Sheet 24)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

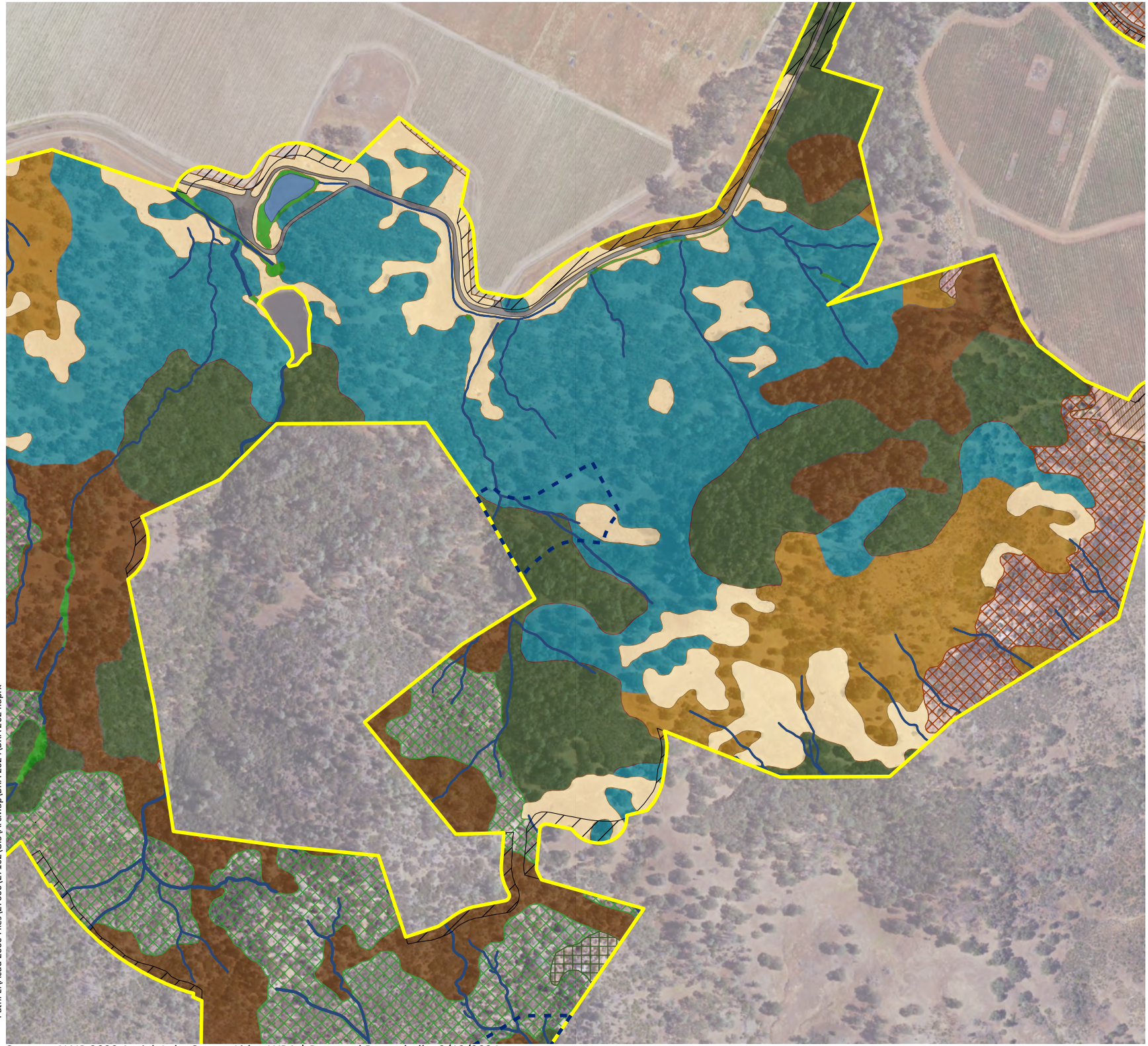


Figure 4-26. Land Cover Types Mapped within the Modified APE (Sheet 25)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

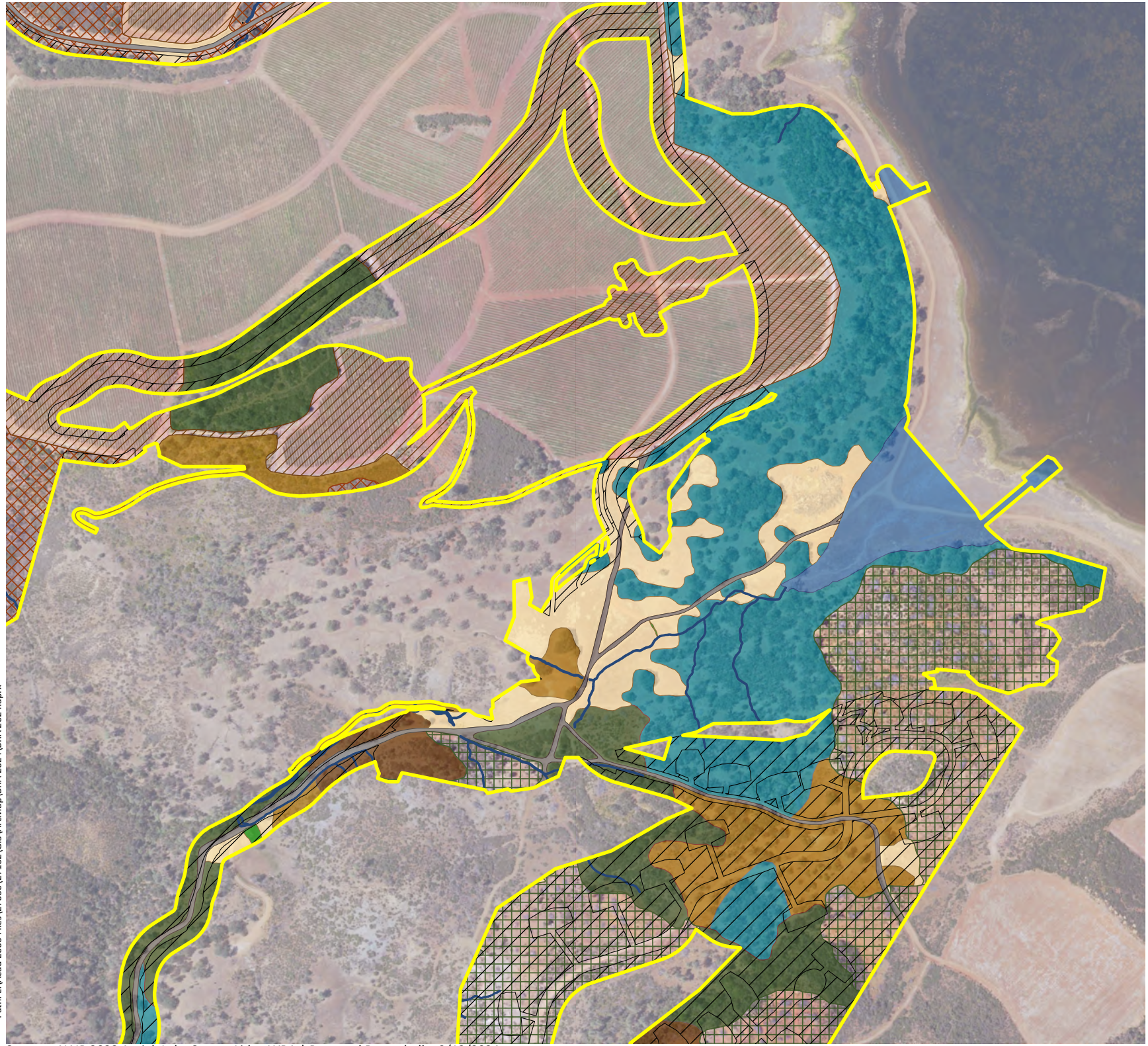


Figure 4-27. Land Cover Types Mapped within the Modified APE (Sheet 26)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

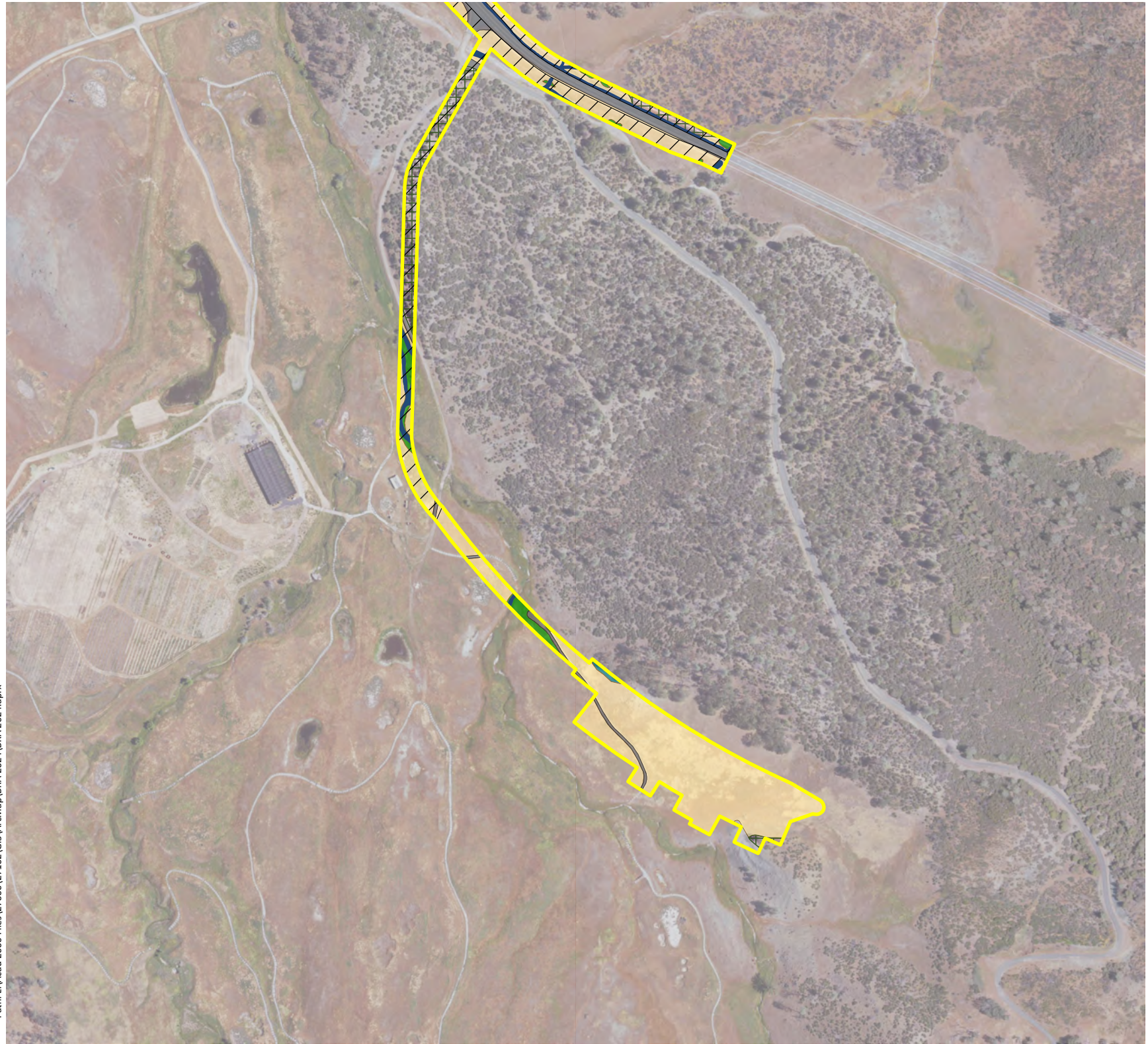


Figure 4-28. Land Cover Types Mapped within the Modified APE (Sheet 27)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

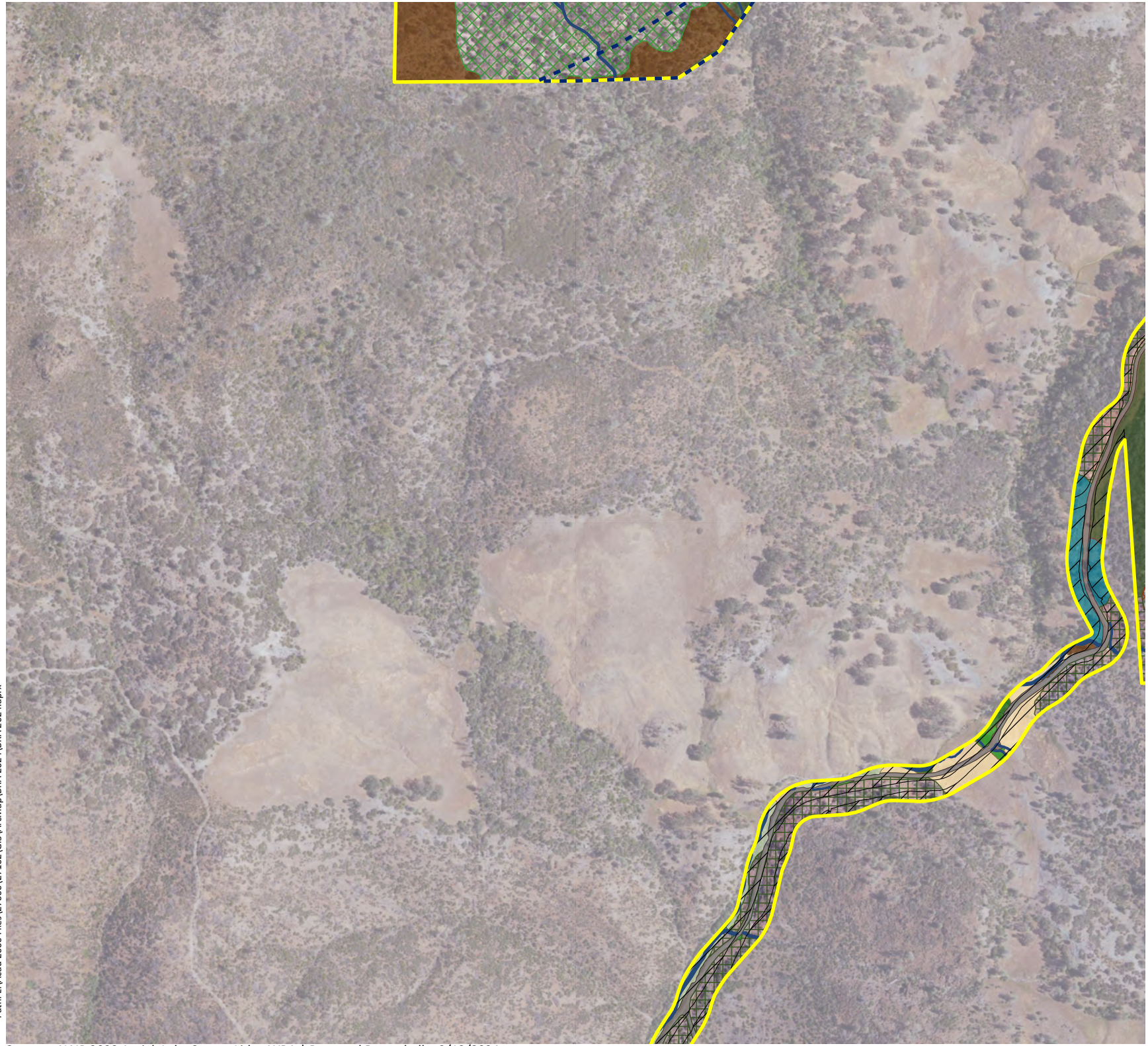


Figure 4-29. Land Cover Types Mapped within the Modified APE (Sheet 28)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400
Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

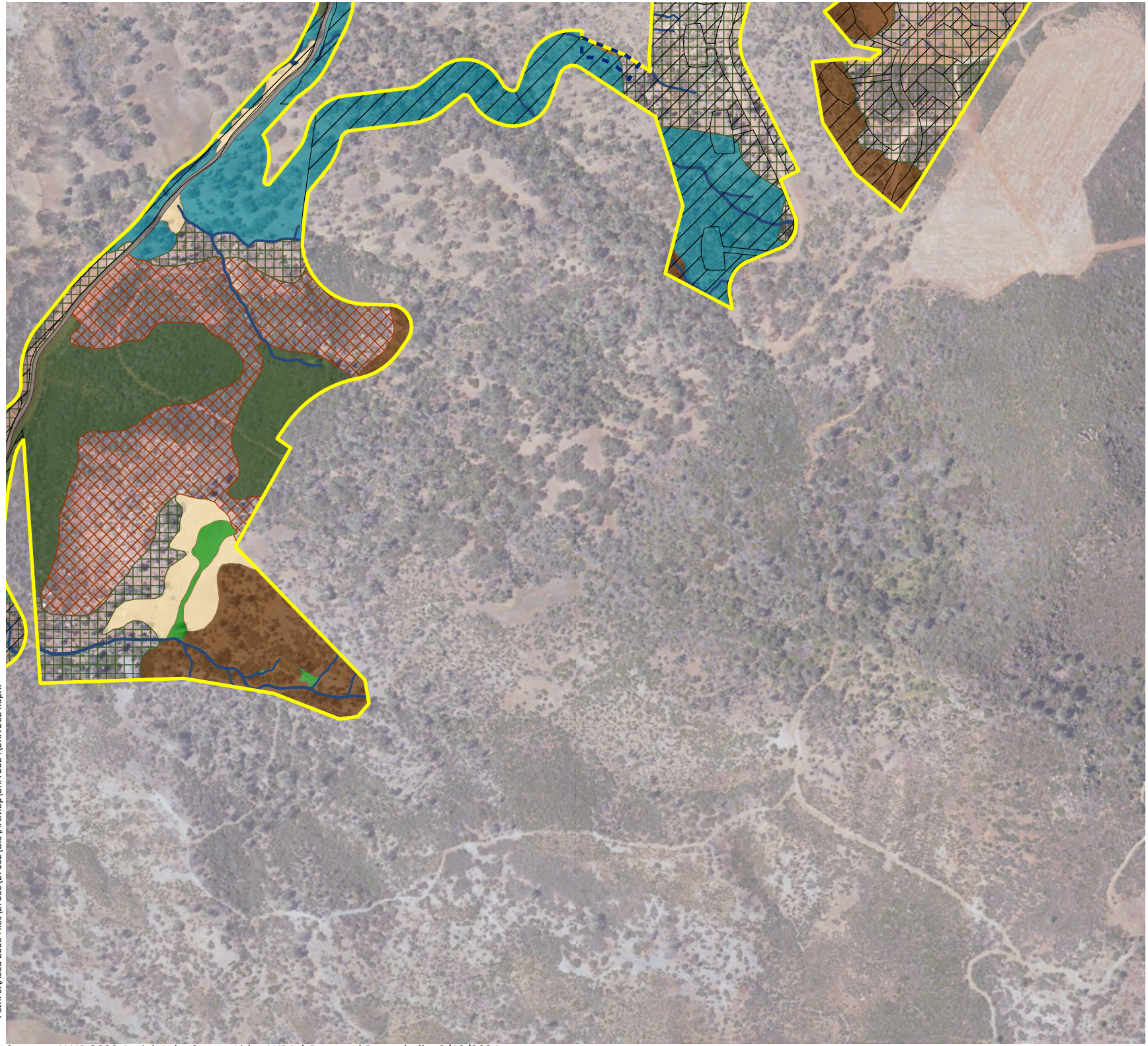


Figure 4-30. Land Cover Types Mapped within the Modified APE (Sheet 29)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 4-31. Land Cover Types Mapped within the Modified APE (Sheet 30)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed

Sensitive Land Cover Types

- Blue Oak Savanna - 276.17 ac.
- Blue Oak Woodland - 481.33 ac.
- Interior Live Oak Woodland - 170.44 ac.
- Valley Oak Woodland - 9.83 ac.
- Musk Brush Chaparral - 2.84 ac.
- Brewer Willow Thickets - 1.12 ac.
- Serpentine Rock Outcrop - 3.92 ac.
- Emergent Wetlands - 22.41 ac.
- Ponds and Reservoirs - 9.32 ac.
- Purple Needlegrass Grassland - 5.69 ac.
- Streams - 13.13 ac.

Non-Sensitive Land Cover Types

- Foothill Pine Woodland - 126.08 ac.
- Chamise Chaparral - 242.46 ac.
- Whiteleaf Manzanita Chaparral - 61.31 ac.
- California Yerba Santa Scrub - 6.02 ac.
- Scrub Oak Chaparral - 31.25 ac.
- Leather Oak Chaparral - 169.95 ac.
- Non-native Annual Grasslands - 438.27 ac.
- Rock Outcrop - 1.98 ac.
- Agriculture - 309.71 ac.
- Developed - 69.95 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

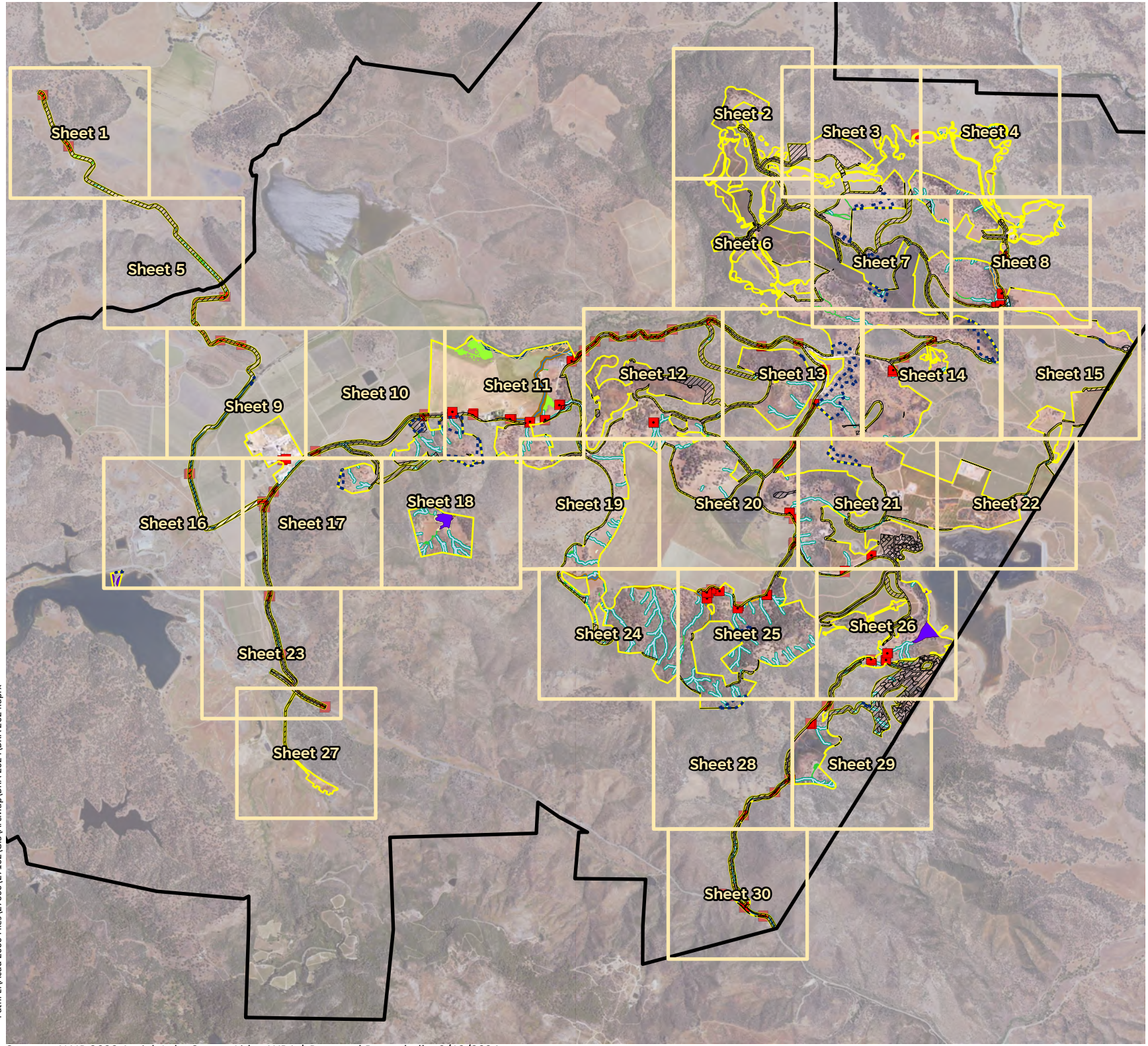


Figure 5-1. Aquatic Resources Mapped within the Modified APE (Overview)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Property Boundary
- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Mapbook Grid
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 1,500 3,000

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-2. Aquatic Resources Mapped within the Modified APE (Sheet 1)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

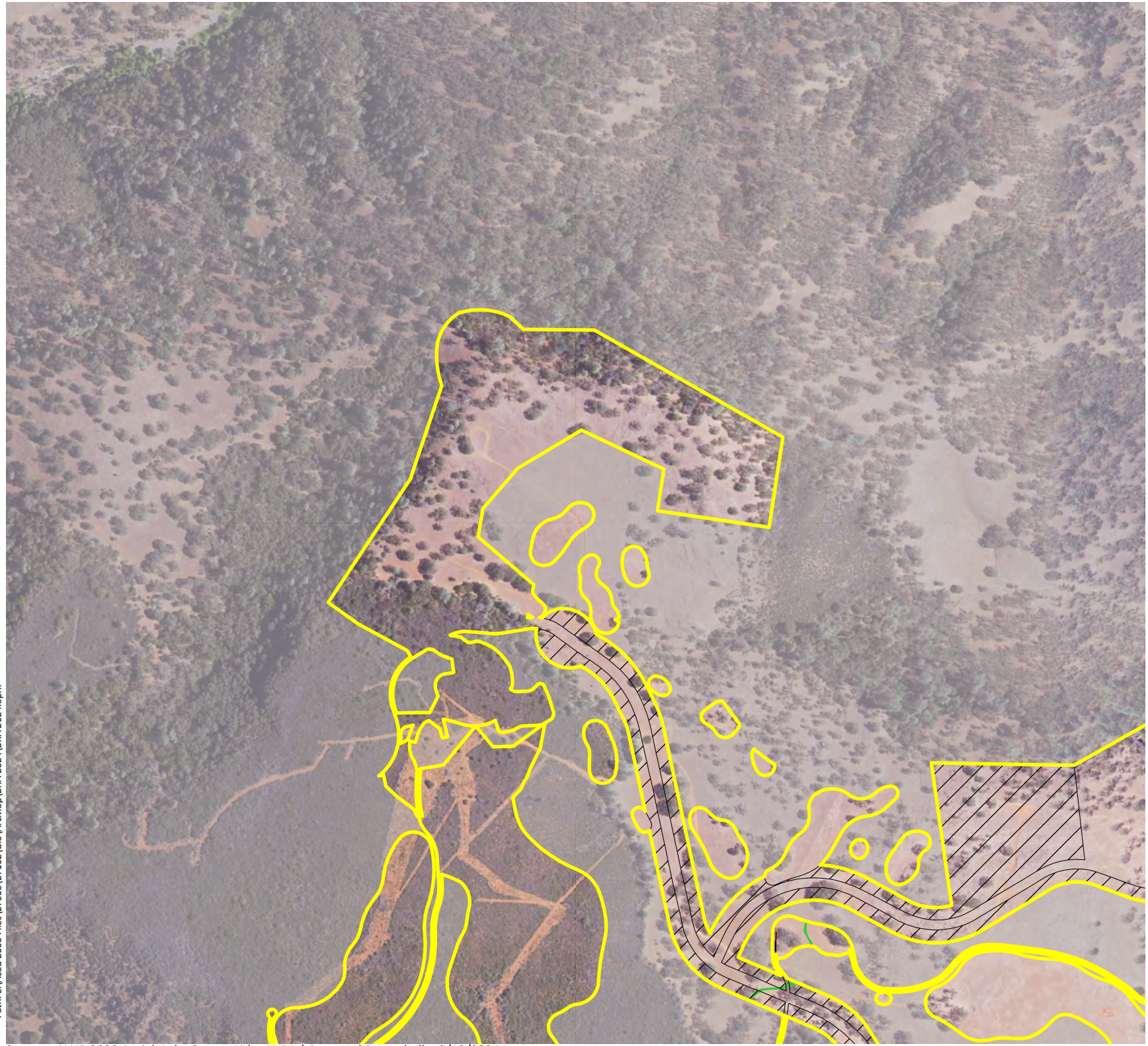


Figure 5-3. Aquatic Resources Mapped within the Modified APE (Sheet 2)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-4. Aquatic Resources Mapped within the Modified APE (Sheet 3)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

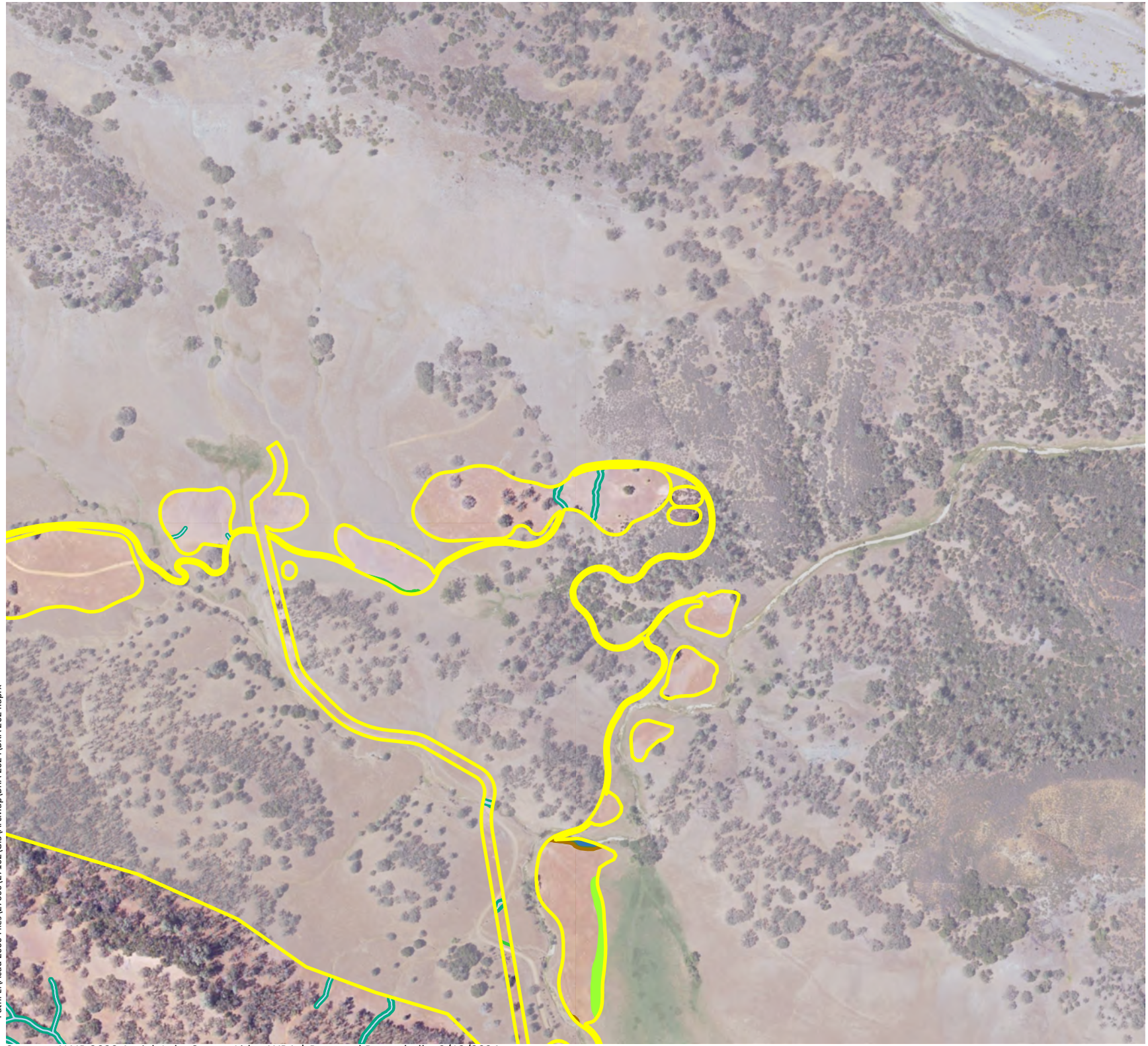


Figure 5-5. Aquatic Resources Mapped within the Modified APE (Sheet 4)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

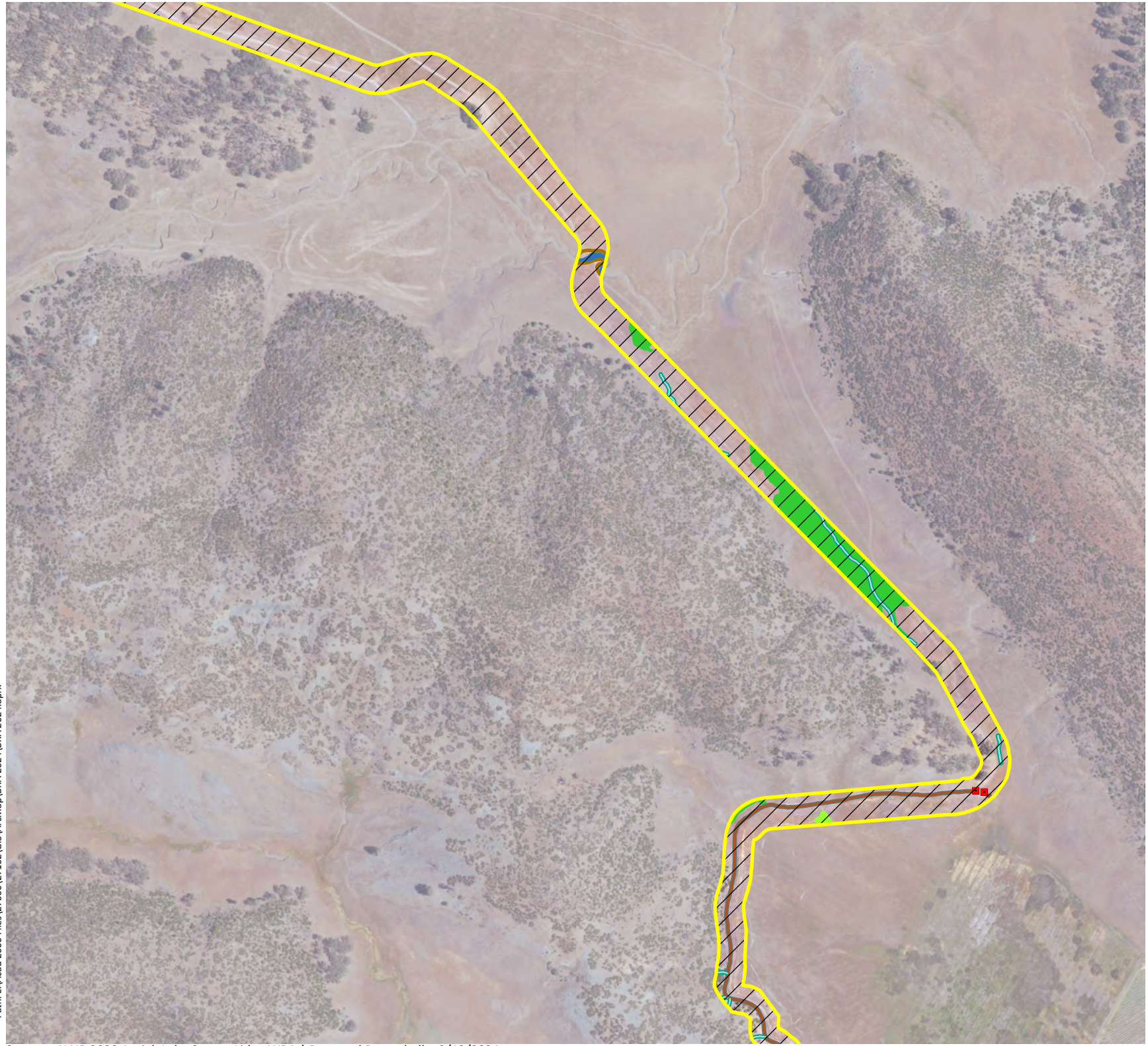


Figure 5-6. Aquatic Resources Mapped within the Modified APE (Sheet 5)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

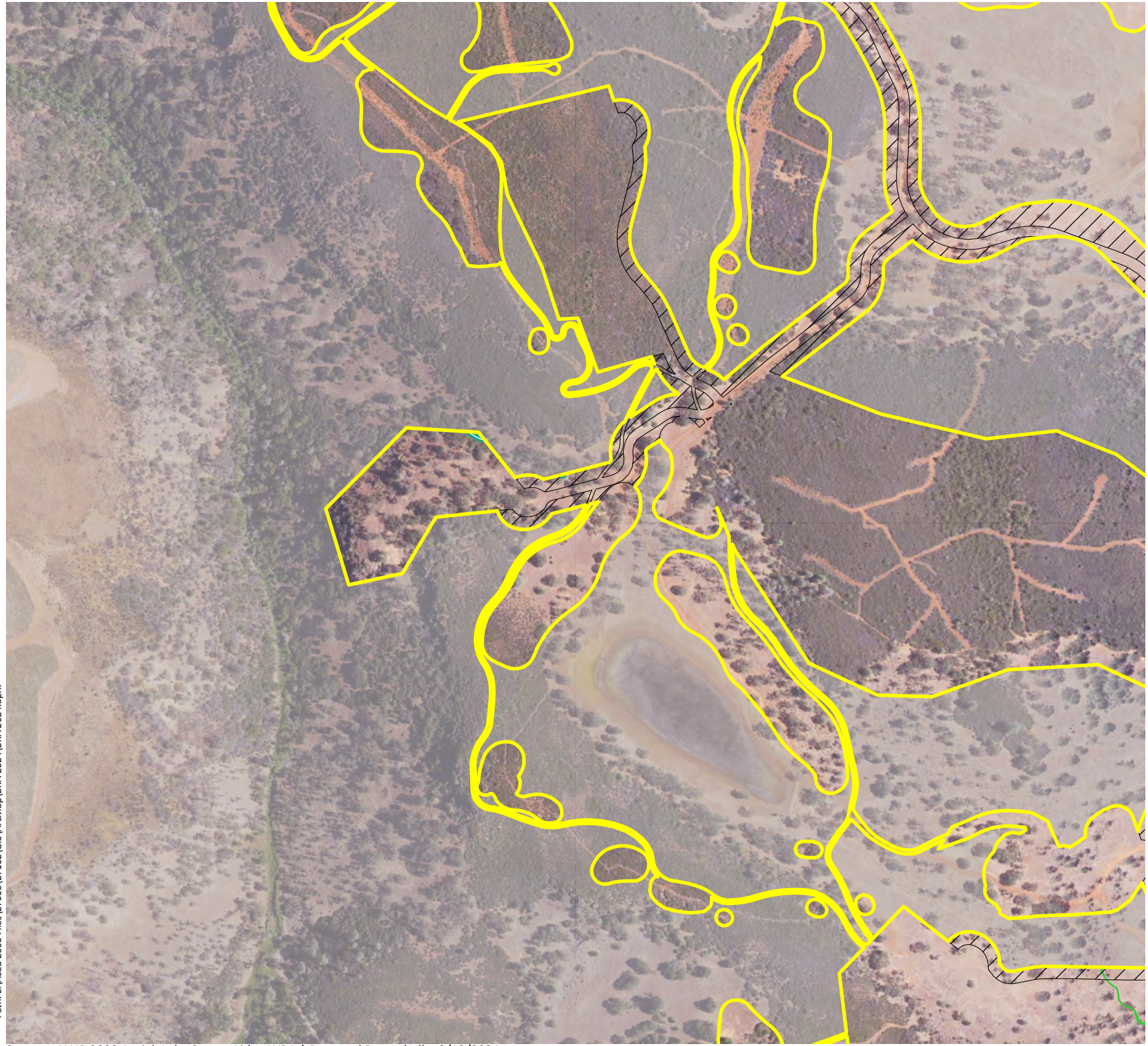


Figure 5-7. Aquatic Resources Mapped within the Modified APE (Sheet 6)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-8. Aquatic Resources Mapped within the Modified APE (Sheet 7)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

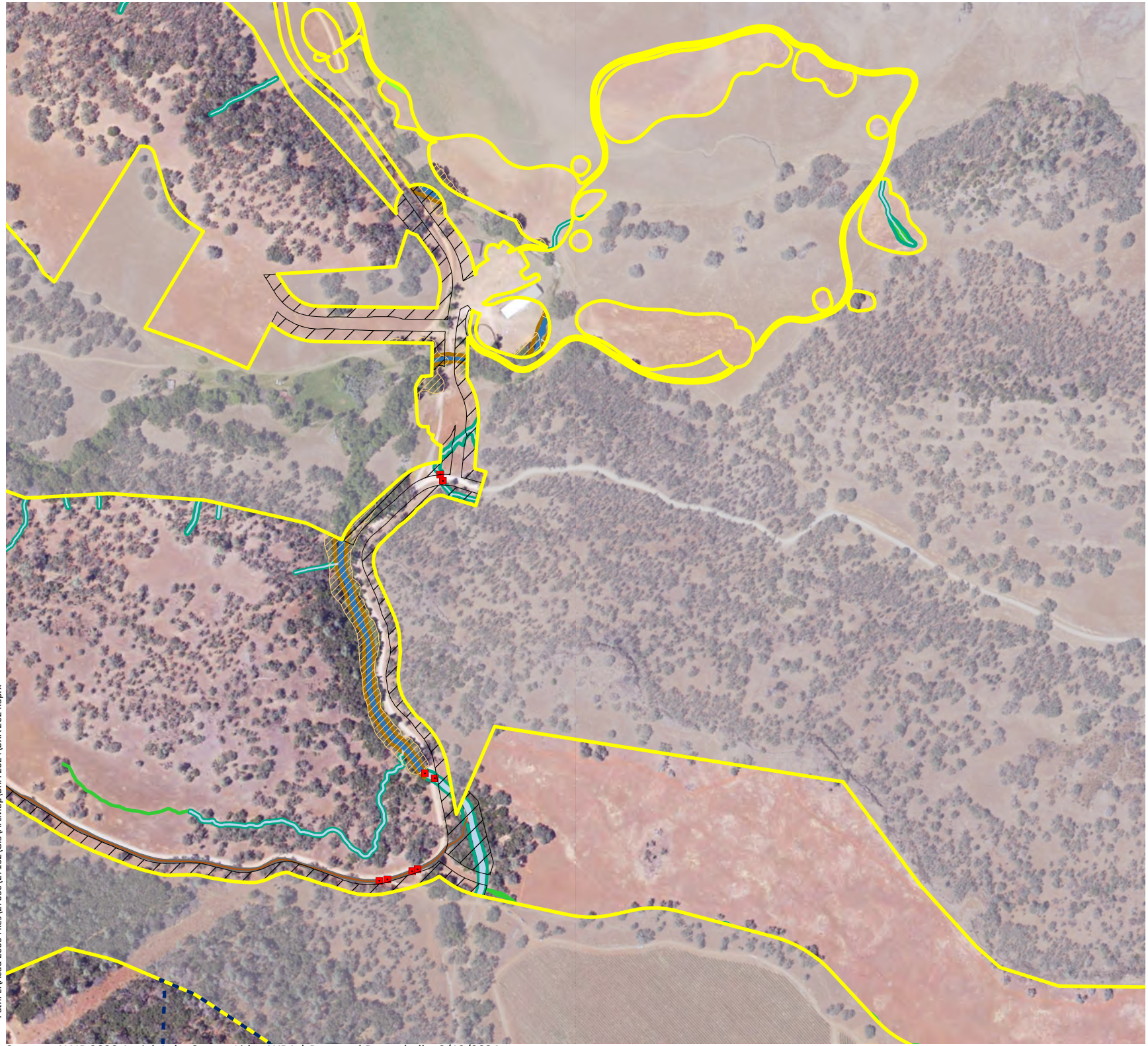


Figure 5-9. Aquatic Resources Mapped within the Modified APE (Sheet 8)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-10. Aquatic Resources Mapped within the Modified APE (Sheet 9)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-11. Aquatic Resources Mapped within the Modified APE (Sheet 10)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 5-12. Aquatic Resources Mapped within the Modified APE (Sheet 11)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

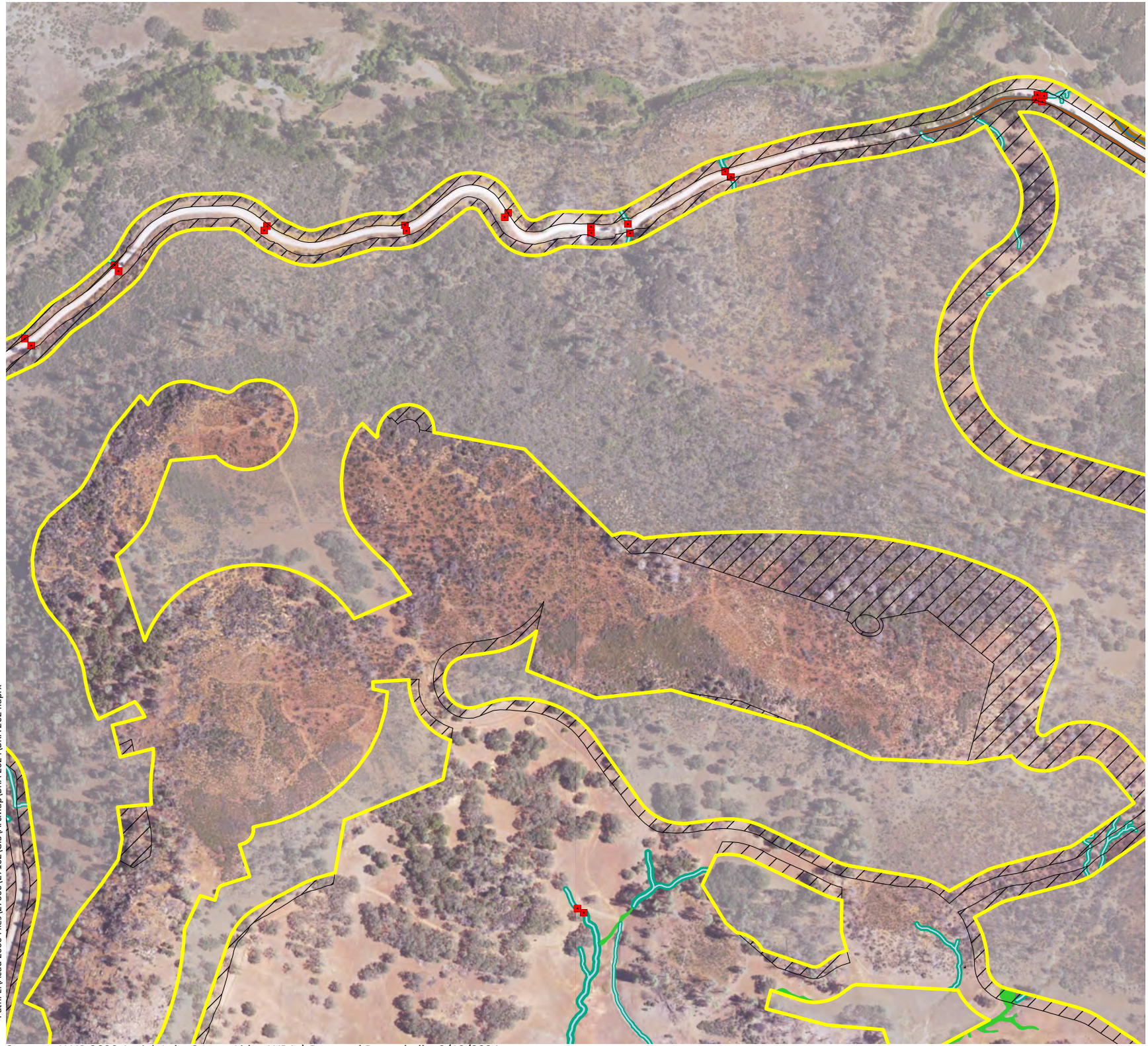


Figure 5-13. Aquatic Resources Mapped within the Modified APE (Sheet 12)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

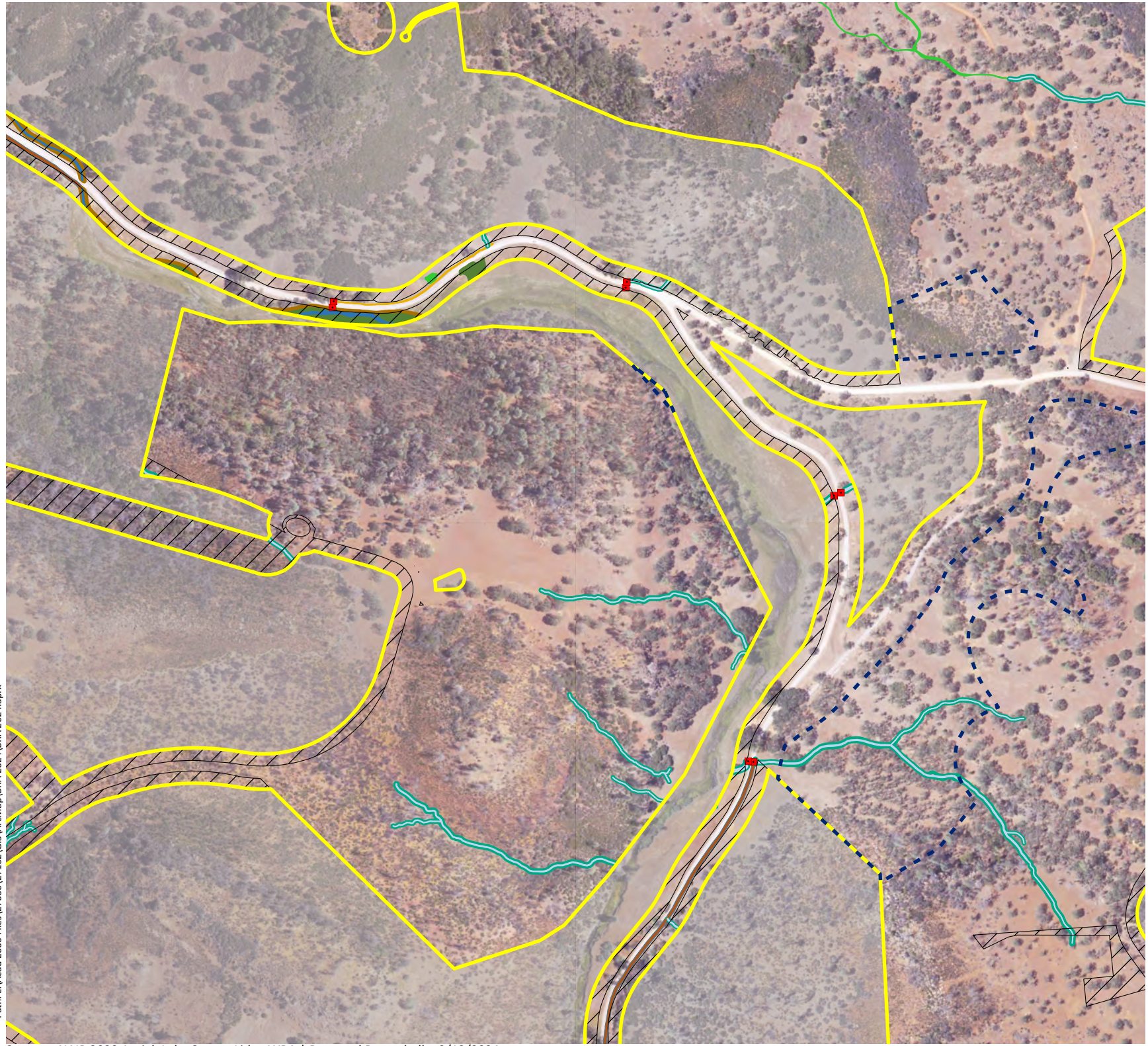


Figure 5-14. Aquatic Resources Mapped within the Modified APE (Sheet 13)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-15. Aquatic Resources Mapped within the Modified APE (Sheet 14)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-16. Aquatic Resources Mapped within the Modified APE (Sheet 15)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-17. Aquatic Resources Mapped within the Modified APE (Sheet 16)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-18. Aquatic Resources Mapped within the Modified APE (Sheet 17)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

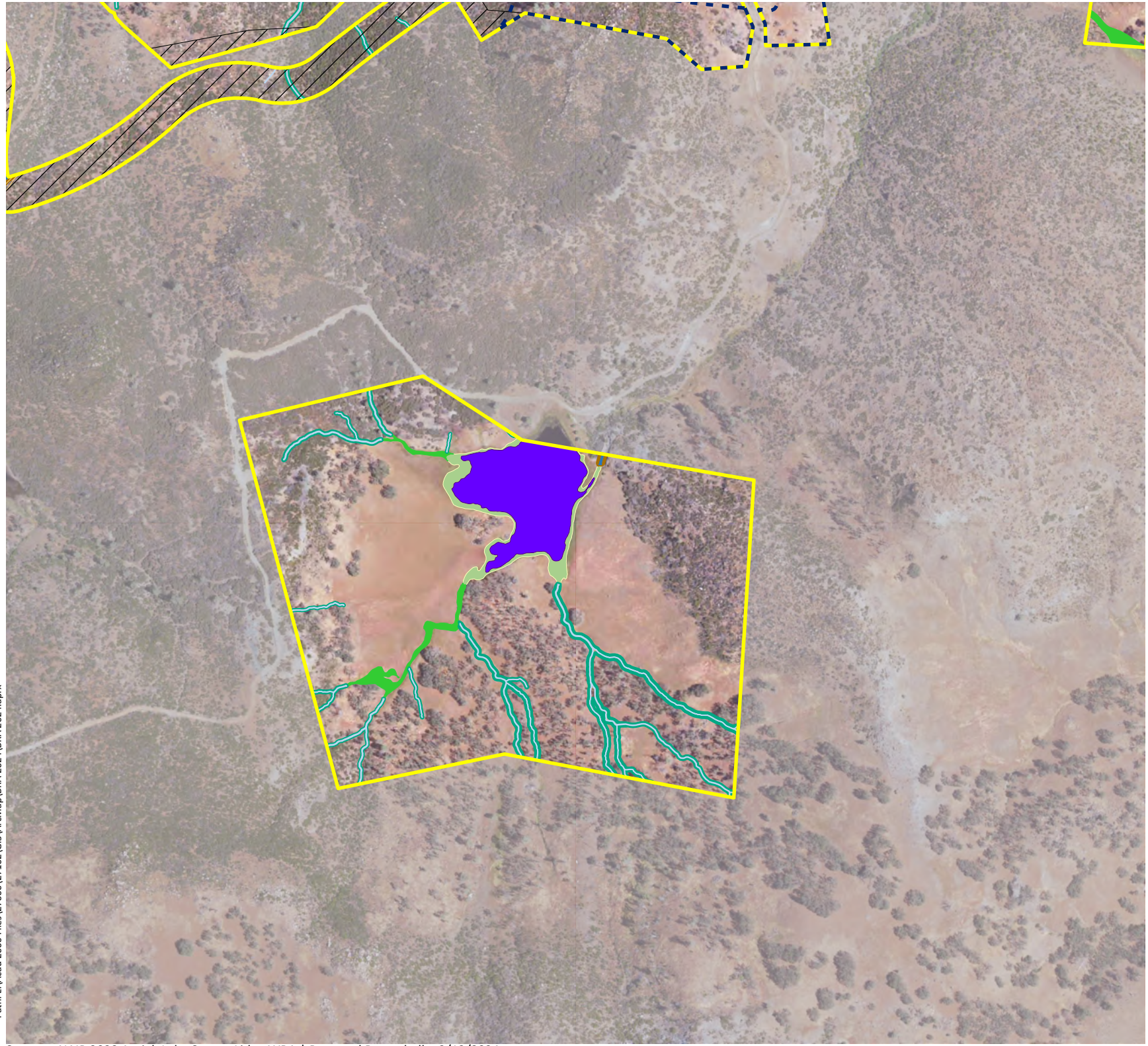


Figure 5-19. Aquatic Resources Mapped within the Modified APE (Sheet 18)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

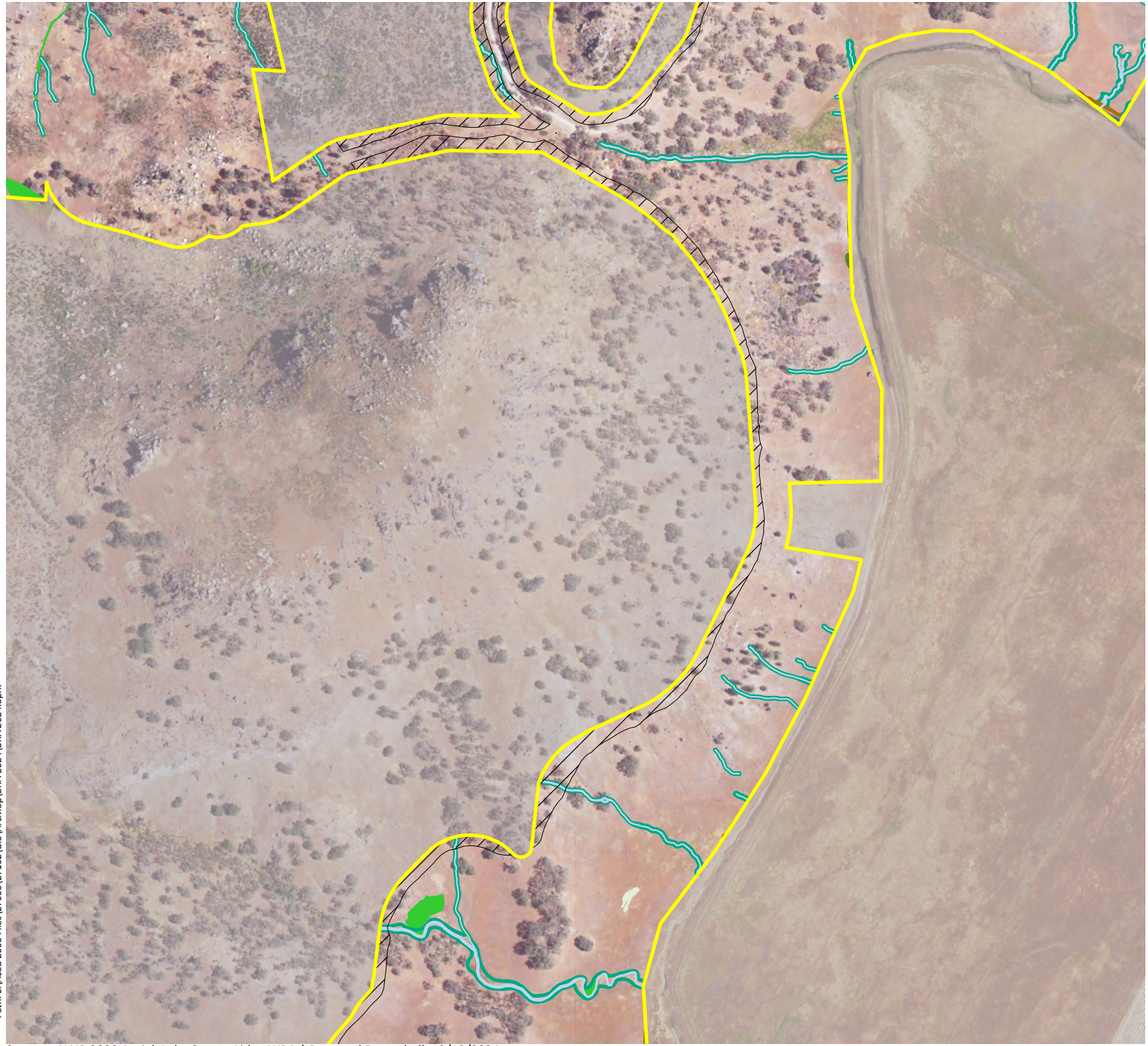


Figure 5-20. Aquatic Resources Mapped within the Modified APE (Sheet 19)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-21. Aquatic Resources Mapped within the Modified APE (Sheet 20)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

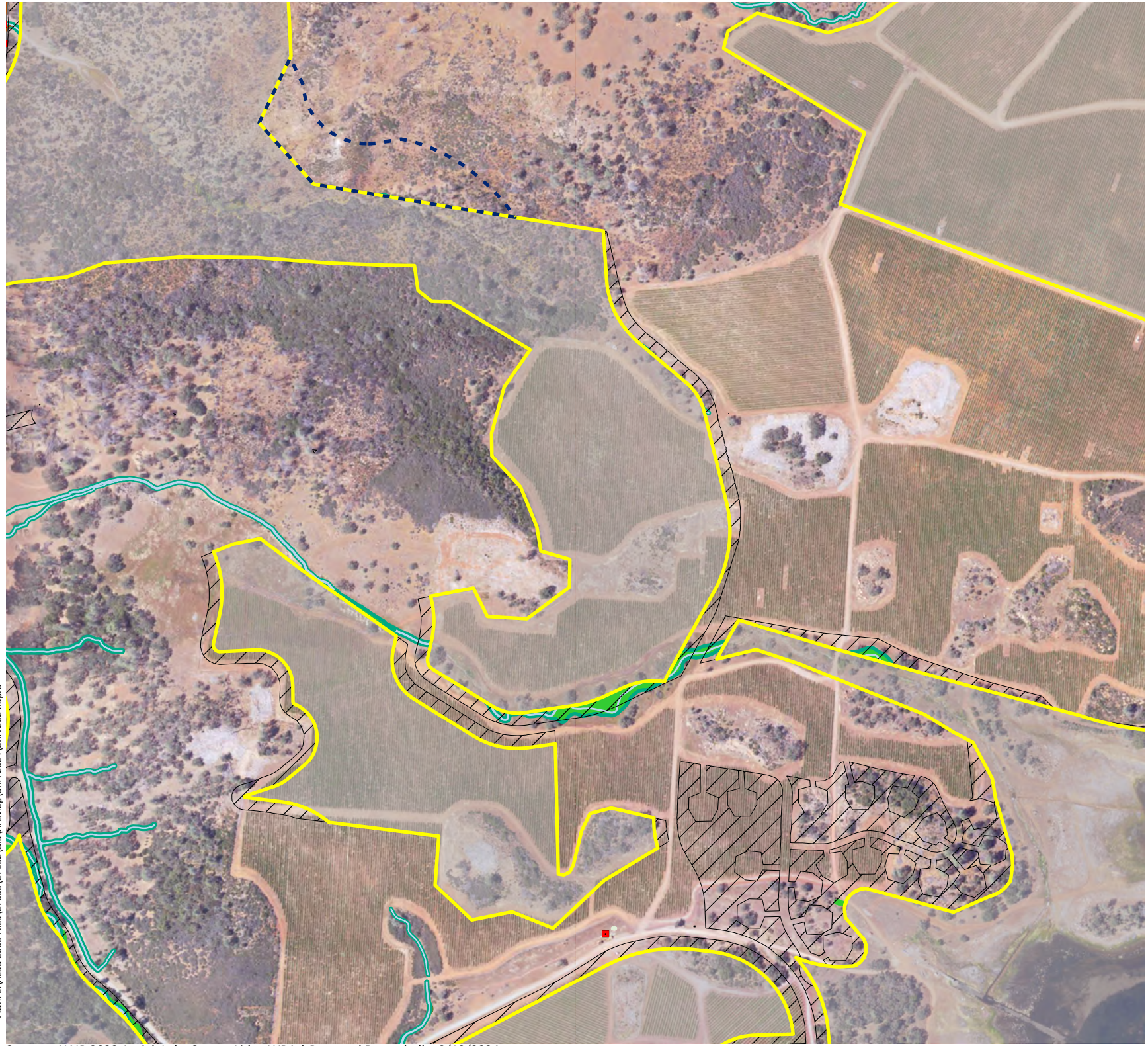


Figure 5-22. Aquatic Resources Mapped within the Modified APE (Sheet 21)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-23. Aquatic Resources Mapped within the Modified APE (Sheet 22)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

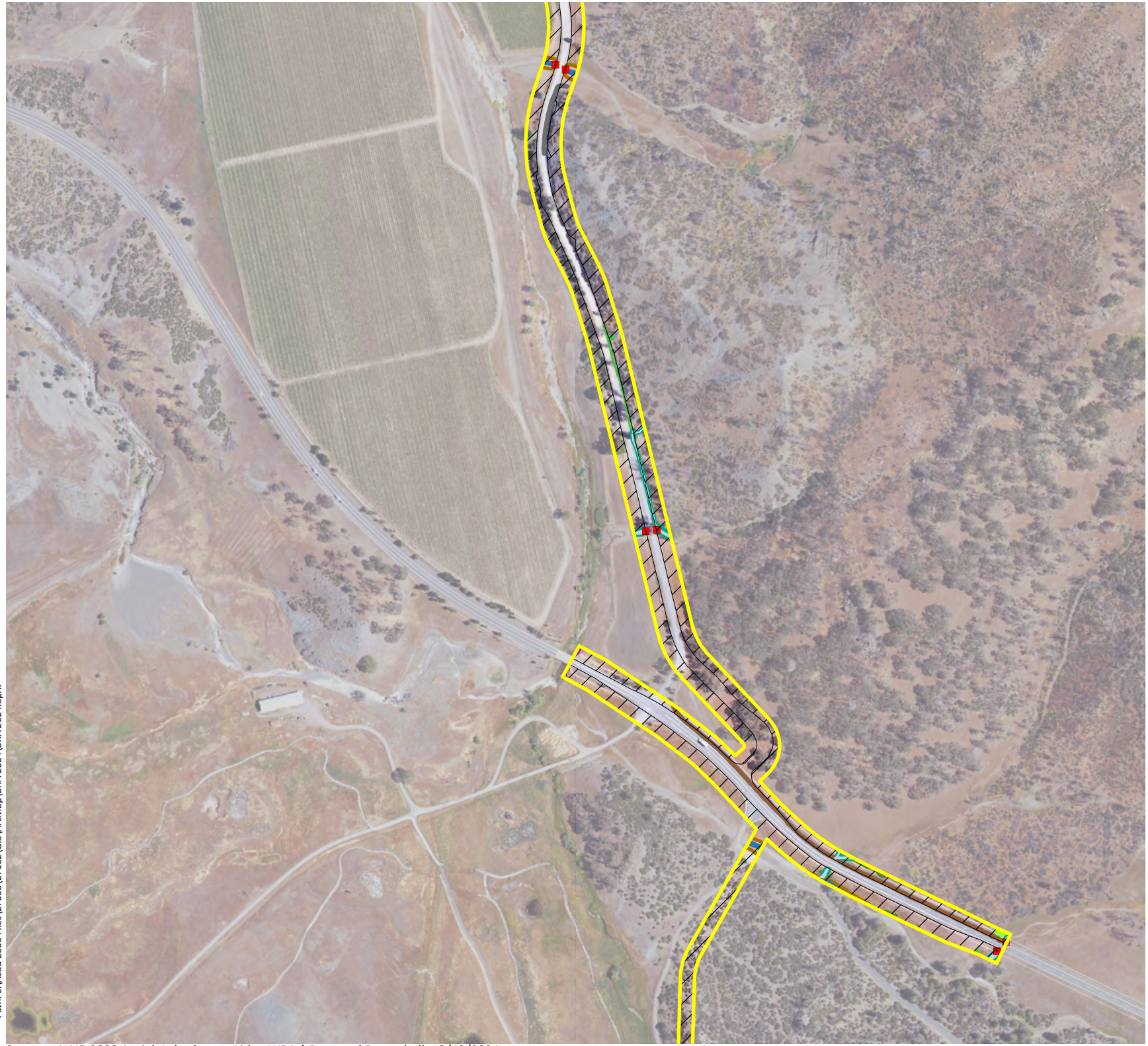


Figure 5-24. Aquatic Resources Mapped within the Modified APE (Sheet 23)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-25. Aquatic Resources Mapped within the Modified APE (Sheet 24)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

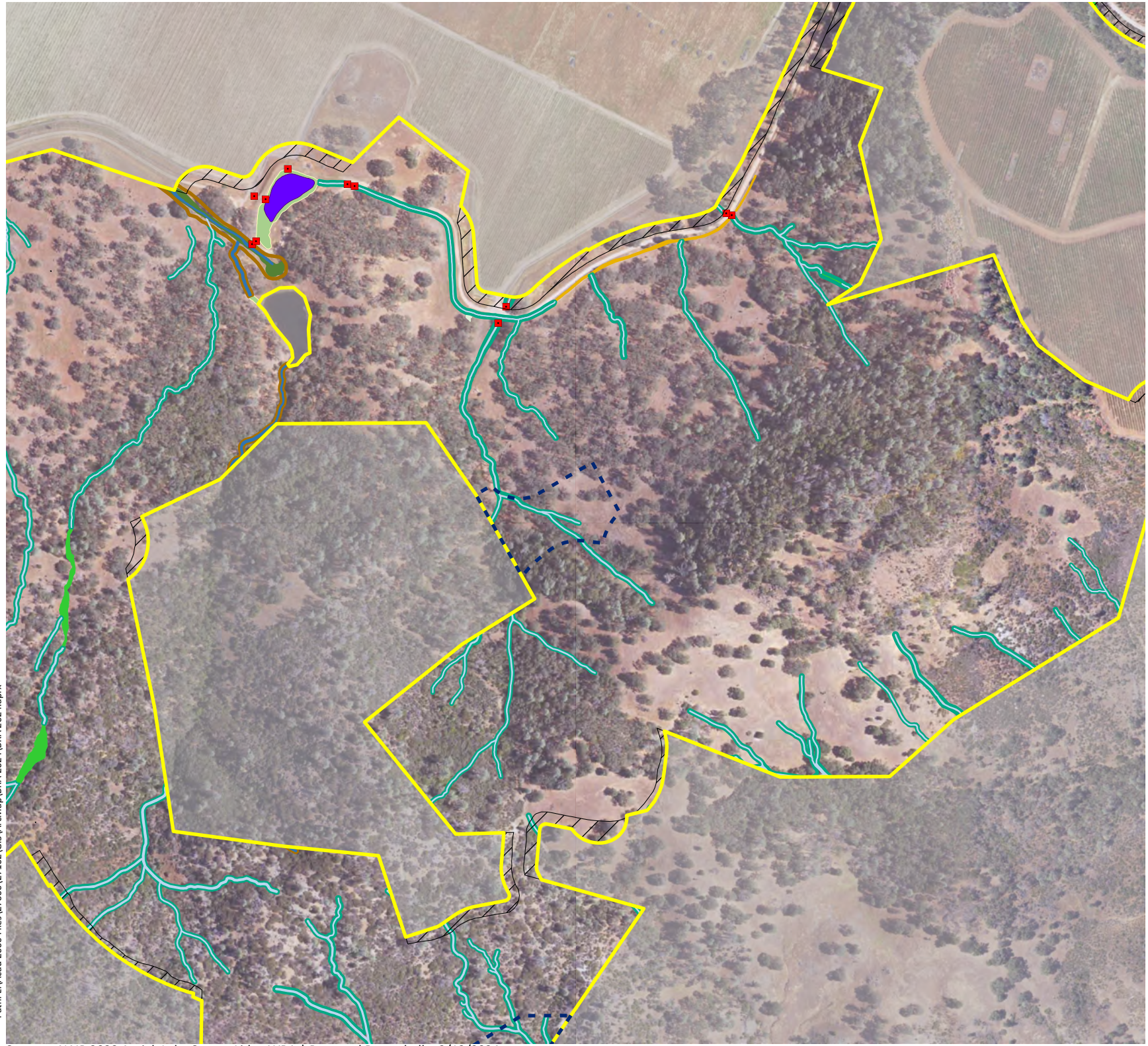


Figure 5-26. Aquatic Resources Mapped within the Modified APE (Sheet 25)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

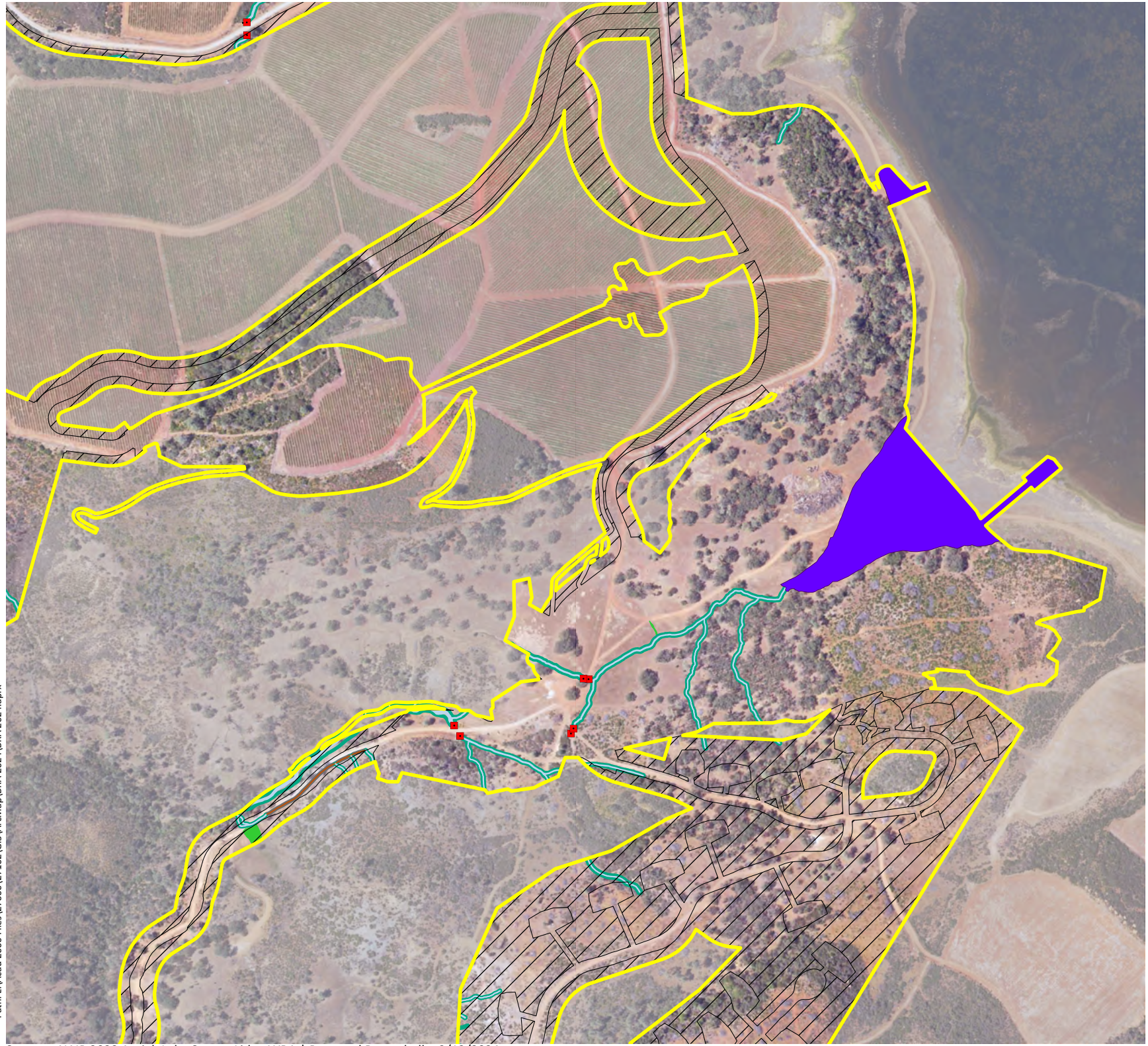


Figure 5-27. Aquatic Resources Mapped within the Modified APE (Sheet 26)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

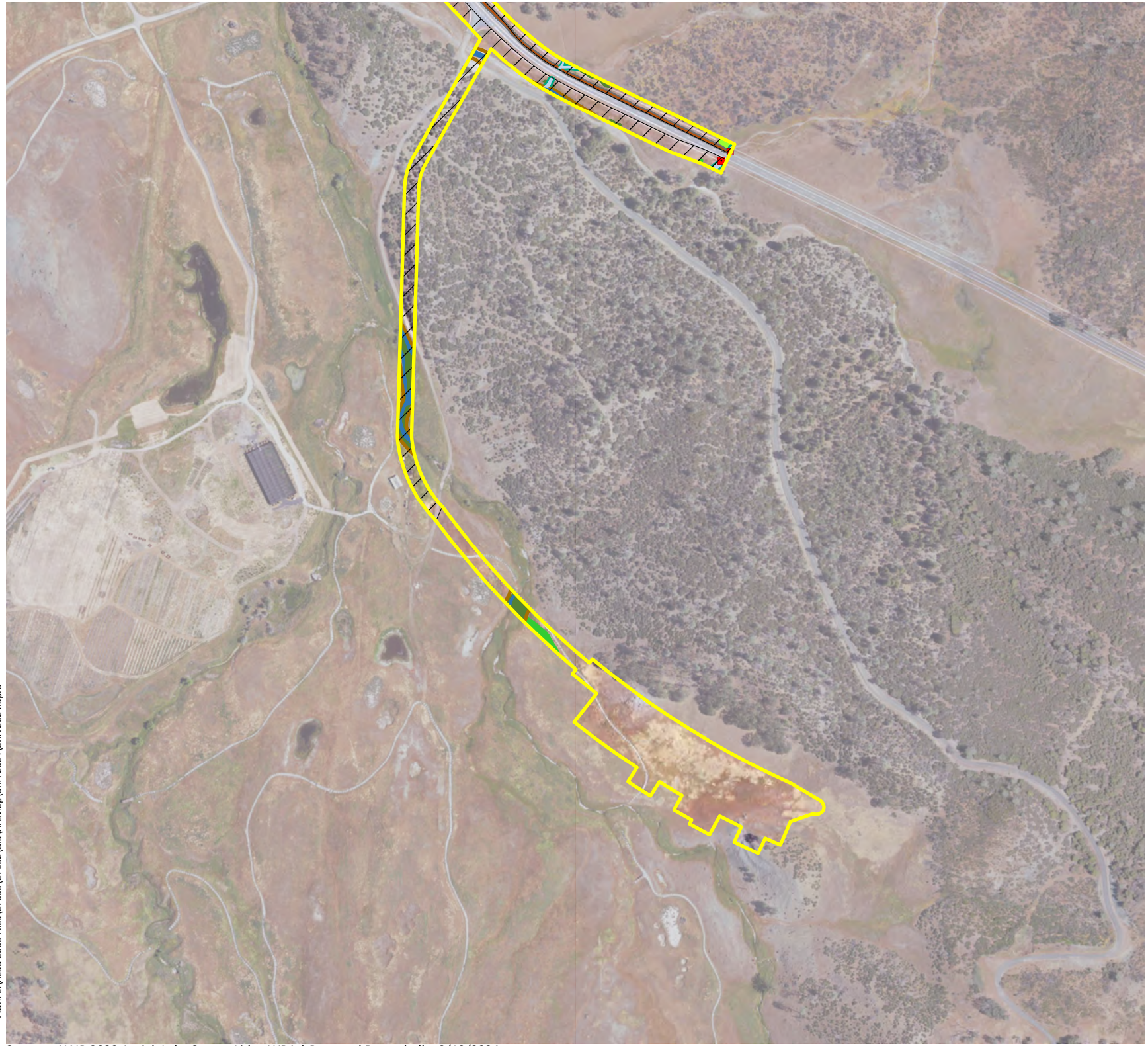


Figure 5-28. Aquatic Resources Mapped within the Modified APE (Sheet 27)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

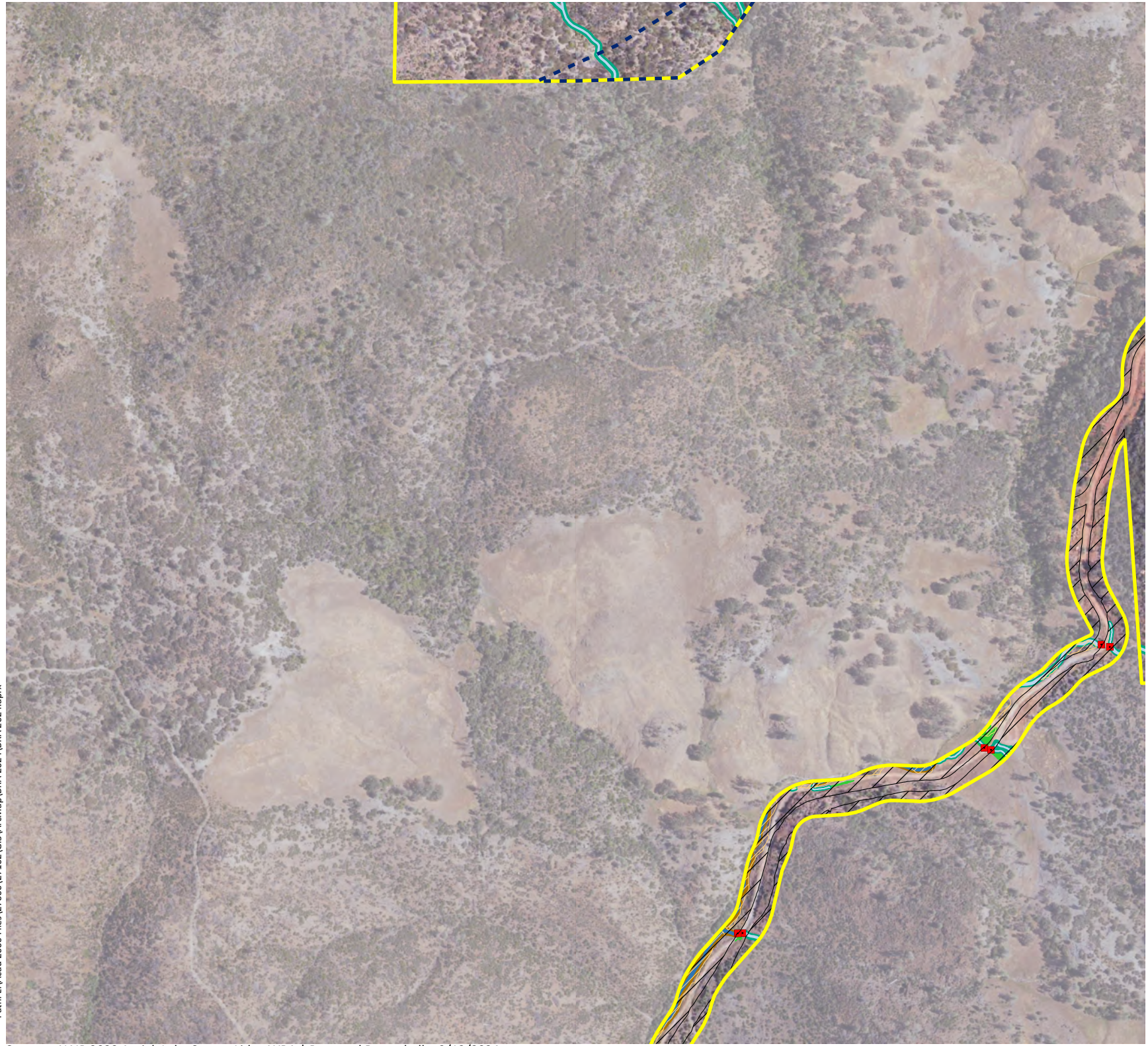


Figure 5-29. Aquatic Resources Mapped within the Modified APE (Sheet 28)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-30. Aquatic Resources Mapped within the Modified APE (Sheet 29)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 5-31. Aquatic Resources Mapped within the Modified APE (Sheet 30)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Culverts
- Riparian Woodland - 9.71 ac. ac.

Non-Wetland Waters (OHWM):

- Ephemeral Ditches - 0.50 ac. & 11,216 LF
- Ephemeral Streams - 6.66 ac. & 102,319 LF
- Intermittent Streams - 2.80 ac. & 13,056 LF
- Perennial Streams - 3.17 ac. & 4,019 LF
- Open Waters - 9.32 ac.

Non-Wetland Waters (TOB)

- Ephemeral Ditch - 0.78 ac. & 11,216 LF
- Ephemeral Stream - 21.05 ac. & 102,319 LF
- Intermittent Stream - 9.73 ac. & 13,056 LF
- Perennial Stream - 6.53 ac. & 4,019 LF

Wetlands:

- Seasonal Wetland Depressions - 0.12 ac.
- Seasonal Wetland Ditches - 0.38 ac.
- Seasonal Wetland Pond Fringes - 1.06 ac.
- Seasonal Wetland Seeps/ Swales - 8.81 ac.
- Seasonal Wetland Wet Meadows - 7.92 ac.
- Stream Fringe/In-Stream Wetlands - 4.12 ac.

N

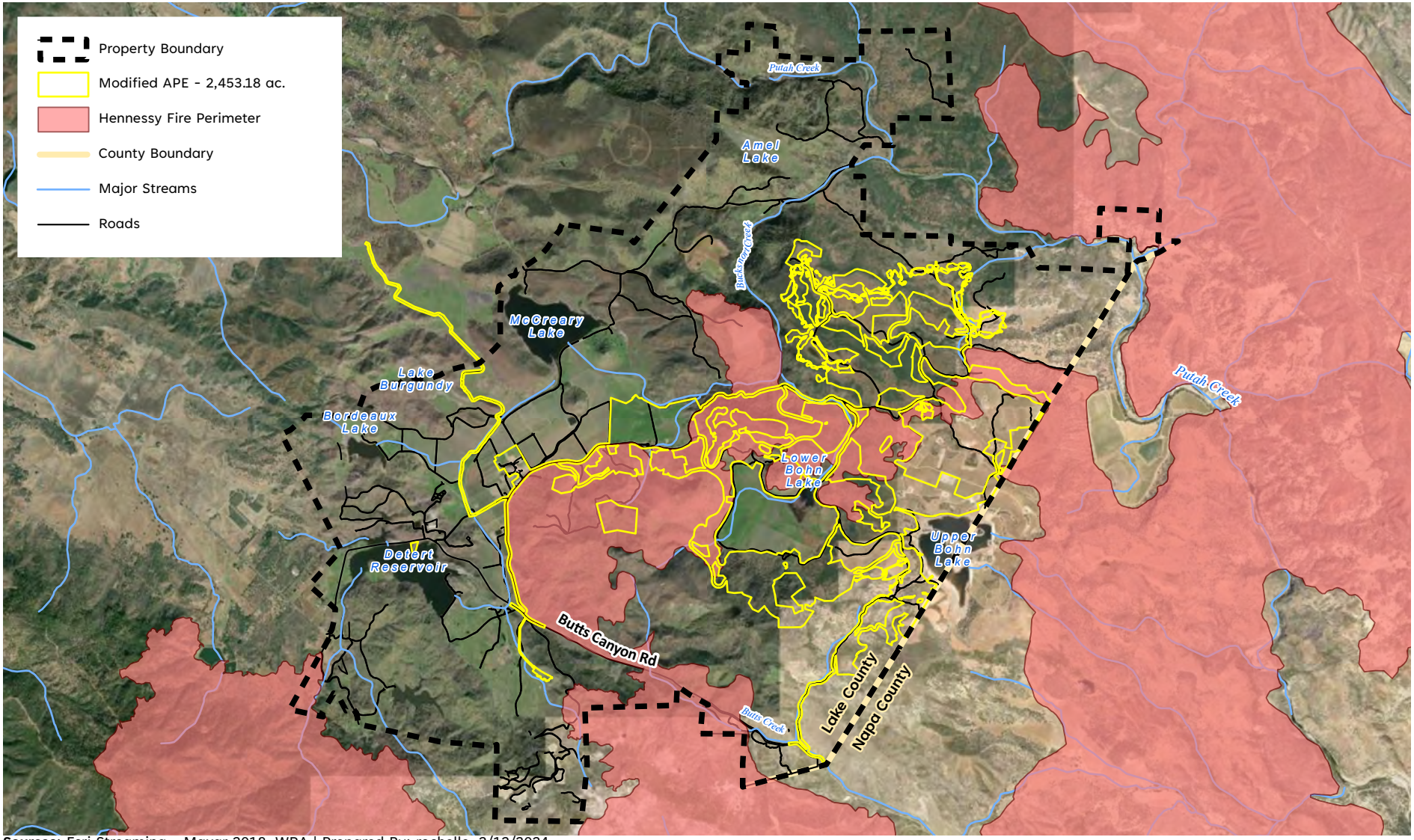
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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: Esri Streaming - Maxar 2018, WRA | Prepared By: rochelle, 2/12/2024

Figure 6. 2020 Hennessy Fire Impacts

2024 Project Modifications
Guenoc Valley Mixed Use
Planned Development Project
Lake County, California

0 1 2 Miles

N

wra Environmental Consultants

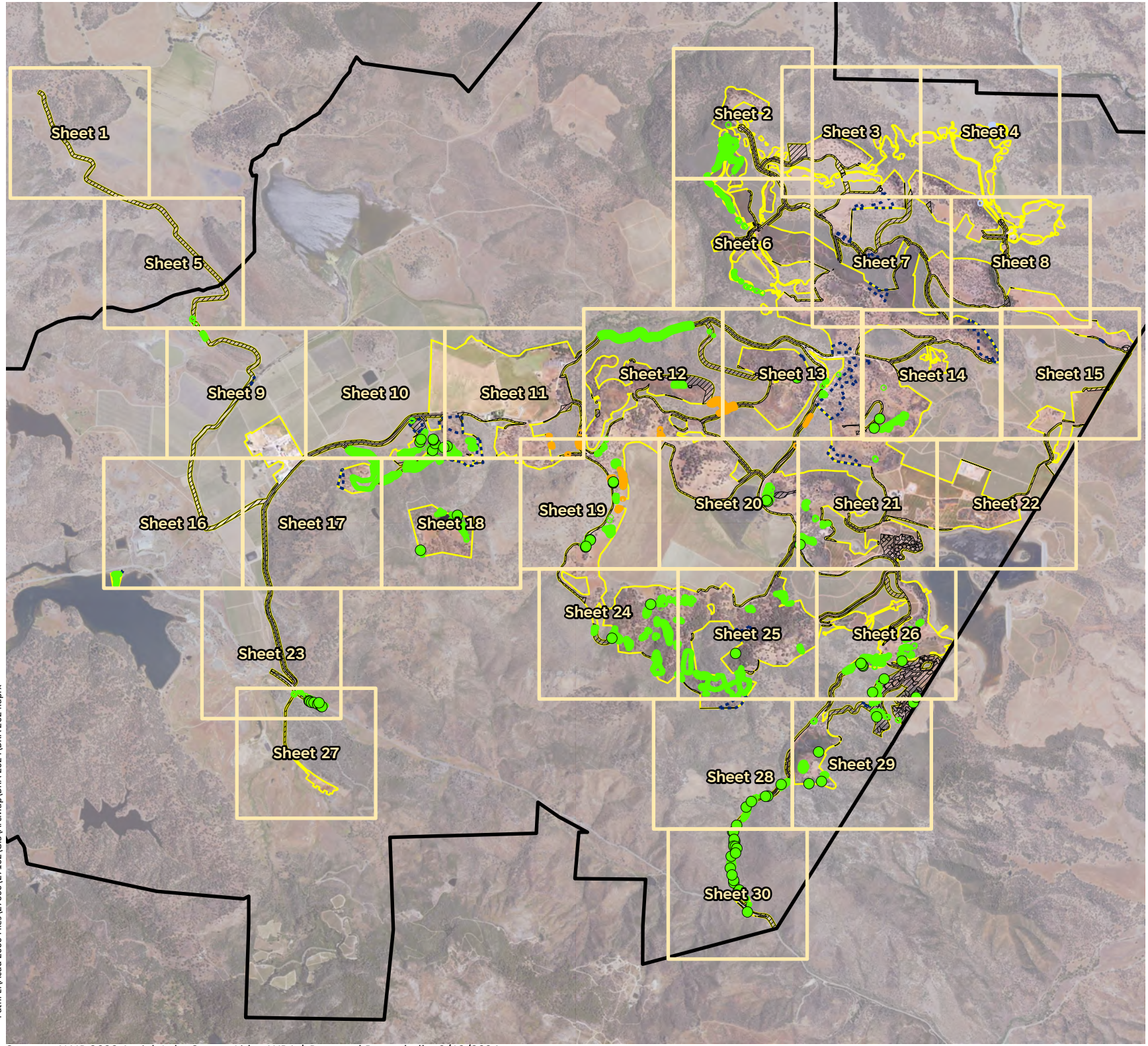


Figure 7-1. Special-Status Plants Mapped within the Modified APE (Overview)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

- Property Boundary
- Modified APE - 2,453.18 ac.
- Modified APE not within 2020 APE - 332.85 ac.
- Areas Only Desktop Assessed
- Mapbook Grid

Special-Status Plants

Polygons:

- CNPS Rank 1 Plants
- Federally-Endangered Plants
- State-Endangered Plants

Points:

- CNPS Rank 1 Plants
- Federally-Endangered Plants

N

0 1,500 3,000

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 7-2. Special-Status Plants Mapped within the Modified APE (Sheet 1)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

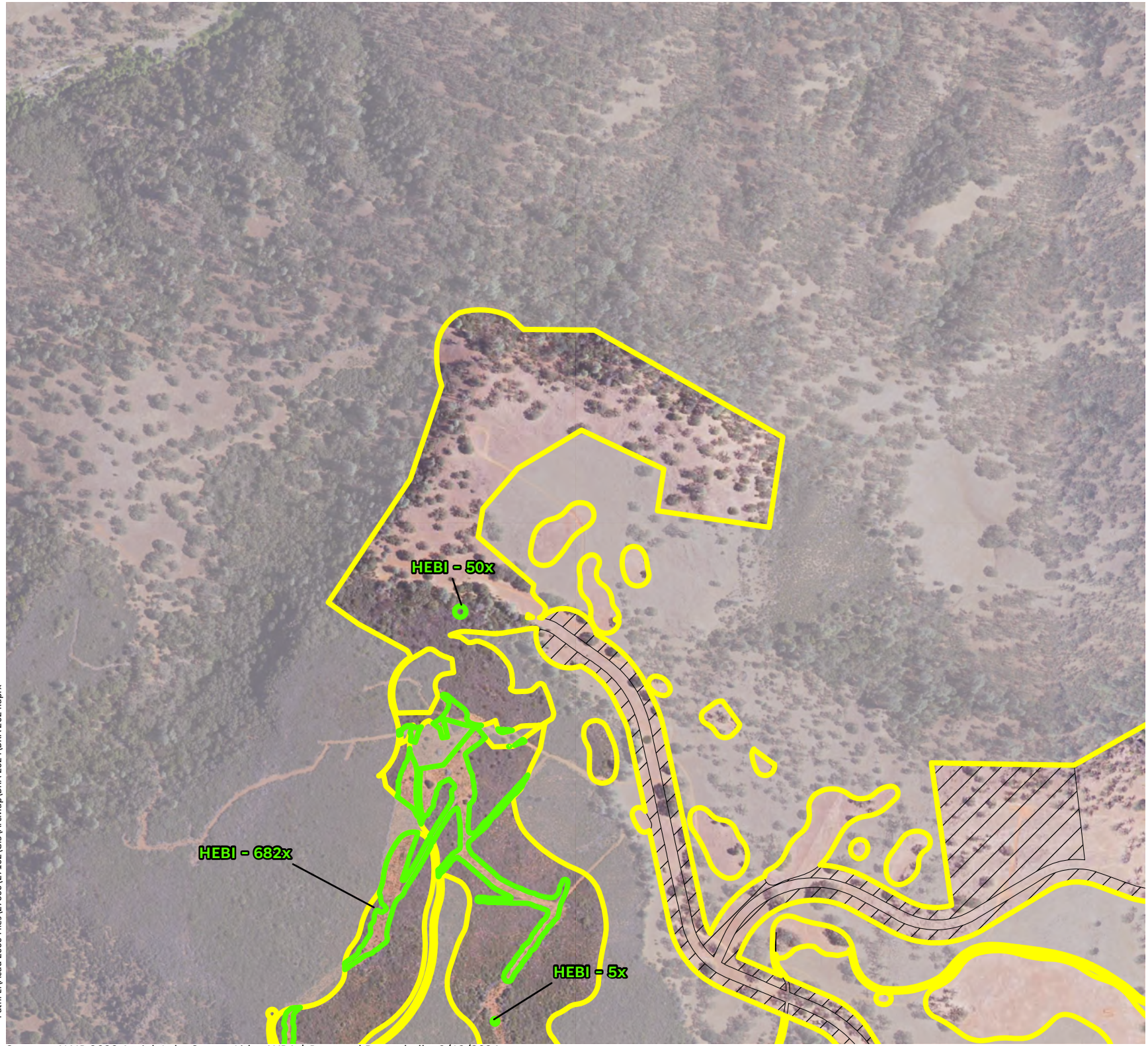
wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 7-3. Special-Status Plants Mapped within the Modified APE (Sheet 2)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

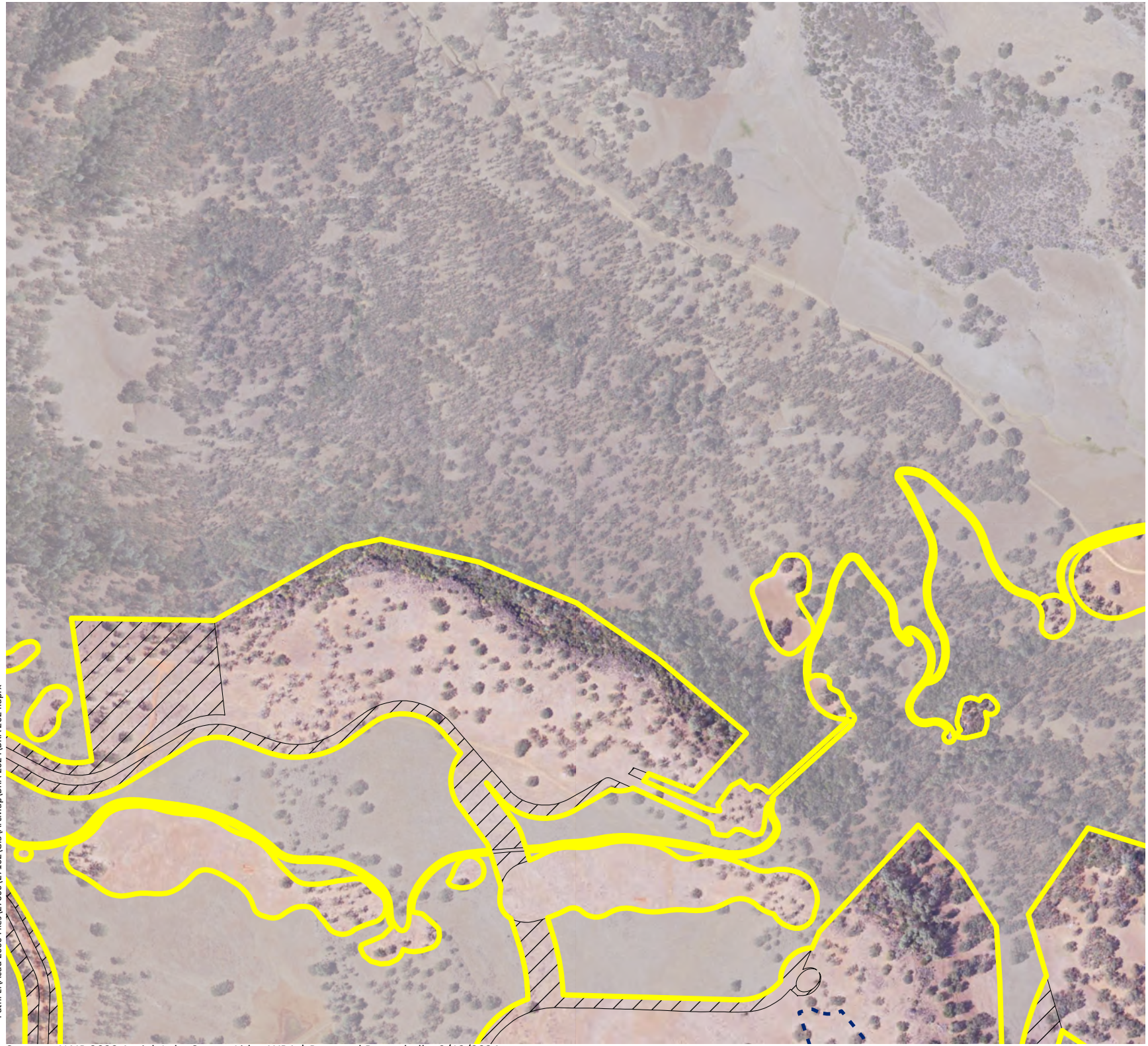


Figure 7-4. Special-Status Plants Mapped within the Modified APE (Sheet 3)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 7-5. Special-Status Plants Mapped within the Modified APE (Sheet 4)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

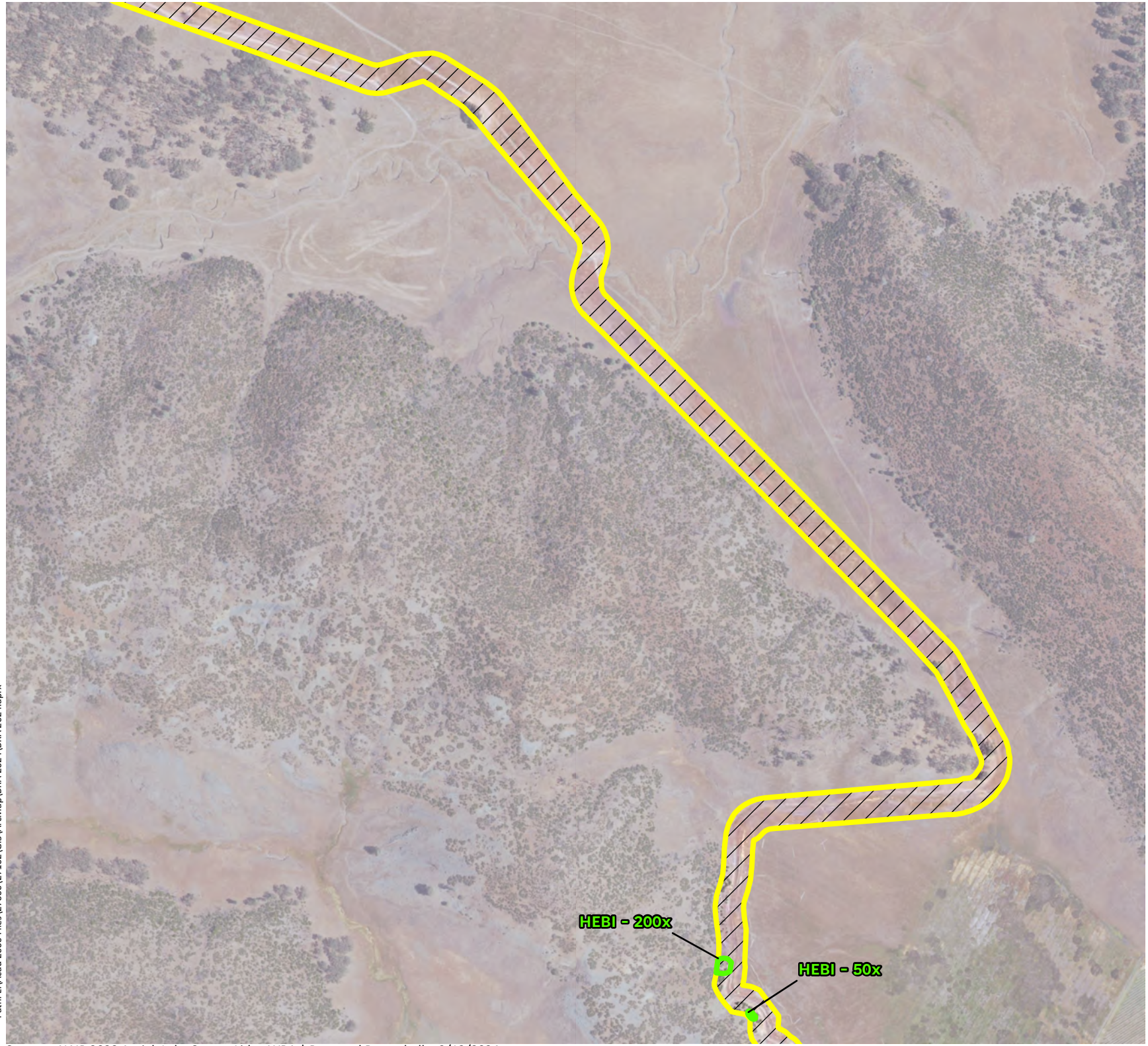
wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 7-6. Special-Status Plants Mapped within the Modified APE (Sheet 5)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

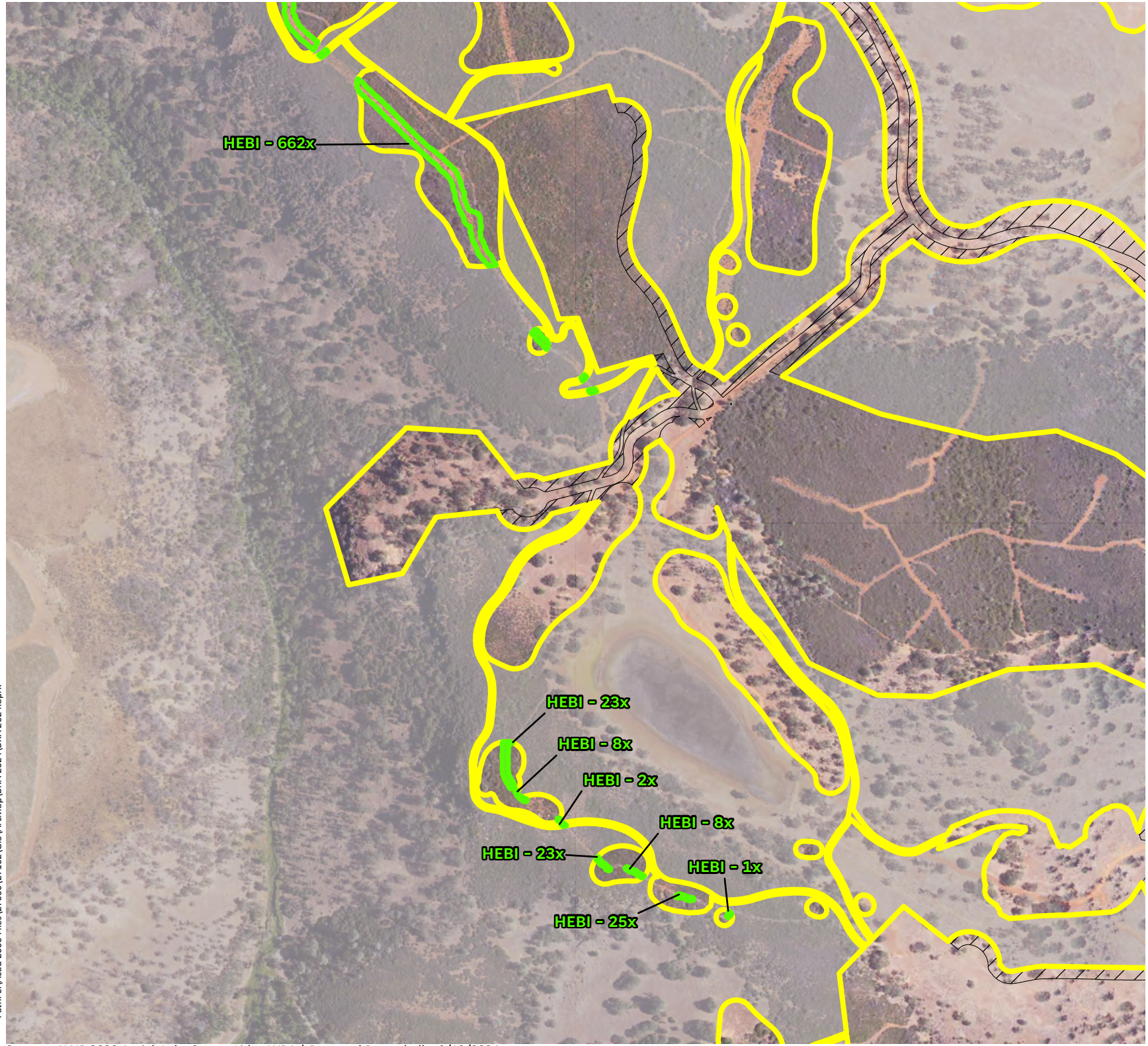


Figure 7-7. Special-Status Plants Mapped within the Modified APE (Sheet 6)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 7-8. Special-Status Plants Mapped within the Modified APE (Sheet 7)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

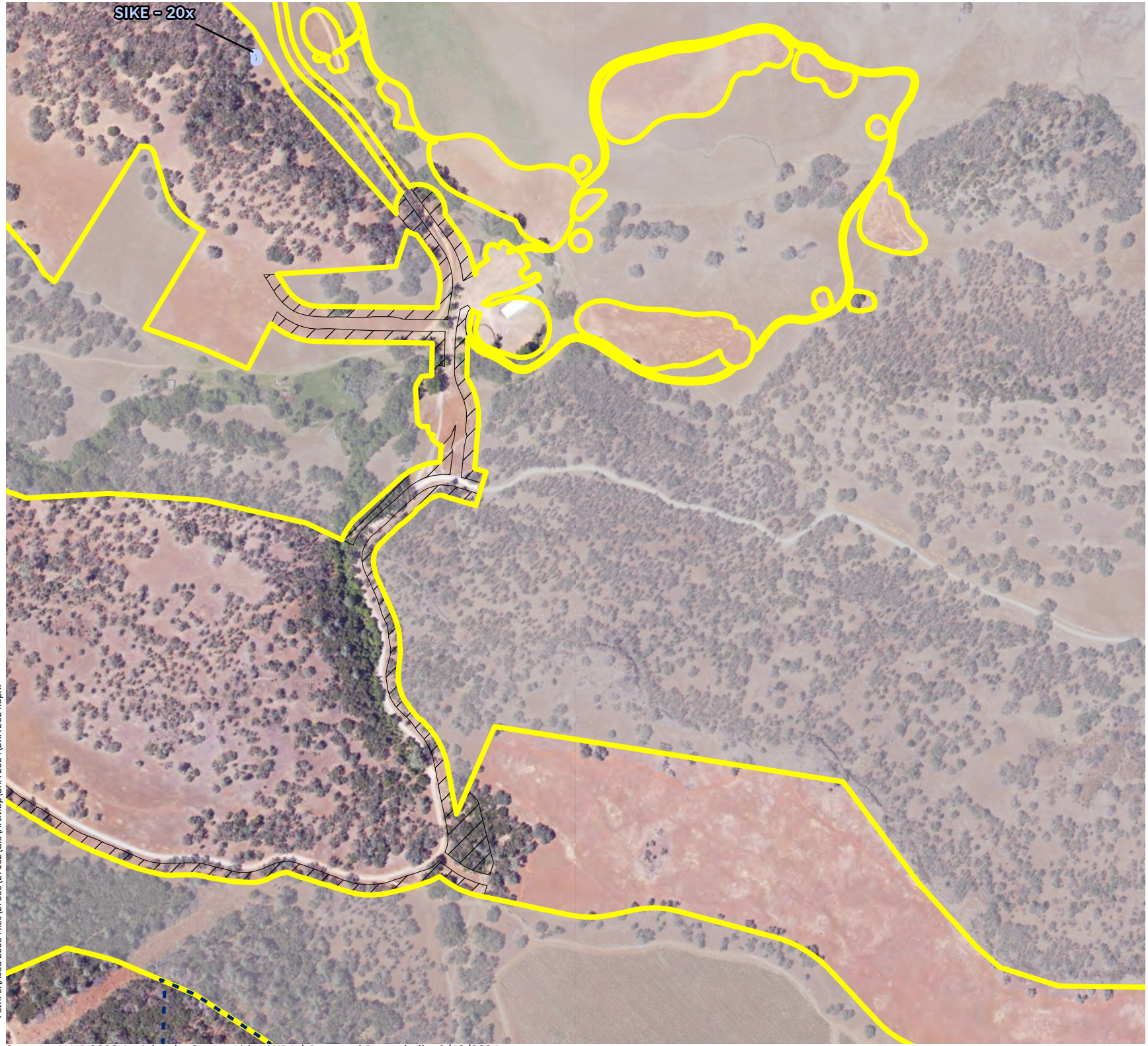


Figure 7-9. Special-Status Plants Mapped within the Modified APE (Sheet 8)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 7-10. Special-Status Plants Mapped within the Modified APE (Sheet 9)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 7-11. Special-Status Plants Mapped within the Modified APE (Sheet 10)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 7-12. Special-Status Plants Mapped within the Modified APE (Sheet 11)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

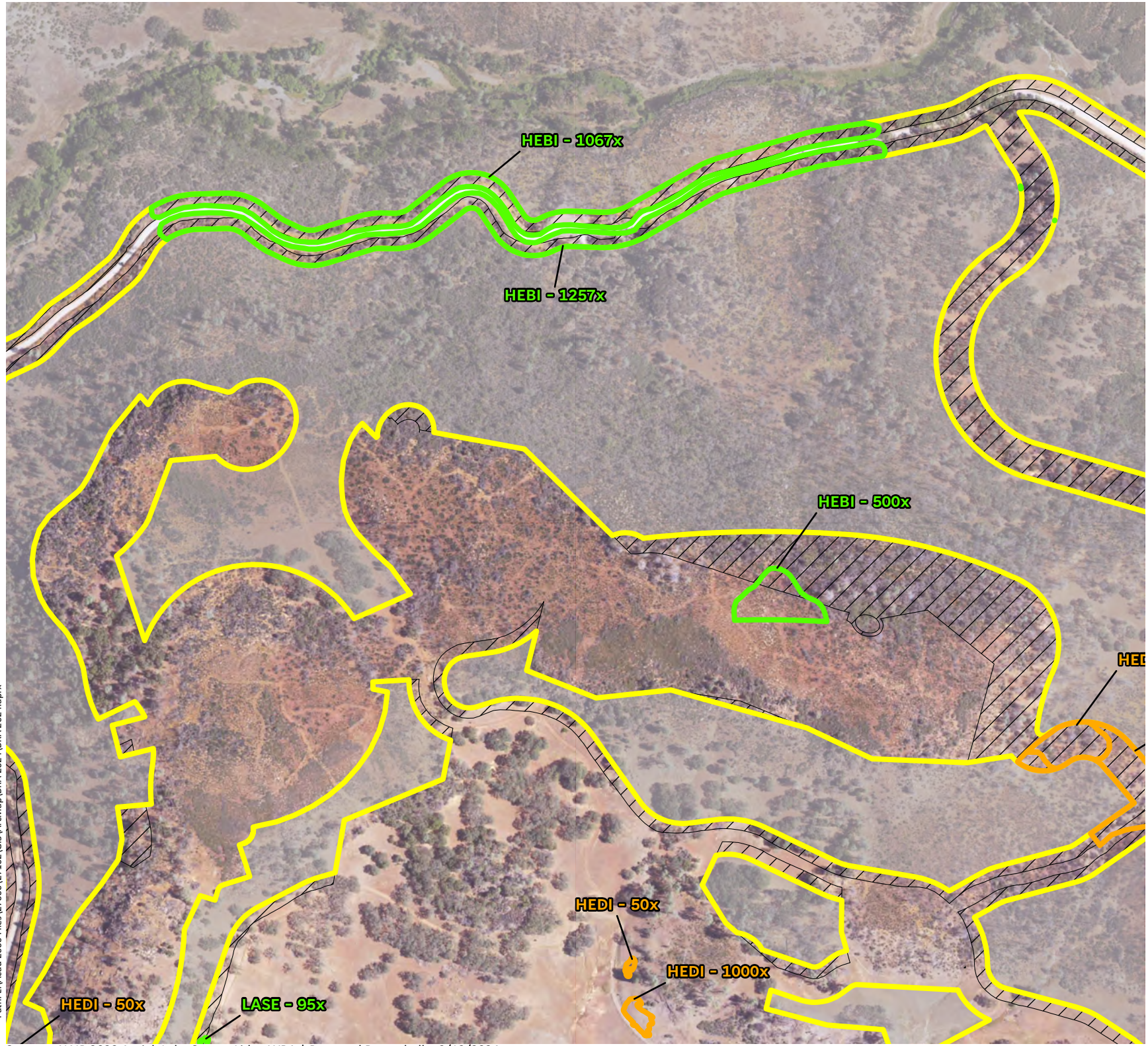


Figure 7-13. Special-Status Plants Mapped within the Modified APE (Sheet 12)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

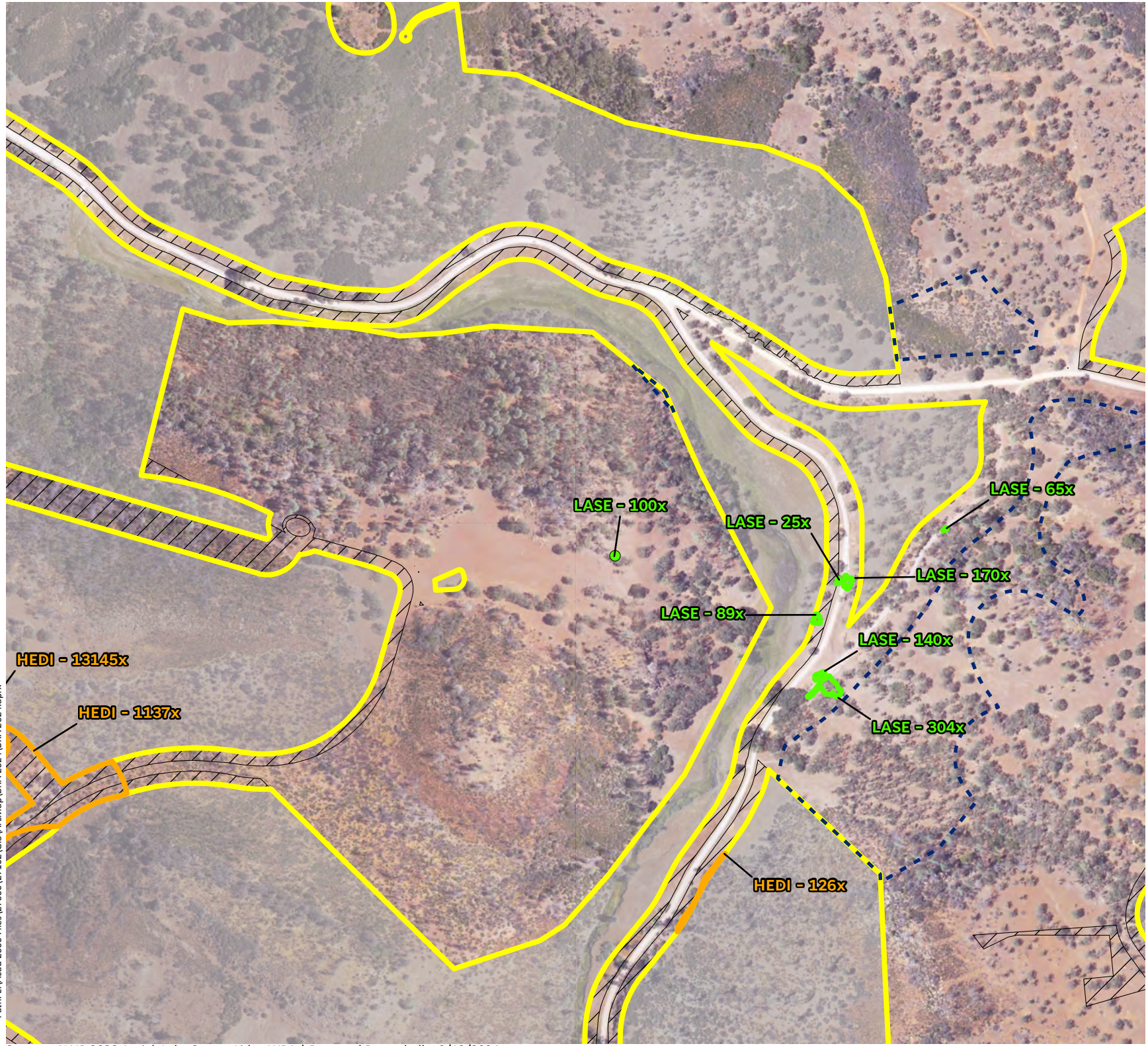


Figure 7-14. Special-Status Plants Mapped within the Modified APE (Sheet 13)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

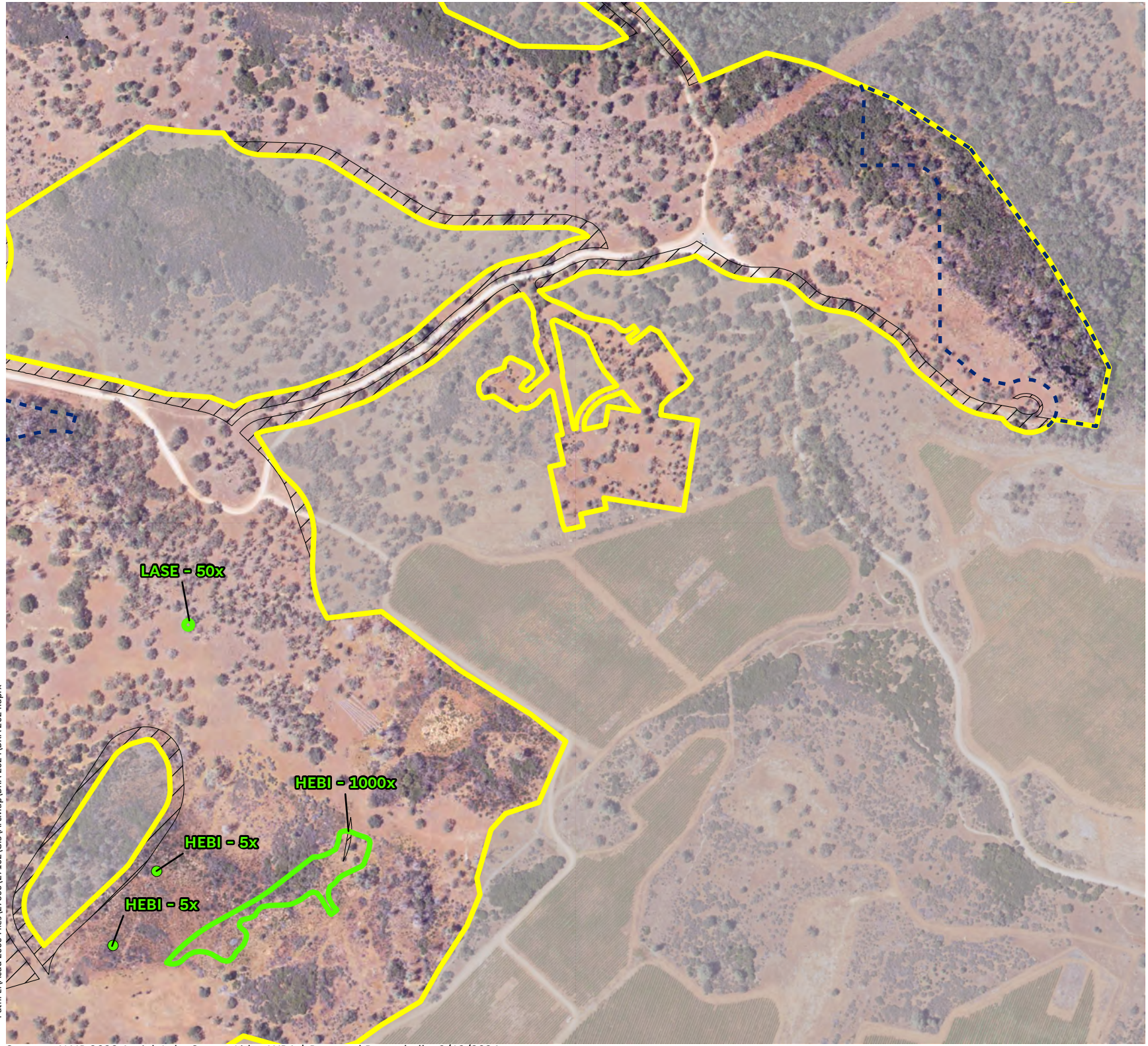


Figure 7-15. Special-Status Plants Mapped within the Modified APE (Sheet 14)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

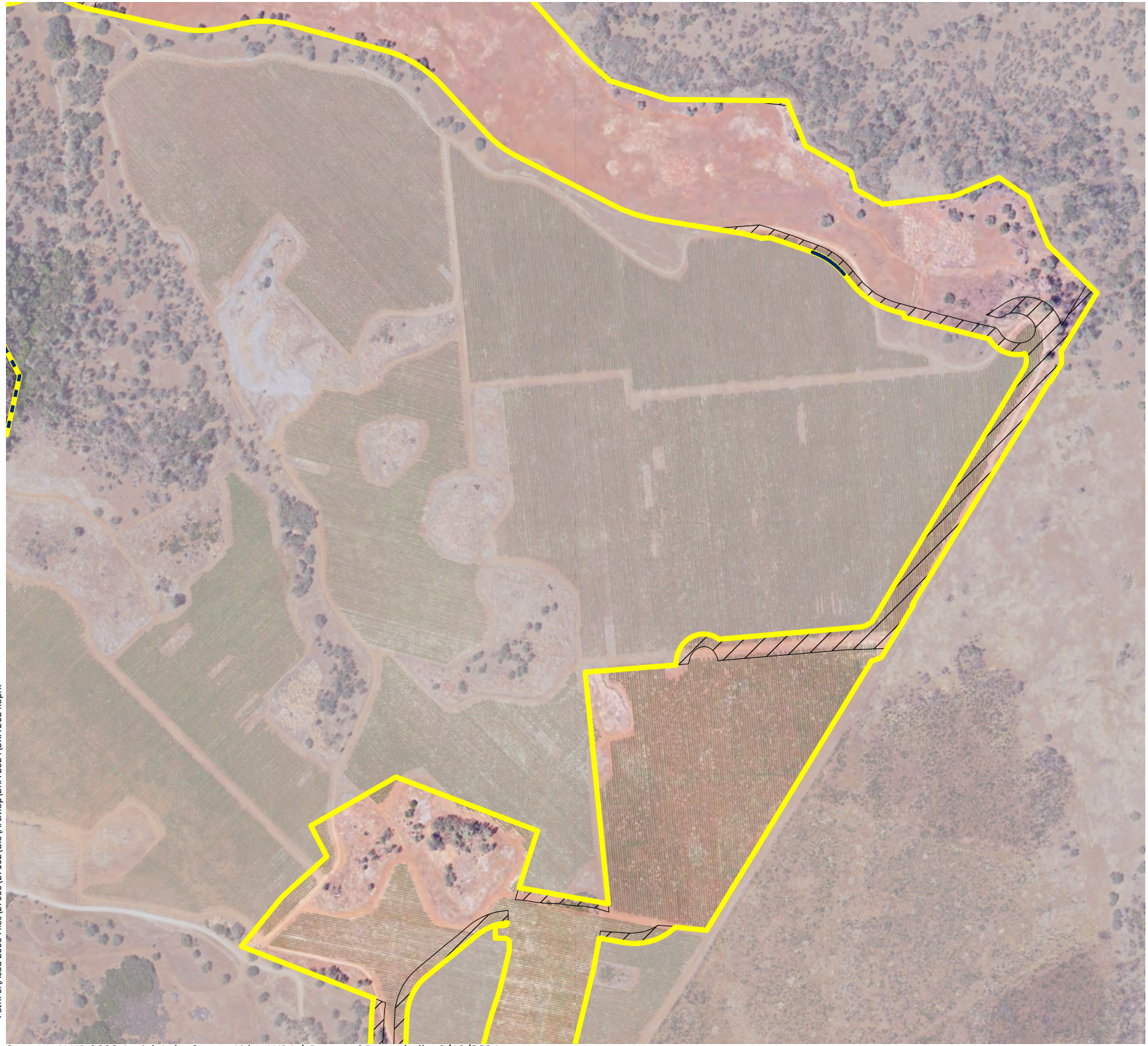


Figure 7-16. Special-Status Plants Mapped within the Modified APE (Sheet 15)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Figure 7-17. Special-Status Plants Mapped within the Modified APE (Sheet 16)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

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ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

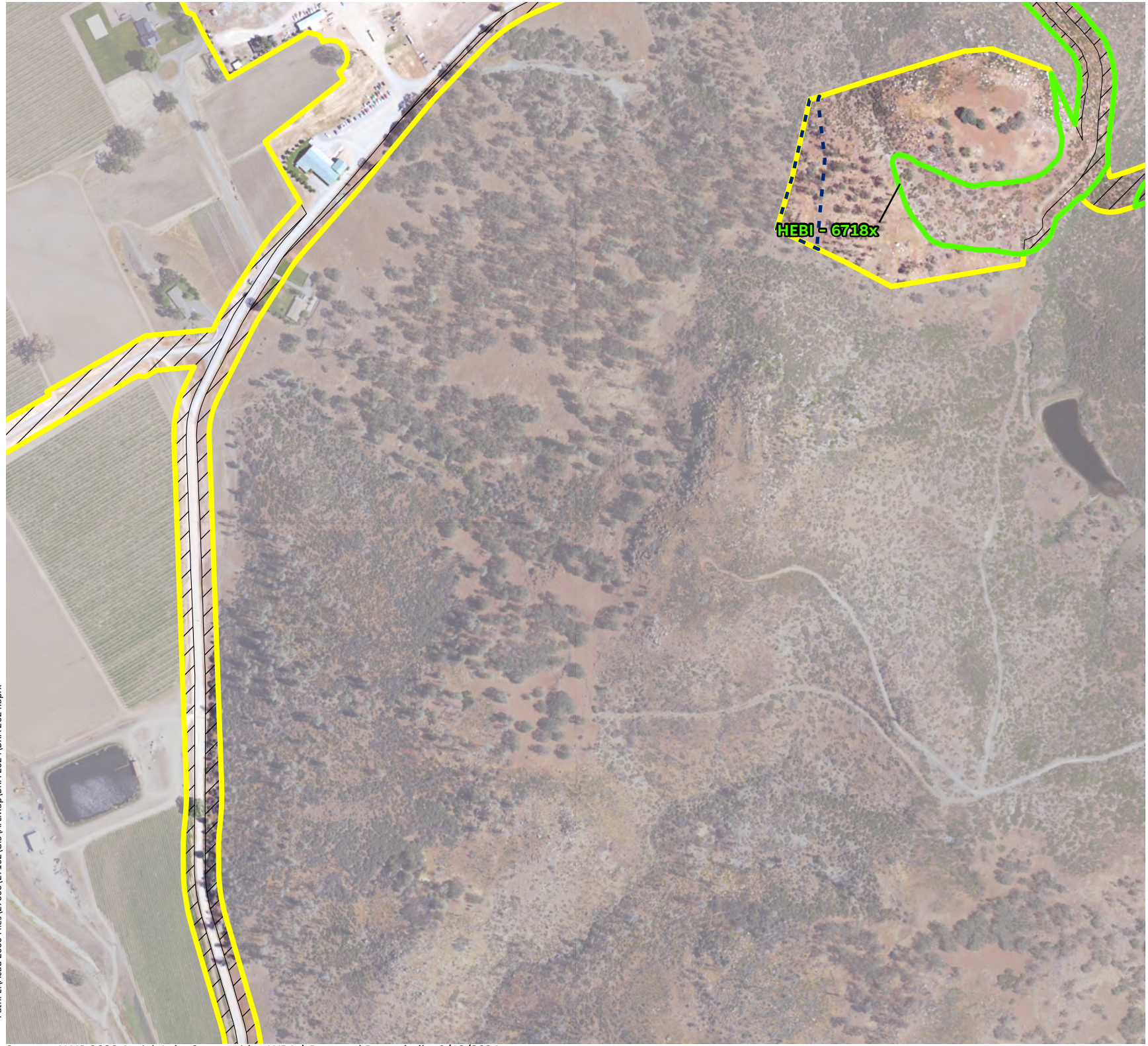


Figure 7-18. Special-Status Plants Mapped within the Modified APE (Sheet 17)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

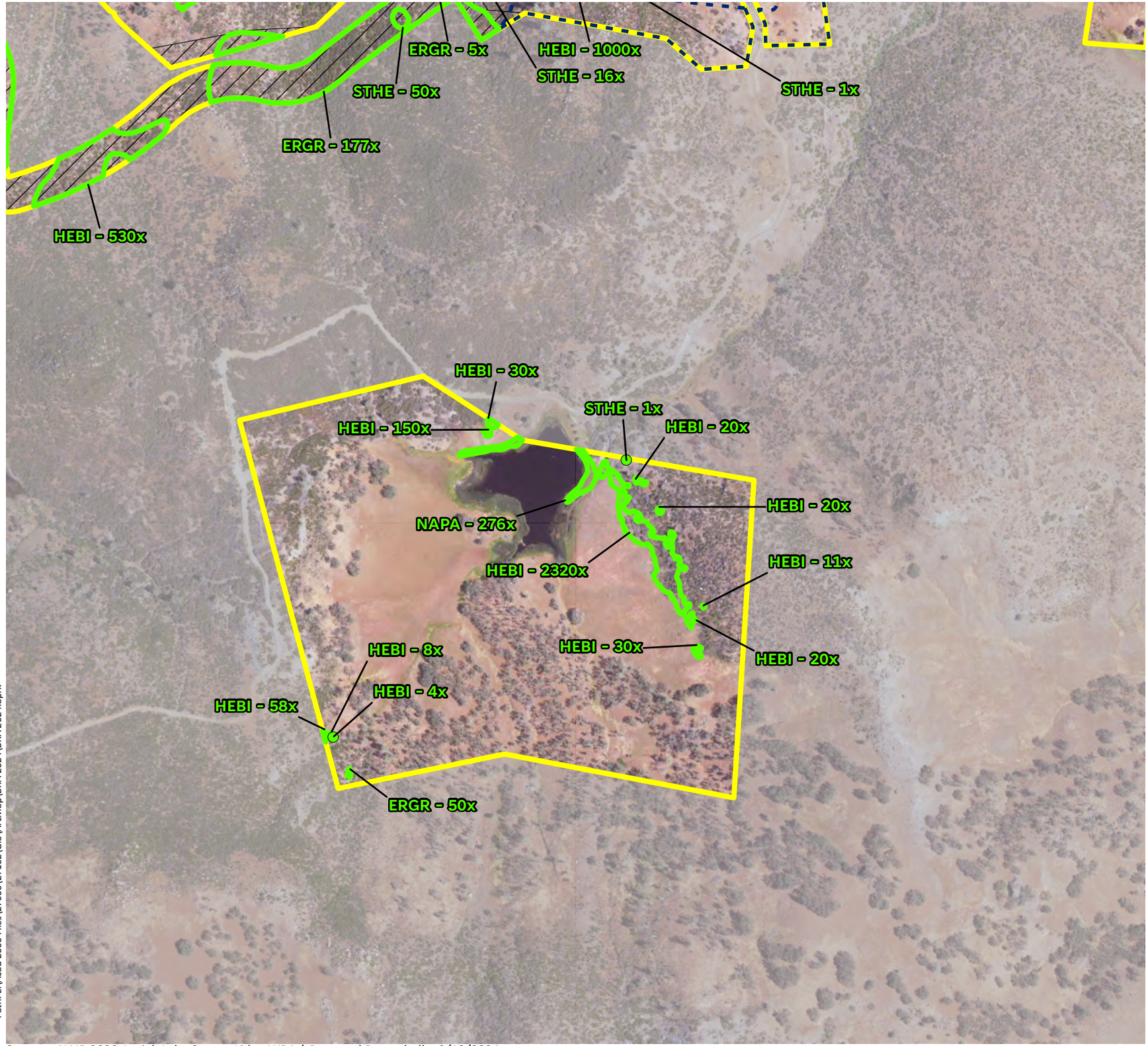


Figure 7-19. Special-Status Plants Mapped within the Modified APE (Sheet 18)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

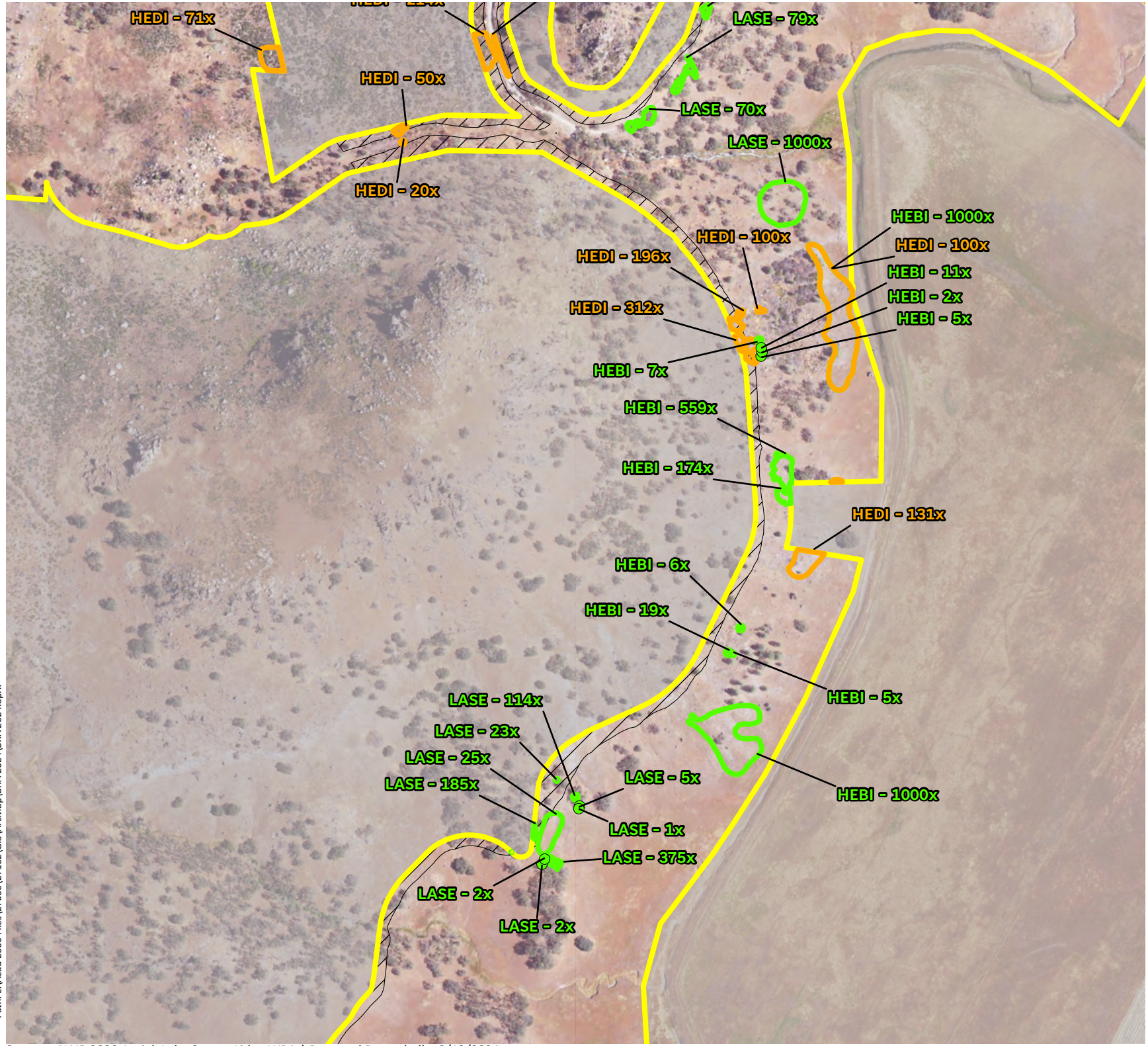


Figure 7-20. Special-Status Plants Mapped within the Modified APE (Sheet 19)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 7-21. Special-Status Plants Mapped within the Modified APE (Sheet 20)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

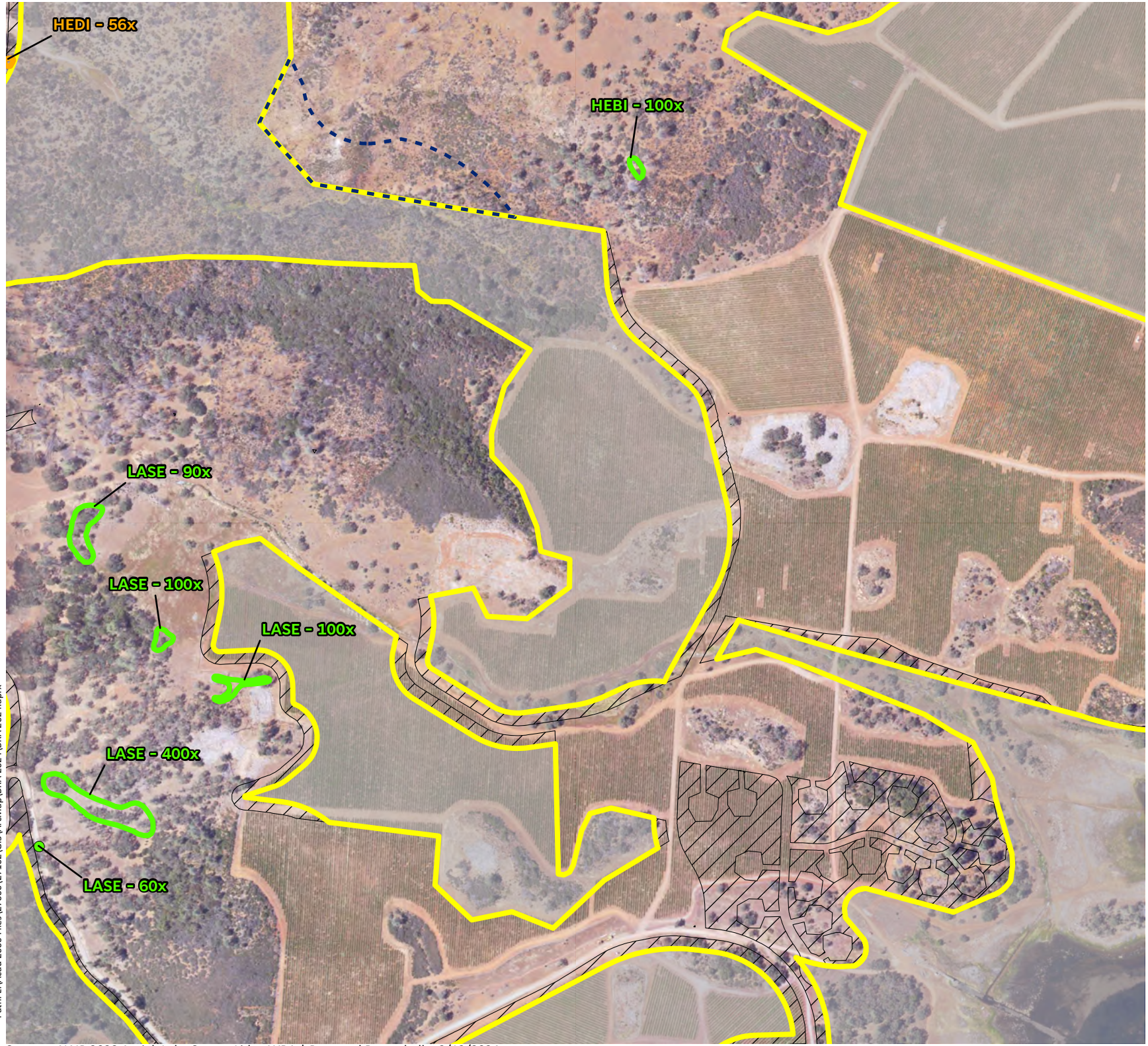


Figure 7-22. Special-Status Plants Mapped within the Modified APE (Sheet 21)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024



Figure 7-23. Special-Status Plants Mapped within the Modified APE (Sheet 22)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

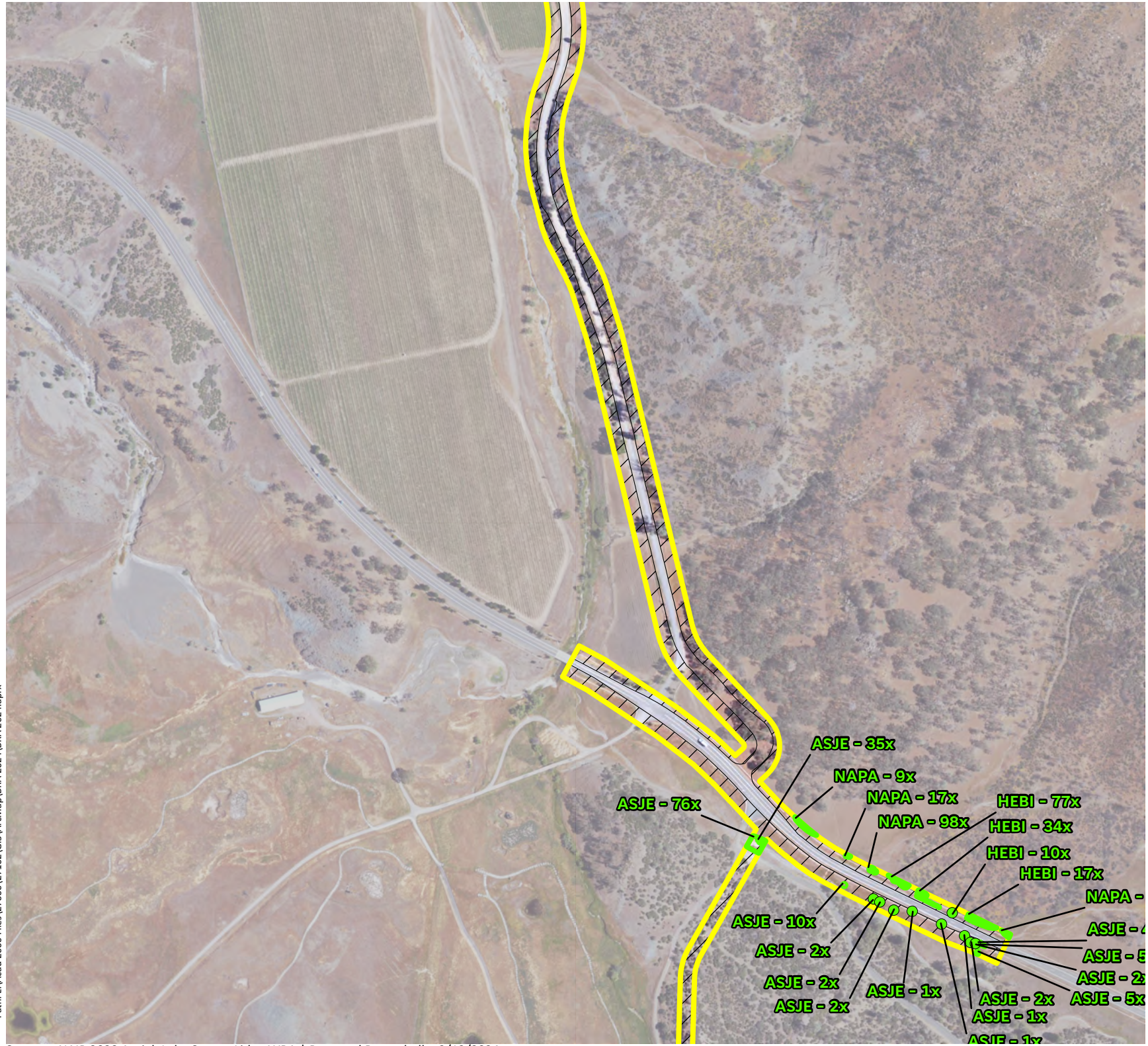


Figure 7-24. Special-Status Plants Mapped within the Modified APE (Sheet 23)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

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HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

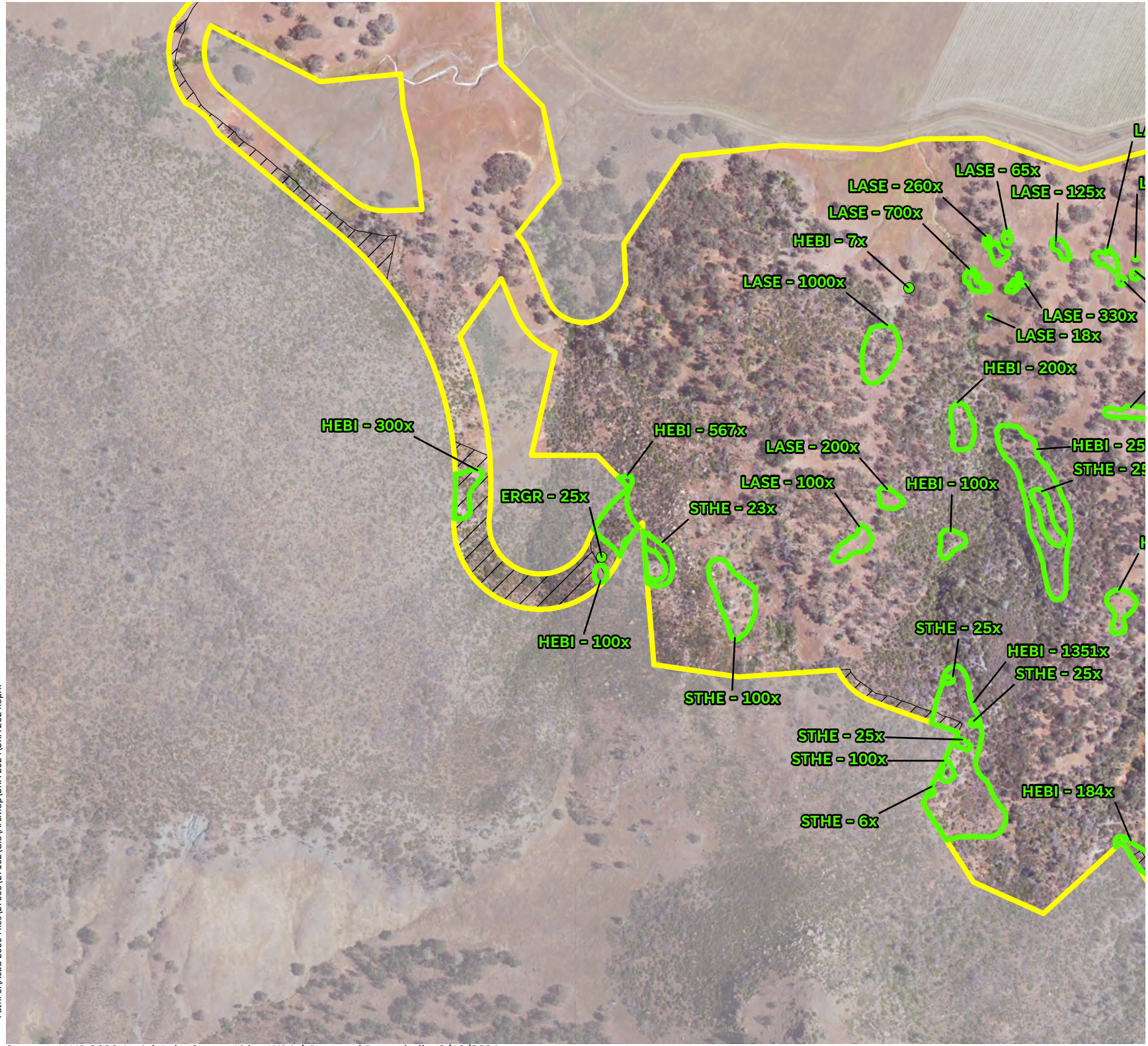


Figure 7-25. Special-Status Plants Mapped within the Modified APE (Sheet 24)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

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STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

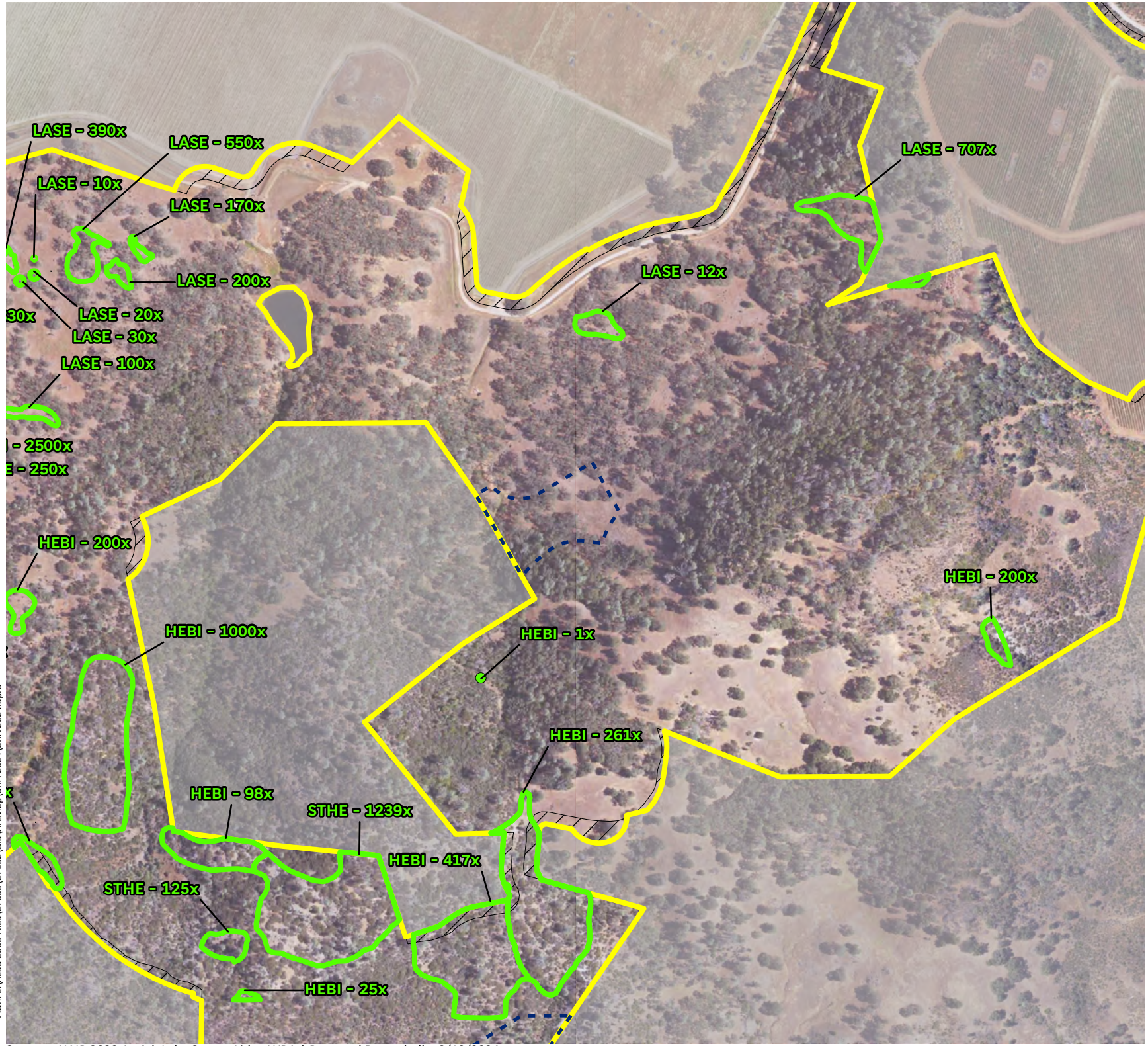


Figure 7-26. Special-Status Plants Mapped within the Modified APE (Sheet 25)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

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ASJE: Jepson's milkvetch

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HEBI: Two carpellate western flax

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STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

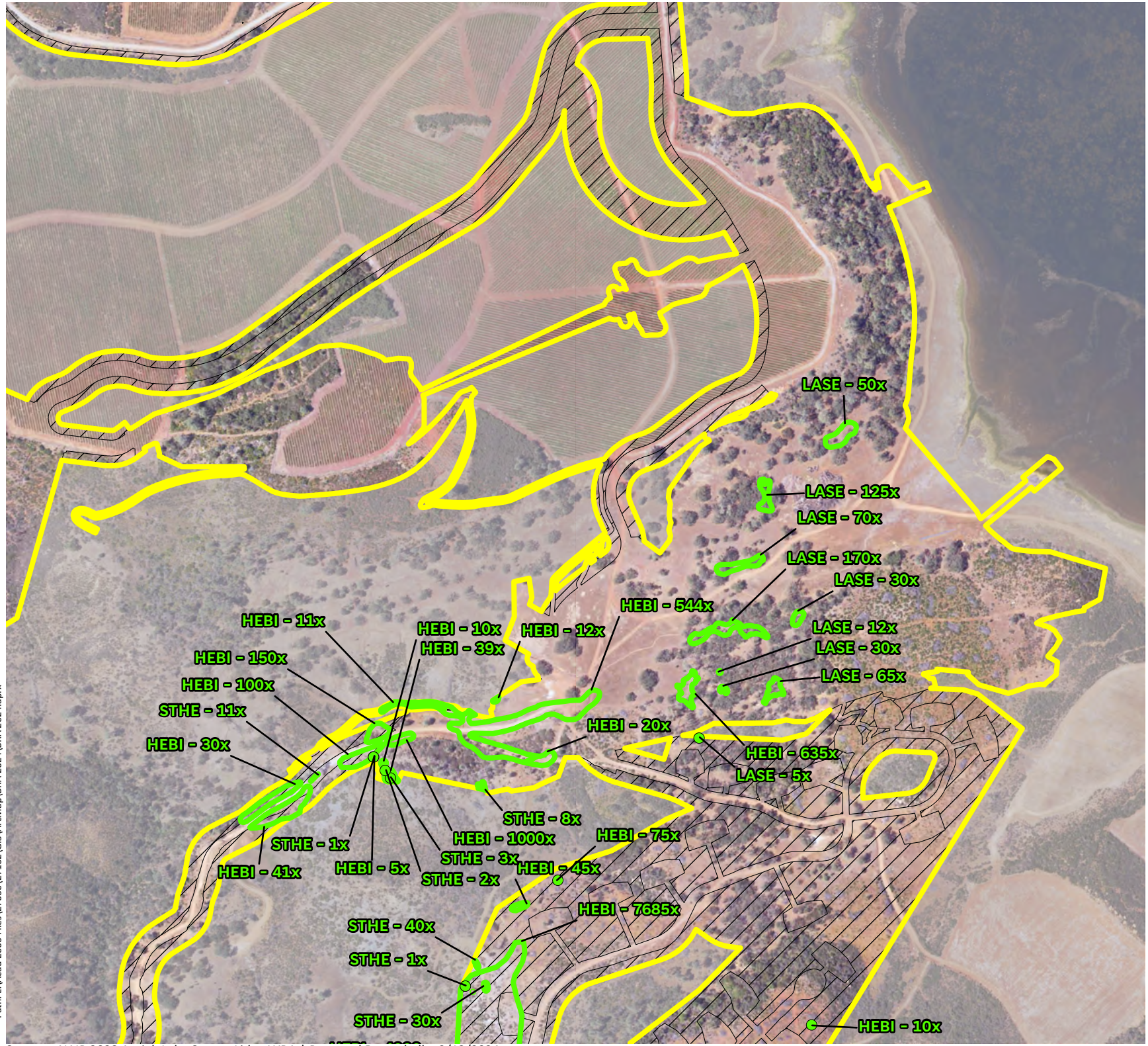


Figure 7-27. Special-Status Plants Mapped within the Modified APE (Sheet 26)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

ASJE: Jepson's milkvetch

ERGR: Greene's narrow-leaved fleabane

HEBI: Two carpellate western flax

LASE: Colusa layia

NAPA: Porter's navarretia

STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

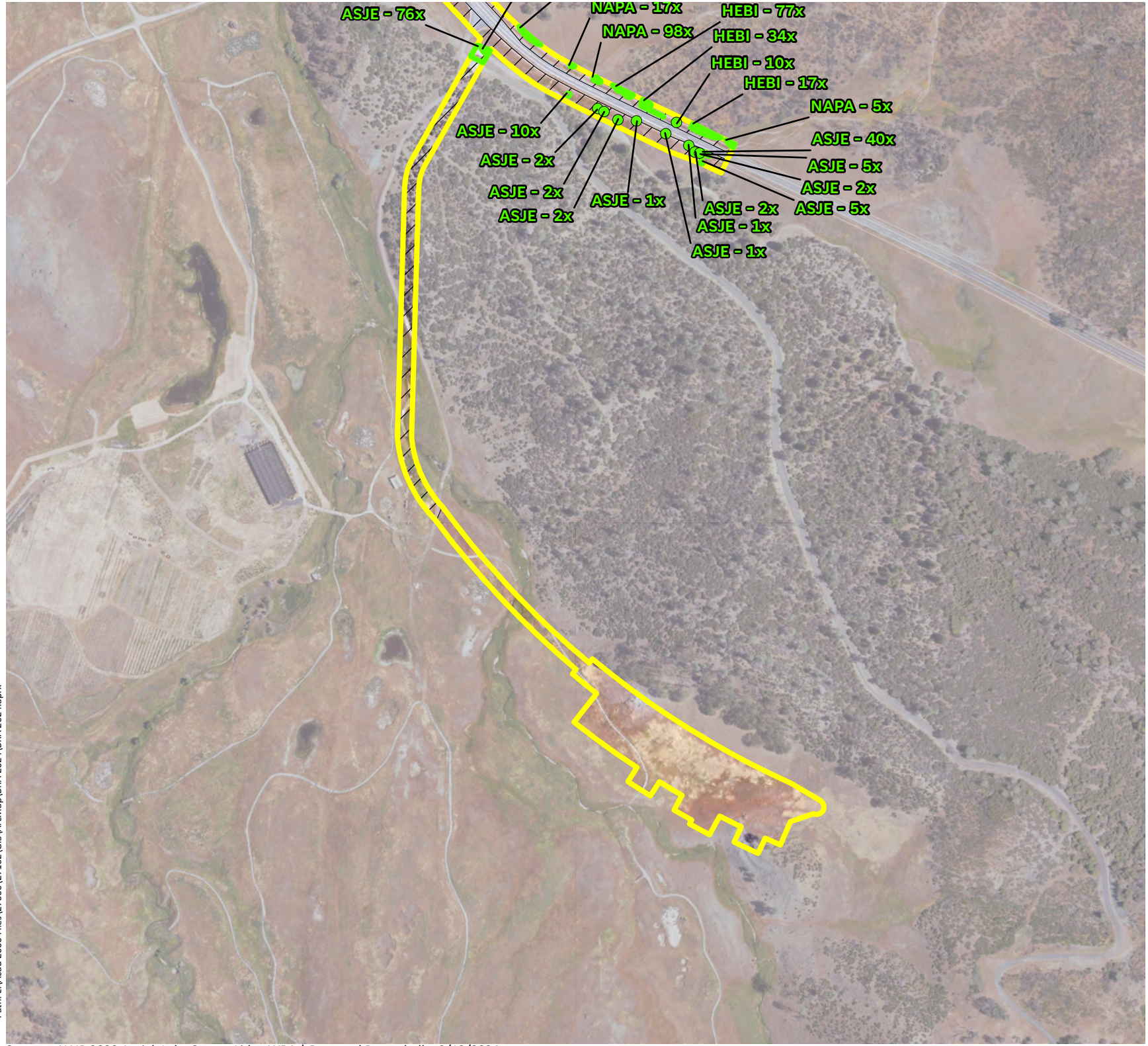


Figure 7-28. Special-Status Plants Mapped within the Modified APE (Sheet 27)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

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STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

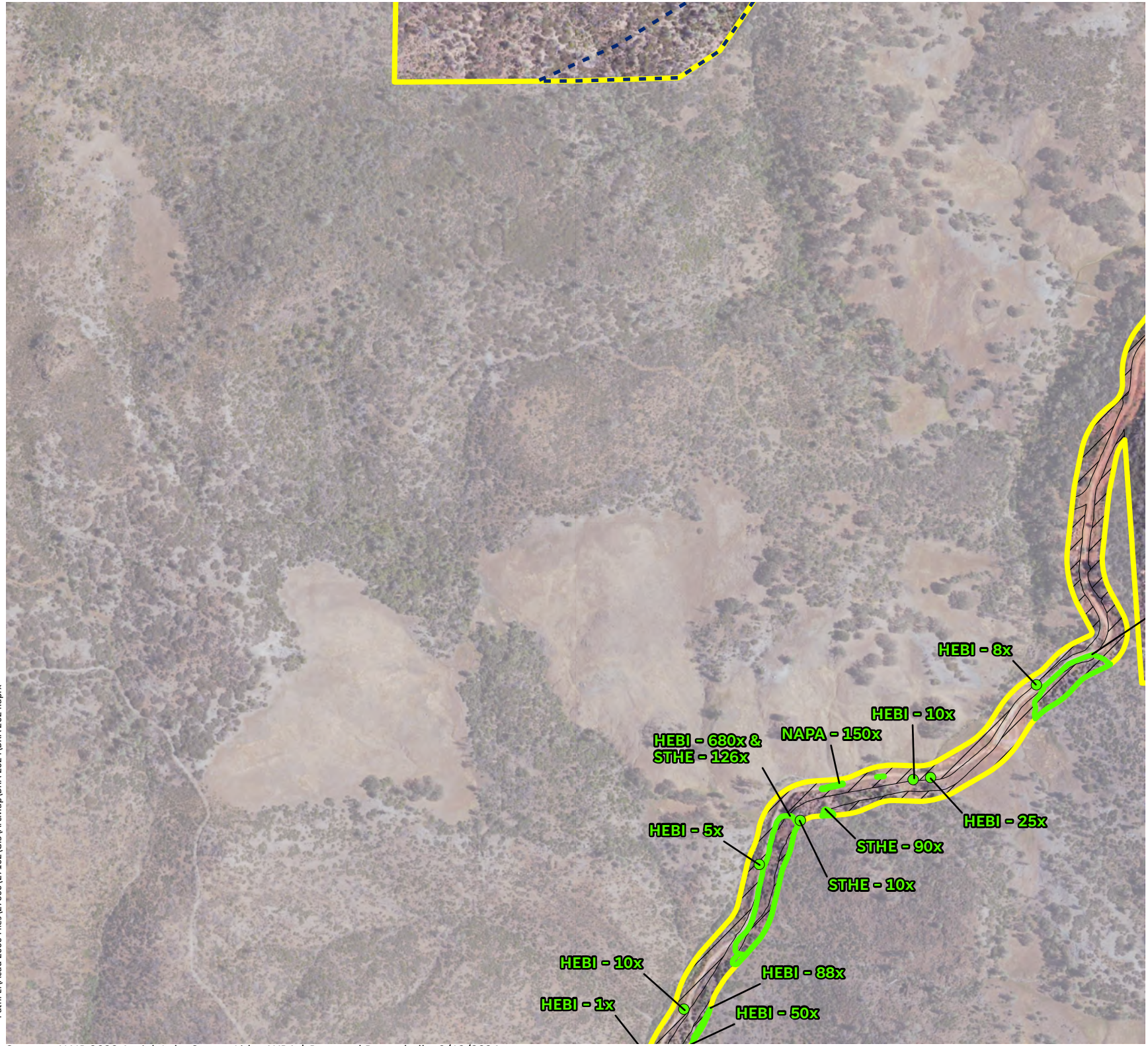


Figure 7-29. Special-Status Plants Mapped within the Modified APE (Sheet 28)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

Key to Species Codes

Federally-Endangered Plants:

SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

CNPS Rank 1 Plants:

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STHE: Green jewelflower

N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

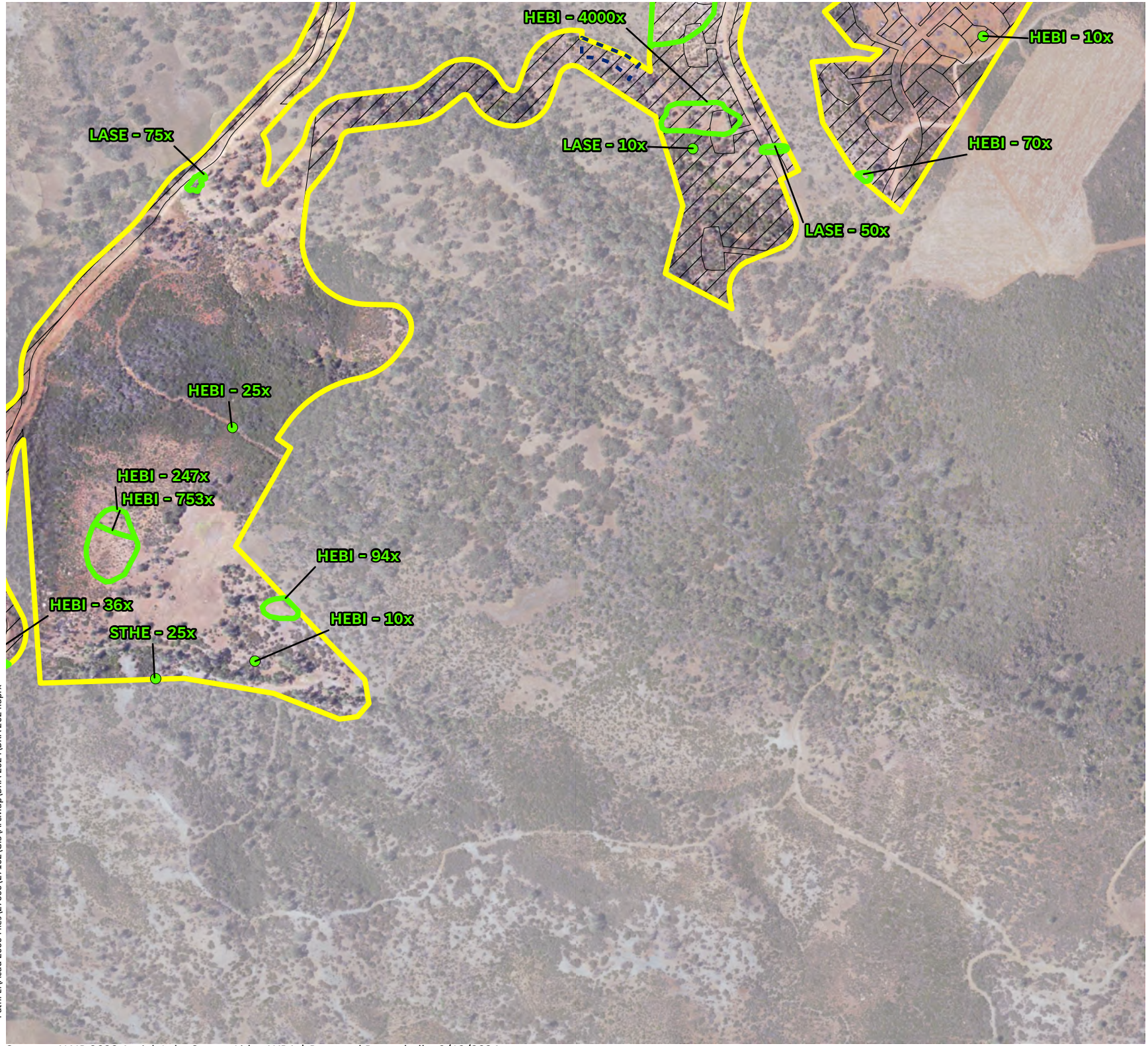


Figure 7-30. Special-Status Plants Mapped within the Modified APE (Sheet 29)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

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N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

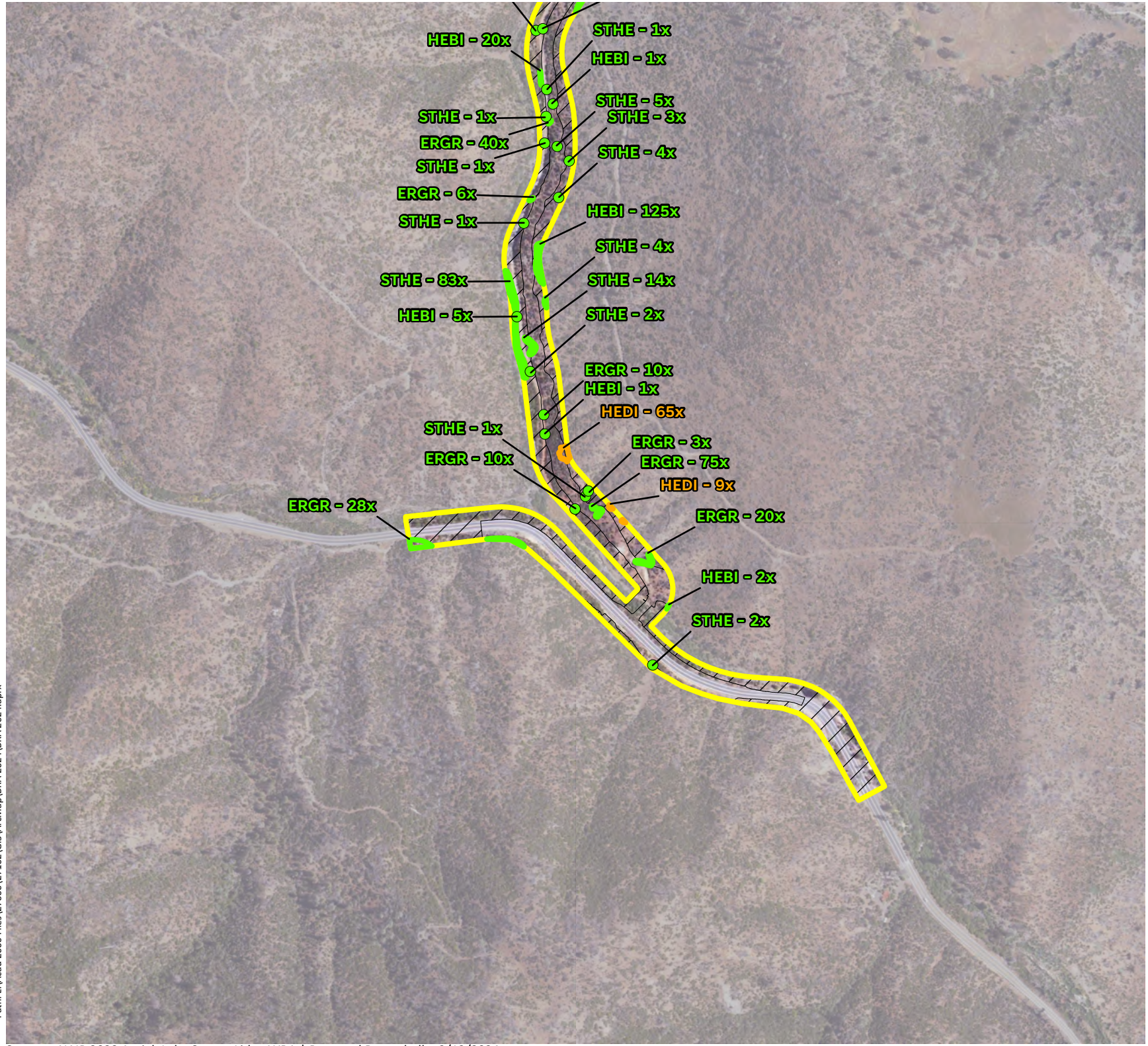


Figure 7-31. Special-Status Plants Mapped within the Modified APE (Sheet 30)

2024 Project Modifications
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Modified APE - 2,453.18 ac.

Modified APE not within 2020 APE - 332.85 ac.

Areas Only Desktop Assessed

Special-Status Plants

Polygons:

CNPS Rank 1 Plants

Federally-Endangered Plants

State-Endangered Plants

Points:

CNPS Rank 1 Plants

Federally-Endangered Plants

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SIKE: Keck's checkerbloom

State-Endangered Plants:

HEDI: Lake County western flax

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N

0 200 400

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\BRA 2024\BRA 2024.aprx

Sources: NAIP 2022 Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 2/12/2024

APPENDIX B. SPECIES OBSERVED IN AND AROUND THE MODIFIED APE

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Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Acer macrophyllum	Bigleaf maple	native	tree	-	-	FAC
Achillea millefolium	Yarrow	native	perennial herb	-	-	FACU
Achyrachaena mollis	Blow wives	native	annual herb	-	-	FAC
Acmispon americanus* var. *americanus	Spanish lotus	native	annual herb	-	-	UPL
Acmispon brachycarpus	Short podded lotus	native	annual herb	-	-	-
Acmispon glaber* var. *glaber	Deerweed	native	perennial herb	-	-	-
Acmispon parviflorus	Hill lotus	native	annual herb	-	-	-
Acmispon wrangelianus	Chilean trefoil	native	annual herb	-	-	-
Adelinia grandis	Pacific Hound's tongue	native	perennial herb	-	-	-
Adenostoma fasciculatum* var. *fasciculatum	Chamise	native	tree, shrub	-	-	-
Adiantum jordanii	California maidenhair fern	native	fern	-	-	FAC
Aegilops triuncialis	Goatgrass	non-native (invasive)	annual grass	-	High	-
Aesculus californica	Buckeye	native	tree	-	-	-
Agoseris grandiflora* var. *grandiflora	Giant mountain dandelion	native	perennial herb	-	-	-
Agoseris heterophylla* var. *cryptopleura	Mountain dandelion	native	annual herb	-	-	-
Agoseris heterophylla* var. *heterophylla	Annual agoseris	native	annual herb	-	-	-
Agrostis avenacea	Pacific bentgrass	non-native (invasive)	perennial grass	-	Limited	FACW
Agrostis stolonifera	Redtop	non-native (invasive)	perennial grass	-	Limited	FACW
Aira caryophyllea	Silvery hairgrass	non-native	annual grass	-	-	FACU
Alisma lanceolatum	Water plantain	non-native	perennial herb (aquatic)	-	-	OBL
Allium amplectens	Narrow leaved onion	native	perennial herb (bulb)	-	-	UPL

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Allium falcifolium	Sickle leaf onion	native	perennial herb (bulb)	-	-	-
Allium fimbriatum* var. *fimbriatum	Fringed onion	native	perennial herb (bulb)	-	-	-
Allium serra	Jeweled onion	native	perennial herb (bulb)	-	-	-
Alnus rhombifolia	White alder	native	tree	-	-	FACW
Alopecurus pratensis	Meadow foxtail	non-native	perennial grass	-	Watch	FACW
Amaranthus retroflexus	Rough pigweed	non-native	annual herb	-	-	FACU
Amsinckia intermedia	Common fiddleneck	native	annual herb	-	-	-
Amsinckia lycopsoides	Tarweed fiddleneck	native	annual herb	-	-	-
Amsinckia menziesii	Fiddleneck	native	annual herb	-	-	-
Amsinckia retrorsa	Rigid fiddleneck	native	annual herb	-	-	-
Ancistrocarphus filagineus	Woolly fishhooks	native	annual herb	-	-	-
Angelica californica	California angelica	native	perennial herb	-	-	-
Angelica tomentosa	Woolly angelica	native	perennial herb	-	-	-
Anisocarpus madioides	Woodland madia	native	perennial herb	-	-	-
Anthemis cotula	Dog fennel	non-native	annual herb	-	-	FACU
Antirrhinum vexillocalyculatum* ssp. *vexillocalyculatum	Wiry snapdragon	native	annual herb	-	-	-
Antirrhinum virga	Tall snapdragon	native	perennial herb	Rank 4.3	-	-
Aphanes occidentalis	Ladie's mantle	native	annual, perennial herb	-	-	-
Apiastrum angustifolium	Wild celery	native	annual herb	-	-	UPL
Aphyllon fasciculatum	Clustered broomrape	native	perennial herb (parasitic)	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Apocynum cannabinum	Indian hemp	native	perennial herb	-	-	FAC
Aquilegia eximia	Serpentine columbine	native	perennial herb	-	-	OBL
Arbutus menziesii	Madrone	native	tree	-	-	-
Arceuthobium campylopodum	Pine dwarf mistletoe	native	perennial herb (parasitic)	-	-	-
Arctostaphylos glandulosa* ssp. *cushingiana	Cushing manzanita	native	shrub	-	-	-
Arctostaphylos manzanita* ssp. *elegans	Konocti manzanita	native	shrub	Rank 1B.3	-	-
Arctostaphylos manzanita* ssp. *manzanita	Common manzanita	native	shrub	-	-	-
Arctostaphylos viscida* ssp. *pulchella	White leaf manzanita	native	tree, shrub	-	-	-
Arctostaphylos viscida* ssp. *viscida	Smooth white leaf manzanita	native	tree, shrub	-	-	-
Arnica discoidea	Rayless arnica	native	perennial herb	-	-	-
Artemisia douglasiana	California mugwort	native	perennial herb	-	-	FAC
Asclepias cordifolia	Purple milkweed	native	perennial herb	-	-	-
Asclepias eriocarpa	Indian milkweed	native	perennial herb	-	-	-
Asclepias fascicularis	Milkweed	native	perennial herb	-	-	FAC
Aspidotis densa	Lace fern	native	fern	-	-	-
Astragalus breweri	Brewer's milk vetch	native	annual herb	Rank 4.2	-	-
Astragalus clevelandii	Cleveland's milk vetch	native	perennial herb	Rank 4.3	-	FAC
Astragalus gambelianus	Gambel's dwarf milk vetch	native	annual herb	-	-	-
Astragalus rattanii* var. *jepsonianus	Jepson's milk vetch	native	annual herb	Rank 1B.2	-	-
Athyrium filix-femina* var. *cyclosorum	Western lady fern	native	fern	-	-	FAC
Athysanus pusillus	Dwarf athysanus	native	annual herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Avena barbata	Slim oat	non-native (invasive)	annual, perennial grass	-	Moderate	-
Avena fatua	Wildoats	non-native (invasive)	annual grass	-	Moderate	-
Baccharis pilularis* ssp. *consanguinea	Coyote brush	native	shrub	-	-	-
Baccharis salicifolia* ssp. *salicifolia	Mule fat	native	shrub	-	-	FAC
Balsamorhiza macrolepis	Big scale balsam root	native	perennial herb	Rank 1B.2	-	-
Barbarea vulgaris	Yellow rocket	non-native	perennial herb	-	-	FAC
Bellardia trixago	Mediterranean lineseed	non-native (invasive)	annual herb	-	Limited	-
Bellardia viscosa	Yellow glandweed	non-native (invasive)	annual herb	-	Limited	FAC
Brickellia californica	California brickellia	native	perennial herb	-	-	FACU
Briza maxima	Rattlesnake grass	non-native (invasive)	annual grass	-	Limited	-
Briza minor	Little rattlesnake grass	non-native	annual grass	-	-	FAC
Brodiaea elegans* ssp. *elegans	Harvest brodiaea	native	perennial herb	-	-	FACU
Brodiaea leptandra	Narrow-anthered brodiaea	native	perennial herb	Rank 1B.2	-	-
Bromus diandrus	Ripgut brome	non-native (invasive)	annual grass	-	Moderate	-
Bromus hordeaceus	Soft chess	non-native (invasive)	annual grass	-	Limited	FACU
Bromus laevipes	Narrow flowered brome	native	annual, perennial grass	-	-	-
Bromus madritensis	Foxtail brome	non-native	annual grass	-	-	UPL
Bromus rubens	Red brome	non-native (invasive)	annual grass	-	High	UPL
Bromus sitchensis* var. *carinatus	California brome	native	perennial grass	-	-	-
Calandrinia menziesii	Red maids	native	annual herb	-	-	FACU
Callitriche heterophylla* var. *bolanderi	Bolander's water starwort	native	annual herb	-	-	OBL
Calochortus amabilis	Golden fairy lantern	native	perennial herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Calochortus luteus	Yellow mariposa	native	perennial herb	-	-	-
Calochortus splendens	Splendid mariposa	native	perennial herb	-	-	-
Calochortus tolmiei	Hairy star tulip	native	perennial herb	-	-	-
Calochortus uniflorus	Large flowered star tulip	native	perennial herb	Rank 4.2	-	FACW
Calochortus vestae	Yellow mariposa	native	perennial herb	-	-	-
Calycadenia fremontii	Fremont's calycadenia	native	annual herb	-	-	-
Calycadenia pauciflora	Small flowered calycadenia	native	annual herb	-	-	-
Calycanthus occidentalis	Spicebush	native	shrub	-	-	FAC
Calyptridium quadripetalum	Four petaled pussypaws	native	annual herb	Rank 4.3	-	-
Calystegia collina* ssp. *collina	Hillside morning glory	native	perennial herb	-	-	-
Calystegia collina* ssp. *oxyphylla	Mt. Saint Helena morning glory	native	perennial herb (rhizomatous)	Rank 4.2	-	-
Calystegia occidentalis* ssp. *occidentalis	Modoc morning glory	native	perennial herb	-	-	-
Calystegia purpurata* ssp. *purpurata	Smooth western morning glory	native	perennial herb	-	-	-
Camissoniopsis intermedia	Intermediate sun cups	native	annual herb	-	-	-
Campanula angustiflora	Eastwood's harebell	native	annual herb	-	-	-
Capsella bursa-pastoris	Shepherd's purse	non-native	annual herb	-	-	FACU
Cardamine hirsuta	Hairy bitter cress	non-native	annual herb	-	-	FACU
Cardamine oligosperma	Idaho bittercress	native	annual, perennial herb	-	-	FAC
Carduus pycnocephalus* ssp. *pycnocephalus	Italian thistle	non-native (invasive)	annual herb	-	Moderate	-
Carex barbarae	Valley sedge	native	perennial grasslike herb	-	-	FAC

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Carex densa	Dense sedge	native	perennial grasslike herb	-	-	OBL
Carex multicaulis	Forest sedge	native	perennial grasslike herb	-	-	-
Carex nudata	Torrent sedge	native	perennial grasslike herb	-	-	FACW
Carex pellita	Woolly sedge	native	perennial grasslike herb	-	-	OBL
Carex praegracilis	Field sedge	native	perennial grasslike herb	-	-	FACW
Carex serratodens	Bifid sedge	native	perennial grasslike herb	-	-	FACW
Carex tumulicola	Split awn sedge	native	perennial grasslike herb	-	-	FACU
Castilleja affinis* ssp. *affinis	Coast Indian paint brush	native	perennial herb	-	-	-
Castilleja applegatei* ssp. *martinii	Martin's paintbrush	native	perennial herb	-	-	-
Castilleja attenuata	Narrow leaved owl's clover	native	annual herb	-	-	-
Castilleja densiflora* ssp. *densiflora	Dense flower owl's clover	native	annual herb	-	-	-
Castilleja exserta* ssp. *exserta	Purple owl's clover	native	annual herb	-	-	-
Castilleja foliolosa	Woolly paintbrush	native	perennial herb	-	-	-
Castilleja minor	Little paintbrush	native	annual herb	-	-	OBL
Castilleja rubicundula* ssp. *lithospermoides	Cream sacs	native	annual herb	-	-	-
Caulanthus lasiophyllus	California mustard	native	annual herb	-	-	-
Ceanothus cuneatus* var. *cuneatus	Buck brush	native	shrub	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Ceanothus foliosus* var. *foliosus	Wavy leaved ceanothus	native	shrub	-	-	-
Ceanothus integerrimus* var. *macrothyrsus	Deerbrush	native	shrub	-	-	-
Ceanothus jepsonii	Musk brush	native	shrub	-	-	-
Centaurea calcitrapa	Purple star thistle	non-native (invasive)	annual, perennial herb	-	Moderate	-
Centaurea melitensis	Tocalote	non-native (invasive)	annual herb	-	Moderate	-
Centaurea solstitialis	Yellow starthistle	non-native (invasive)	annual herb	-	High	-
Centromadia fitchii	Spikeweed	native	annual herb	-	-	FACU
Cephalanthus occidentalis	Common buttonbush	native	shrub	-	-	OBL
Cerastium glomeratum	Large mouse ears	non-native	annual herb	-	-	UPL
Cercis occidentalis	Western redbud	native	tree, shrub	-	-	-
Cercocarpus betuloides* var. *betuloides	Birch leaf mountain mahogany	native	tree, shrub	-	-	-
Chaenactis glabriuscula* var. *heterocarpha	Variable fruited yellow chaenactis	native	annual herb	-	-	-
Chenopodium album	Lambs quarters	non-native	annual herb	-	-	FACU
Chlorogalum pomeridianum* var. *pomeridianum	Common soaproot	native	perennial herb	-	-	-
Chorizanthe membranacea	Pink spineflower	native	annual herb	-	-	-
Chorizanthe polygonoides* var. *polygonoides	Knotweed spineflower	native	annual herb	-	-	-
Cichorium intybus	Chicory	non-native	perennial herb	-	-	FACU
Cirsium cymosum* var. *cymosum	Peregrine thistle	native	perennial herb	-	-	-
Cirsium douglasii	Swamp thistle	native	perennial herb	-	-	OBL
Cirsium occidentale* var. *venustum	Venus thistle	native	perennial herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Cirsium vulgare	Bullthistle	non-native (invasive)	perennial herb	-	Moderate	FACU
Clarkia amoena* ssp. *huntiana	Farewell to spring	native	annual herb	-	-	-
Clarkia concinna* ssp. *concinna	Red ribbons	native	annual herb	-	-	-
Clarkia gracilis* ssp. *tracyi	Tracy's clarkia	native	annual herb	Rank 4.2	-	-
Clarkia purpurea* ssp. *quadrivulnera	Purple clarkia	native	annual herb	-	-	-
Clarkia rhomboidea	Tongue clarkia	native	annual herb	-	-	-
Clarkia unguiculata	Woodland clarkia	native	annual herb	-	-	-
Claytonia exigua* ssp. *exigua	Serpentine springbeauty	native	annual herb	-	-	-
Claytonia parviflora* ssp. *parviflora	Miner's lettuce	native	annual herb	-	-	FACU
Claytonia perfoliata* ssp. *perfoliata	Miner's lettuce	native	annual herb	-	-	FAC
Clematis lasiantha	Pipestem	native	perennial herb, vine	-	-	-
Clematis ligusticifolia	Creek clematis	native	perennial herb, vine	-	-	FAC
Collinsia greenei	Greene's collinsia	native	annual herb	-	-	-
Collinsia heterophylla* var. *heterophylla	Purple chinese houses	native	annual herb	-	-	-
Collinsia sparsiflora* var. *sparsiflora	Few flowered collinsia	native	annual herb	-	-	-
Collomia diversifolia	Serpentine collomia	native	annual herb	Rank 4.3	-	-
Collomia heterophylla	Varied leaved collomia	native	annual herb	-	-	-
Convolvulus arvensis	Field bindweed	non-native	perennial herb, vine	-	-	-
Cordylanthus pilosus* ssp. *pilosus	Hairy bird's beak	native	annual herb	-	-	-
Cordylanthus tenuis* ssp. *brunneus	Serpentine bird's beak	native	annual herb (hemiparasitic)	Rank 4.3	-	-
Cornus nuttallii	Mountain dogwood	native	shrub	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Cornus sericea* ssp. *occidentalis	Western dogwood	native	shrub	-	-	FACW
Crassula aquatica	Aquatic pygmy weed	native	annual herb	-	-	OBL
Crassula connata	Sand pygmy weed	native	annual herb	-	-	FAC
Crassula tillaea	Mediterranean pygmy weed	non-native	annual herb	-	-	FACU
Crocanthemum scoparium	Peak rush-rose	native	shrub	-	-	-
Croton setiger	Turkey-mullein	native	perennial herb	-	-	-
Crypsis schoenoides	Swamp grass	non-native	annual grass	-	-	FACW
Cryptantha flaccida	Beaked cryptantha	native	annual herb	-	-	-
Cryptantha hispidula	Napa cryptantha	native	annual herb	-	-	-
Cuscuta brachycalyx	San Joaquin dodder	native	annual herb, vine (parasitic)	-	-	-
Cuscuta californica	California dodder	native	annual herb, vine (parasitic)	-	-	-
Cuscuta howelliana	Boggs Lake dodder	native	vine	-	-	-
Cynodon dactylon	Bermuda grass	non-native (invasive)	perennial grass	-	Moderate	FACU
Cynosurus echinatus	Dogtail grass	non-native (invasive)	annual grass	-	Moderate	-
Cyperus eragrostis	Tall cyperus	native	perennial grasslike herb	-	-	FACW
Cyperus squarrosus	Awned cyperus	native	annual grasslike herb	-	-	OBL
Cytisus scoparius	Scotch broom	non-native (invasive)	shrub	-	High	-
Dactylis glomerata	Orchardgrass	non-native (invasive)	perennial grass	-	Limited	FACU
Damasonium californicum	California damsonium	native	perennial herb (aquatic)	-	-	OBL
Danthonia californica	California oatgrass	native	perennial grass	-	-	FAC

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Datisca glomerata	Durango root	native	perennial herb	-	-	FACW
Datura stramonium	Jimson weed	non-native	annual herb	-	-	-
Daucus pusillus	Wild carrot	native	annual herb	-	-	-
Delphinium hesperium* ssp. *pallescens	Western larkspur	native	perennial herb	-	-	FAC
Delphinium nudicaule	Canyon larkspur	native	perennial herb	-	-	-
Delphinium uliginosum	Swamp larkspur	native	perennial herb	Rank 4.2	-	OBL
Delphinium variegatum* ssp. *variegatum	Royal larkspur	native	perennial herb	-	-	-
Dendromecon rigida	Bush poppy	native	shrub	-	-	-
Deschampsia cespitosa* ssp. *cespitosa	Tufted hairgrass	native	perennial grass	-	-	FACW
Deschampsia danthonioides	Annual hairgrass	native	annual grass	-	-	FACW
Dianthus nudiflorus	Velezia	non-native	annual herb	-	-	-
Dichelostemma congestum	Fork toothed ookow	native	perennial herb	-	-	-
Digitaria sanguinalis	Crabgrass	non-native	annual grass	-	-	FACU
Diplacus aurantiacus	Sticky monkeyflower	native	shrub	-	-	FACU
Diplacus congdonii	Congdon's monkeyflower	native	annual herb	-	-	FAC
Diplacus douglasii	Purple mouse ears	native	annual herb	-	-	FACW
Diplacus kelloggii	Kellogg's monkeyflower	native	annual herb	-	-	-
Diplacus tricolor	Tricolor monkeyflower	native	annual herb	-	-	OBL
Dipterostemon capitatus* ssp. *capitatus	Wild hyacinth	native	perennial herb	-	-	FACU
Downingia concolor* var. *concolor	Spotted throat downingia	native	annual herb	-	-	OBL
Downingia cuspidata	Toothed downingia	native	annual herb	-	-	OBL
Drymocallis glandulosa	Sticky cinquefoil	native	perennial herb	-	-	FAC
Dryopteris arguta	Wood fern	native	fern	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Dudleya cymosa* ssp. *cymosa	Canyon dudleya	native	perennial herb	-	-	-
Echinochloa crus-galli	Barnyard grass	non-native	annual grass	-	-	FACW
Ehrendorferia chrysantha	Golden eardrops	native	perennial herb	-	-	-
Eleocharis acicularis	Needle spikerush	native	perennial grasslike herb	-	-	OBL
Eleocharis macrostachya	Spike rush	native	perennial grasslike herb	-	-	OBL
Elymus caput-medusae	Medusa head	non-native (invasive)	annual grass	-	High	-
Elymus elymoides* var. *elymoides	Squirrel tail grass	native	perennial grass	-	-	FACU
Elymus glaucus* ssp. *glaucus	Blue wild rye	native	perennial grass	-	-	FACU
Elymus multisetus	Big squirreltail grass	native	perennial grass	-	-	-
Elymus triticoides	Beardless wild rye	native	perennial grass	-	-	FAC
Epilobium brachycarpum	Panicled willow herb	native	annual herb	-	-	FAC
Epilobium campestre	Smooth boisduvalia	native	annual herb	-	-	OBL
Epilobium canum* ssp. *canum	California fuchsia	native	perennial herb	-	-	-
Epilobium ciliatum	Slender willow herb	native	perennial herb	-	-	FACW
Epilobium densiflorum	Willow herb	native	annual herb	-	-	FACW
Epilobium minutum	Minute willowherb	native	annual herb	-	-	FACU
Epilobium torreyi	Narrow boisduvalia	native	annual herb	-	-	FACW
Epipactis gigantea	Stream orchid	native	perennial herb	-	-	OBL
Equisetum hyemale* ssp. *affine	Giant scouring rush	native	fern	-	-	FACW
Equisetum laevigatum	Smooth scouring rush	native	fern	-	-	FACW
Ericameria arborescens	Golden fleece	native	shrub	-	-	-
Erigeron canadensis	Horseweed	native	annual herb	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Erigeron greenei	Greene's narrow-leaved daisy	native	perennial herb	Rank 1B.2	-	-
Erigeron philadelphicus* var. *philadelphicus	Philadelphia fleabane	native	perennial herb	-	-	FACU
Eriodictyon californicum	Yerba santa	native	shrub	-	-	-
Eriogonum luteolum* var. *luteolum	Golden buckwheat	native	annual herb	-	-	-
Eriogonum nudum* var. *nudum	Nude buckwheat	native	shrub	-	-	-
Eriophyllum lanatum* var. *achilleoides	Yarrow leaved woolly sunflower	native	perennial herb	-	-	-
Erodium botrys	Big heron bill	non-native	annual herb	-	-	FACU
Erodium brachycarpum	White stemmed filaree	non-native	annual herb	-	-	-
Erodium cicutarium	Red stemmed filaree	non-native (invasive)	annual herb	-	Limited	-
Erodium moschatum	Whitestem filaree	non-native	annual herb	-	-	-
Eryngium aristulatum* var. *aristulatum	Jepson's button celery	native	perennial herb	-	-	OBL
Erythranthe guttata	Seep monkeyflower	native	perennial herb (rhizomatous)	-	-	OBL
Erythranthe latidens	Broad toothed monkeyflower	native	annual herb	-	-	OBL
Erythranthe microphylla	Seep monkeyflower	native	annual herb	-	-	OBL
Erythranthe nudata	Bare monkeyflower	native	annual herb	Rank 4.3	-	OBL
Erythronium helenae	St. Helena fawn lily	native	perennial herb (bulb)	Rank 4.2	-	-
Eschscholzia caespitosa	Tufted poppy	native	annual herb	-	-	-
Eschscholzia californica	California poppy	native	annual, perennial herb	-	-	-
Eucalyptus camaldulensis	Red gum	non-native (invasive)	tree	-	Limited	FAC
Euphorbia serpillifolia	Thyme-leafed spurge	native	annual herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Euphorbia spathulata	Reticulate seeded spurge	native	annual herb	-	-	FAC
Eurybia radulina	Roughleaf aster	native	perennial herb	-	-	-
Euthamia occidentalis	Western goldenrod	native	perennial herb	-	-	FACW
Festuca arundinacea	Reed fescue	non-native (invasive)	perennial grass	-	Moderate	FACU
Festuca bromoides	Brome fescue	non-native	annual grass	-	-	FACU
Festuca californica	California fescue	native	perennial grass	-	-	FACU
Festuca idahoensis	Blue fescue	native	perennial grass	-	-	FACU
Festuca microstachys	Small fescue	native	annual grass	-	-	-
Festuca myuros	Rattail sixweeks grass	non-native (invasive)	annual grass	-	Moderate	FACU
Festuca perennis	Italian rye grass	non-native (invasive)	annual, perennial grass	-	Moderate	FAC
Ficus carica	Common fig	non-native (invasive)	tree	-	Moderate	FACU
Frangula californica* ssp. *tomentella	Hoary coffeeberry	native	shrub	-	-	-
Fraxinus dipetala	Two petaled ash	native	tree, shrub	-	-	-
Fraxinus latifolia	Oregon ash	native	tree	-	-	FACW
Fritillaria affinis	Checker lily	native	perennial herb (bulb)	-	-	-
Fritillaria purdyi	Purdy's fritillary	native	perennial herb (bulb)	Rank 4.3	-	-
Fritillaria recurva	Scarlet fritillary	native	perennial herb	-	-	-
Galium andrewsii* ssp. *andrewsii	Phlox leaved bedstraw	native	perennial herb	-	-	-
Galium aparine	Cleavers	native	annual herb	-	-	FACU
Galium bolanderi	Bolander's bedstraw	native	perennial herb	-	-	-
Galium californicum	California bedstraw	native	perennial herb	-	-	-
Galium murale	Tiny bedstraw	non-native	annual herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Galium parisiense	Wall bedstraw	non-native	annual herb	-	-	UPL
Galium porrigens* var. *porrigens	Graceful bedstraw	native	vine, shrub	-	-	-
Galium porrigens* var. *tenue	Graceful bedstraw	native	vine, shrub	-	-	-
Garrya congdonii	Silk tassel	native	shrub	-	-	-
Gastridium phleoides	Nit grass	non-native	annual grass	-	-	FACU
Genista monspessulana	French broom	non-native (invasive)	shrub	-	High	-
Geranium dissectum	Wild geranium	non-native (invasive)	annual herb	-	Limited	-
Geranium molle	Crane's bill geranium	non-native	annual, perennial herb	-	-	-
Gilia capitata* ssp. *capitata	Blue field gilia	native	annual herb	-	-	-
Gilia clivorum	Purple spot gilia	native	annual herb	-	-	-
Gilia tricolor* ssp. *diffusa	Bird's eyes	native	annual herb	-	-	-
Githopsis specularioides	Venus' looking glass	native	annual herb	-	-	FACU
Glyceria declinata	Waxy mannagrass	non-native (invasive)	perennial grass	-	Moderate	FACW
Glycyrrhiza glabra	Licorice	non-native	perennial herb	-	-	-
Glycyrrhiza lepidota	American licorice	native	perennial herb	-	-	FAC
Gnaphalium palustre	Lowland cudweed	native	annual herb	-	-	FACW
Gratiola ebracteata	Common hedge hyssop	native	annual herb	-	-	OBL
Grindelia hirsutula	Gumweed	native	perennial herb	-	-	FACW
Gruvelia pusilla	Little pectocarya	native	annual herb	-	-	-
Helenium bigelovii	Bigelow's sneezeweed	native	perennial herb	-	-	FACW
Helenium puberulum	Sneezeweed	native	perennial herb	-	-	FACW
Helianthella californica* var. *californica	California helianthella	native	perennial herb	-	-	-
Helianthus exilis	Serpentine sunflower	native	annual herb	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Heliotropium curassavicum* var. *oculatum	Seaside heliotrope	native	perennial herb	-	-	FACU
Helminthotheca echioides	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-	Limited	FAC
Hemizonia congesta* ssp. *clevelandii	Cleveland's tarweed	native	annual herb	-	-	-
Hemizonia congesta* ssp. *luzulifolia	Woodrush tarweed	native	annual herb	-	-	-
Hesperevax sparsiflora* var. *sparsiflora	Few flowered evax	native	annual herb	-	-	FACU
Hesperocyparis sargentii	Sargent cypress	native	tree, shrub	-	-	-
Hesperolinon bicarpellatum	Two carpellate western flax	native	annual herb	Rank 1B.2	-	-
Hesperolinon californicum	California western flax	native	annual herb	-	-	-
Hesperolinon didymocarpum	Lake County western flax	native	annual herb	SE, Rank 1B.2	-	-
Hesperolinon disjunctum	Coast Range western flax	native	annual herb	-	-	-
Hesperolinon micranthum	Small flower western flax	native	annual herb	-	-	-
Hesperolinon spergulinum	Slender western flax	native	annual herb	-	-	-
Heterocodon rariflorum	Heterocodon	native	annual herb	-	-	FACW
Heteromeles arbutifolia	Toyon	native	shrub	-	-	-
Heterotheca oregona	Oregon golden aster	native	perennial herb	-	-	FACU
Hirschfeldia incana	Short-podded mustard	non-native (invasive)	perennial herb	-	Moderate	-
Hoita macrostachya	California hemp	native	perennial herb	-	-	OBL
Holocarpha virgata* ssp. *virgata	Narrow tarplant	native	annual herb	-	-	-
Hordeum brachyantherum* ssp. *brachyantherum	Meadow barley	native	perennial grass	-	-	FACW
Hordeum brachyantherum* ssp. *californicum	Meadow barley	native	perennial grass	-	-	FACW

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Hordeum marinum* ssp. *gussoneanum	Mediterranean barley	non-native (invasive)	annual grass	-	Moderate	FAC
Hordeum murinum* ssp. *glaucum	Foxtail	non-native (invasive)	annual grass	-	Moderate	FACU
Hordeum murinum* ssp. *leporinum	Farmer's foxtail	non-native (invasive)	annual grass	-	Moderate	FACU
Hypericum concinnum	Gold wire	native	perennial herb	-	-	-
Hypericum perforatum* ssp. *perforatum	Klamathweed	non-native	perennial herb	-	Moderate	FACU
Hypochaeris glabra	Smooth cats ear	non-native (invasive)	annual herb	-	Limited	-
Hypochaeris radicata	Hairy cats ear	non-native (invasive)	perennial herb	-	Moderate	FACU
Iris fernaldii	Fernald's iris	native	perennial herb	-	-	-
Iris macrosiphon	Ground iris	native	perennial herb	-	-	-
Isoetes orcuttii	Orcutt's quillwort	native	fern (aquatic)	-	-	OBL
Juglans hindsii	Northern California black walnut	native	tree	-	-	FAC
Juncus balticus* ssp. *ater	Baltic rush	native	perennial grasslike herb	-	-	FACW
Juncus bufonius	Common toad rush	native	annual grasslike herb	-	-	FACW
Juncus effusus* ssp. *pacificus	Pacific rush	native	perennial grasslike herb	-	-	FACW
Juncus mexicanus	Mexican rush	native	perennial grasslike herb	-	-	FACW
Juncus occidentalis	Western rush	native	perennial grasslike herb	-	-	FACW
Juncus patens	Common rush	native	perennial grasslike herb	-	-	FACW
Juncus phaeocephalus* var. *phaeocephalus	Brown headed rush	native	perennial grasslike herb	-	-	FACW

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Juncus tenuis	Slender rush	native	perennial grasslike herb	-	-	FACW
Juncus xiphioides	Iris leaved rush	native	perennial grasslike herb	-	-	OBL
Keckiella breviflora* var. *glabrisepala	Hairless gaping keckiella	native	shrub	-	-	-
Kickxia elatine	Sharp point fluellin	non-native	perennial herb	-	-	UPL
Koeleria macrantha	June grass	native	perennial grass	-	-	-
Lactuca saligna	Willow lettuce	non-native	annual herb	-	-	UPL
Lactuca serriola	Prickly lettuce	non-native	annual herb	-	-	FACU
Lagophylla minor	Little hareleaf	native	annual herb	-	-	-
Lagophylla ramosissima	Common hareleaf	native	annual herb	-	-	-
Lamium amplexicaule	Henbit	non-native	annual herb	-	-	-
Lasthenia californica* ssp. *californica	California goldfields	native	annual herb	-	-	FACU
Lasthenia glaberrima	Smooth goldfields	native	annual herb	-	-	OBL
Lasthenia glabrata* ssp. *glabrata	Yellow rayed goldfields	native	annual herb	-	-	FACW
Lasthenia gracilis	Needle goldfields	native	annual herb	-	-	-
Lathyrus cicera	Red peavine	non-native	annual herb	-	-	-
Lathyrus hirsutus	Caley pea	non-native	annual herb	-	-	FAC
Lathyrus tingitanus	Tangier pea	non-native	annual herb	-	-	-
Lathyrus vestitus* var. *vestitus	Hillside pea	native	perennial herb	-	-	-
Layia chrysanthemoides	Smooth tidy tips	native	annual herb	-	-	FACW
Layia septentrionalis	Colusa layia	native	annual herb	Rank 1B.2	-	-
Leontodon saxatilis* ssp. *longirostris	Hawkbit	non-native	annual herb	-	-	FACU
Lepechinia calycina	Pitcher sage	native	shrub	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Lepidium latifolium	Perennial pepperweed	non-native (invasive)	perennial herb	-	High	FAC
Lepidium nitidum	Shining pepper grass	native	annual herb	-	-	FAC
Lepidium strictum	Peppergrass	native	annual herb	-	-	-
Leptosiphon aureus	Bristly leptosiphon	native	annual herb	Rank 4.2	-	-
Leptosiphon bicolor	True babystars	native	annual herb	-	-	UPL
Leptosiphon ciliatus	Whiskerbrush	native	annual herb	-	-	-
Leptosiphon parviflorus	Variable linanthus	native	annual herb	-	-	-
Lessingia ramulosa	Sonoma lessingia	native	annual herb	-	-	-
Lewisia rediviva* var. *rediviva	Bitter root	native	perennial herb	-	-	-
Limnanthes douglasii* ssp. *nivea	Douglas' meadowfoam	native	annual herb	-	-	OBL
Linanthus dichotomus* ssp. *meridianus	Evening snow	native	annual herb	-	-	-
Lindernia dubia	False pimpernel	native	annual herb	-	-	OBL
Lithophragma affine	Common woodland star	native	perennial herb	-	-	-
Lithophragma heterophyllum	Woodland star	native	perennial herb	-	-	-
Logfia filaginoides	California cottonrose	native	annual herb	-	-	-
Logfia gallica	Narrowleaf cottonrose	non-native	annual herb	-	-	-
Lomatium californicum	Celery weed	native	perennial herb	-	-	-
Lomatium dasycarpum* ssp. *tomentosum	Woolly fruited lomatium	native	perennial herb	-	-	-
Lomatium hooveri	Hoover's lomatium	native	perennial herb	Rank 4.3	-	-
Lomatium marginatum* var. *marginatum	Hartweg's lomatium	native	perennial herb	-	-	-
Lomatium marginatum* var. *purpureum	Jepson's lomatium	native	perennial herb	-	-	-
Lomatium repostum	Napa lomatium	native	perennial herb	Rank 4.2	-	-
Lomatium utriculatum	Hog fennel	native	perennial herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Lonicera hispidula	Pink honeysuckle	native	vine, shrub	-	-	FACU
Lonicera interrupta	Chaparral honeysuckle	native	vine, shrub	-	-	-
Lotus corniculatus	Bird's foot trefoil	non-native	perennial herb	-	-	FAC
Lotus tenuis	Narrow-leaf bird's-foot trefoil	non-native	perennial herb	-	-	FACU
Lupinus albifrons* var. *albifrons	Silver bush lupine	native	shrub	-	-	-
Lupinus albifrons* var. *collinus	Silver bush lupine	native	shrub	-	-	-
Lupinus bicolor	Miniature lupine	native	annual, perennial herb	-	-	-
Lupinus latifolius* var. *latifolius	Broad leaf lupine	native	perennial herb	-	-	FACW
Lupinus microcarpus* var. *densiflorus	Dense flowered chick lupine	native	annual herb	-	-	-
Lupinus microcarpus* var. *microcarpus	Chick lupine	native	annual herb	-	-	-
Lupinus nanus	Sky lupine	native	annual herb	-	-	-
Lupinus succulentus	Arroyo lupine	native	annual herb	-	-	-
Luzula comosa* var. *comosa	Hairy wood rush	native	perennial grasslike herb	-	-	FAC
Lysimachia arvensis	Scarlet pimpernel	non-native	annual herb	-	-	FAC
Lysimachia latifolia	Pacific starflower	native	perennial herb	-	-	FAC
Lythrum hyssopifolia	Hyssop loosestrife	non-native (invasive)	annual, perennial herb	-	Limited	OBL
Madia citriodora	Lemon scented tarweed	native	annual herb	-	-	-
Madia elegans	Common madia	native	annual herb	-	-	-
Madia exigua	Small tarweed	native	annual herb	-	-	-
Madia gracilis	Gumweed	native	annual herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Malacothrix floccifera	Woolly malacothrix	native	annual herb	-	-	-
Malva nicaeensis	Bull mallow	non-native	annual herb	-	-	-
Malva parviflora	Cheeseweed	non-native	annual herb	-	-	-
Malvella leprosa	Alkali mallow	native	perennial herb	-	-	FACU
Marah watsonii	Watson's wild cucumber	native	perennial herb, vine	-	-	-
Marrubium vulgare	White horehound	non-native (invasive)	perennial herb	-	Limited	FACU
Marsilea vestita* ssp. *vestita	Hairy waterclover	native	fern	-	-	OBL
Matricaria discoidea	Pineapple weed	native	annual herb	-	-	FACU
Medicago polymorpha	Bur clover	non-native (invasive)	annual herb	-	Limited	FACU
Melica californica	California melic	native	perennial grass	-	-	-
Melica torreyana	Torrey's melica	native	perennial grass	-	-	-
Melilotus albus	White sweetclover	non-native	annual, biennial herb	-	-	-
Melilotus indicus	Annual yellow sweetclover	non-native	annual herb	-	-	FACU
Mentha pulegium	Pennyroyal	non-native (invasive)	perennial herb	-	Moderate	OBL
Micranthes integrifolia	Smooth leaf saxifrage	native	perennial herb	-	-	FACW
Micropus californicus* var. *californicus	Slender cottonweed	native	annual herb	-	-	FACU
Microseris douglasii* ssp. *douglasii	Douglas' microseris	native	annual herb	-	-	FACU
Microseris elegans	Elegant silverpuffs	native	annual herb	-	-	-
Mimetanthe pilosa	Snouted monkey flower	native	annual herb	-	-	FACW
Monardella villosa* ssp. *villosa	Coyote mint	native	perennial herb	-	-	-
Monardella viridis	Green monardella	native	perennial herb	Rank 4.3	-	-
Montia fontana	Water montia	native	annual herb	-	-	OBL

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Morus alba	Mulberry	non-native	tree	-	-	FACU
Muhlenbergia rigens	Deergrass	native	perennial grass	-	-	FAC
Myriophyllum sp.	-	-	-	-	-	-
Myriopteris covillei	Coville's lip fern	native	fern	-	-	-
Narcissus pseudonarcissus	Daffodil	non-native	perennial herb (bulb)	-	-	-
Navarretia atractyloides	Holly leaf navarretia	native	annual herb	-	-	-
Navarretia cotulifolia	Cotula navarretia	native	annual herb	Rank 4.2	-	OBL
Navarretia heterandra	Tehama navarretia	native	annual herb	Rank 4.3	-	OBL
Navarretia intertexta	Interwoven navarretia	native	annual herb	-	-	FACW
Navarretia jepsonii	Jepson's navarretia	native	annual herb	Rank 4.3	-	FACW
Navarretia leucocephala* ssp. *leucocephala	White headed navarretia	native	annual herb	-	-	OBL
Navarretia mellita	Skunk navarretia	native	annual herb	-	-	FAC
Navarretia paradoxinota	Porter's navarretia	native	annual herb	Rank 1B.3	-	-
Navarretia pubescens	Purple navarretia	native	annual herb	-	-	-
Navarretia squarrosa	Skunkweed	native	annual herb	-	-	FACU
Nemacladus montanus	Mountain nemacladus	native	annual herb	-	-	-
Nemophila heterophylla	Canyon nemophila	native	annual herb	-	-	-
Nemophila menziesii* var. *atomaria	Baby blue eyes	native	annual herb	-	-	-
Nemophila menziesii* var. *menziesii	Baby blue eyes	native	annual herb	-	-	-
Nemophila parviflora* var. *parviflora	Small flowered nemophila	native	annual herb	-	-	-
Nicotiana acuminata* var. *multiflora	Many flowered tobacco	non-native	annual herb	-	-	-
Oemleria cerasiformis	Oso berry	native	shrub	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Packera eurycephala* var. *eurycephala	Widehead groundsel	native	perennial herb	-	-	-
Packera greenei	Flame ragwort	native	perennial herb	-	-	-
Paspalum dilatatum	Dallis grass	non-native	perennial grass	-	-	FAC
Pedicularis densiflora	Indian warrior	native	perennial herb	-	-	-
Pellaea andromedifolia	Coffee fern	native	fern	-	-	-
Pellaea mucronata* var. *mucronata	Bird's foot fern	native	fern	-	-	-
Penstemon heterophyllus* var. *heterophyllus	Foothill penstemon	native	perennial herb	-	-	-
Penstemon heterophyllus* var. *purdyi	Purdy's foothill penstemon	native	perennial herb	-	-	-
Pentagramma triangularis	Gold back fern	native	fern	-	-	-
Perideridia gairdneri* ssp. *borealis	Northern Gairdner's yampah	native	perennial herb	-	-	FAC
Perideridia kelloggii	Kellogg's yampah	native	perennial herb	-	-	-
Persicaria amphibia	Water smartweed	native	perennial herb (aquatic)	-	-	OBL
Persicaria maculosa	Spotted ladysthumb	non-native	annual herb	-	-	FACW
Persicaria punctata	Dotted smartweed	native	perennial herb	-	-	OBL
Petrorhagia dubia	Windmill pink	non-native	annual herb	-	-	-
Phacelia distans	Common phacelia	native	annual herb	-	-	UPL
Phacelia imbricata* var. *imbricata	Imbricate phacelia	native	annual herb	-	-	-
Phalaris aquatica	Harding grass	non-native (invasive)	perennial grass	-	Moderate	FACU
Phalaris lemmonii	Lemmon's canarygrass	native	annual grass	-	-	FACW
Phalaris minor	Mediterranean canarygrass	non-native	annual grass	-	-	-
Phalaris paradoxa	Hood canarygrass	non-native	annual grass	-	-	FAC
Phoradendron bolleanum	Bollean mistletoe	native	shrub (parasitic)	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Phoradendron leucarpum* ssp. *tomentosum	Mistletoe	native	shrub (parasitic)	-	-	-
Phyla nodiflora	Common lippia	native	perennial herb	-	-	FACW
Physalis lanceifolia	Narrow leaf tomatillo	non-native	annual herb	-	-	UPL
Pickeringia montana* var. *montana	Chaparral pea	native	shrub	-	-	-
Pinus attenuata	Knobcone pine	native	tree	-	-	-
Pinus ponderosa* var. *pacifica	Pacific ponderosa pine	native	tree	-	-	FACU
Pinus sabiniana	Foothill pine	native	tree	-	-	-
Piperia transversa	Mountain piperia	native	perennial herb	-	-	-
Plagiobothrys bracteatus	Bracted allocarya	native	annual herb	-	-	FACW
Plagiobothrys fulvus* var. *campestris	Tawny popcorn flower	native	annual herb	-	-	-
Plagiobothrys glyptocarpus* var. *glyptocarpus	Sculptured allocarya	native	annual herb	-	-	FACW
Plagiobothrys greenei	Greene's allocarya	native	annual herb	-	-	FACW
Plagiobothrys nothofulvus	Rusty haired popcorn flower	native	annual herb	-	-	FAC
Plagiobothrys stipitatus* var. *micranthus	Common vernal pool allocarya	native	annual herb	-	-	FACW
Plantago coronopus	Cut leaf plantain	non-native	annual herb	-	-	FAC
Plantago erecta	California plantain	native	annual herb	-	-	-
Plantago lanceolata	Ribwort	non-native (invasive)	perennial herb	-	Limited	FAC
Plantago patagonica	Patagonia plantain	native	annual herb	-	-	-
Platanus ×hispanica	London plane tree	non-native	tree	-	-	-
Platystemon californicus	Cream cups	native	annual herb	-	-	-
Plectritis ciliosa	Long spurred plectritis	native	annual herb	-	-	FACU
Plectritis macrocera	Plectritis	native	annual herb	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Pleuropogon californicus* var. *californicus	Annual semaphoregrass	native	annual grass	-	-	OBL
Poa annua	Annual blue grass	non-native	annual grass	-	-	FAC
Poa bulbosa* ssp. *bulbosa	Bulbous blue grass	non-native	perennial grass	-	-	FACU
Poa pratensis* ssp. *pratensis	Kentucky blue grass	non-native (invasive)	perennial grass	-	Limited	FAC
Poa secunda* ssp. *secunda	Sandberg's bluegrass	native	perennial grass	-	-	FACU
Pogogyne douglasii	Douglas' pogogyne	native	annual herb	-	-	OBL
Pogogyne zizyphoroides	Sacramento mint	native	annual herb	-	-	OBL
Polygonum aviculare* ssp. *aviculare	Prostrate knotweed	non-native	annual, perennial herb	-	-	FAC
Polypodium californicum	California polypody	native	fern	-	-	-
Polypodium calirhiza	Licorice fern	native	fern	-	-	-
Polypogon interruptus	Ditch beard grass	non-native	perennial grass	-	-	FACW
Polypogon maritimus	Mediterranean beard grass	non-native	annual grass	-	-	OBL
Polypogon monspeliensis	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
Populus fremontii* ssp. *fremontii	Fremont cottonwood	native	tree	-	-	FAC
Portulaca oleracea	Common purslane	non-native	annual herb	-	-	FAC
Potamogeton diversifolius	Rafinesque's pondweed	native	perennial herb (aquatic)	-	-	OBL
Primula hendersonii	Mosquito bill	native	perennial herb	-	-	-
Prunus cerasifera	Cherry plum	non-native (invasive)	tree	-	Limited	-
Pseudognaphalium californicum	Ladies' tobacco	native	annual, perennial herb	-	-	-
Pseudognaphalium luteoalbum	Jersey cudweed	non-native	annual herb	-	-	FAC
Pseudotsuga menziesii* var. *menziesii	Douglas fir	native	tree	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Psilocarphus brevissimus* var. *brevissimus	Woolly heads	native	annual herb	-	-	FACW
Psilocarphus chilensis	Round woolly marbles	native	annual herb	-	-	FACW
Pteridium aquilinum* var. *pubescens	Western bracken fern	native	fern	-	-	FACU
Pterostegia drymarioides	Fairy mist	native	annual herb	-	-	-
Quercus ×morehus	Oracle oak	native	tree	-	-	-
Quercus berberidifolia	Inland scrub oak	native	tree	-	-	-
Quercus chrysolepis	Canyon live oak	native	tree	-	-	-
Quercus douglasii	Blue oak	native	tree	-	-	-
Quercus durata* var. *durata	Leather oak	native	shrub	-	-	-
Quercus kelloggii	California black oak	native	tree	-	-	-
Quercus lobata	Valley oak	native	tree	-	-	FACU
Quercus wislizeni* var. *wislizeni	Interior live oak	native	tree, shrub	-	-	-
Rafinesquia californica	California chicory	native	annual herb	-	-	-
Ranunculus aquatilis* var. *aquatilis	Whitewater crowfoot	native	perennial herb (aquatic)	-	-	OBL
Ranunculus californicus* var. *californicus	Common buttercup	native	perennial herb	-	-	FACU
Ranunculus hebecarpus	Pubescent fruited buttercup	native	annual herb	-	-	-
Ranunculus muricatus	Buttercup	non-native	annual, perennial herb	-	-	FACW
Ranunculus occidentalis* var. *occidentalis	Western buttercup	native	perennial herb	-	-	FAC
Raphanus raphanistrum	Jointed charlock	non-native	annual, perennial herb	-	-	-
Raphanus sativus	Wild radish	non-native (invasive)	annual, biennial herb	-	Limited	-
Rhamnus ilicifolia	Evergreen buckthorn	native	shrub	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Rhinotropis californica	Milkwort	native	perennial herb	-	-	-
Rhododendron occidentale	Western azalea	native	tree, shrub	-	-	FAC
Rhus aromatica	Fragrant sumac	native	shrub	-	-	FACU
Ribes malvaceum* var. *malvaceum	Chaparral currant	native	shrub	-	-	-
Rigiopappus leptocladus	Wire weed	native	annual herb	-	-	-
Robinia pseudoacacia	Black locust	non-native (invasive)	tree	-	Limited	FACU
Rosa californica	California wild rose	native	shrub	-	-	FAC
Rubus armeniacus	Himalayan blackberry	non-native (invasive)	shrub	-	High	FAC
Rumex crispus	Curly dock	non-native (invasive)	perennial herb	-	Limited	FAC
Rumex pulcher	Fiddleleaf dock	non-native	perennial herb	-	-	FAC
Sabulina californica	Sandwort	native	annual herb	-	-	FACU
Sabulina douglasii	Douglas' sandwort	native	annual herb	-	-	-
Salix breweri	Serpentine willow	native	shrub	-	-	FAC
Salix exigua* var. *hindsiana	Sandbar willow	native	tree, shrub	-	-	FACW
Salix gooddingii	Goodding's black willow	native	tree	-	-	FACW
Salix laevigata	Red willow	native	tree	-	-	FACW
Salix lasiolepis	Arroyo willow	native	tree, shrub	-	-	FACW
Salsola sp.	-	-	-	-	-	-
Salvia columbariae	Chia sage	native	annual herb	-	-	-
Salvia sonomensis	Sonoma sage	native	perennial herb	-	-	-
Sambucus mexicana	Blue elderberry	native	shrub	-	-	FACU
Sanicula bipinnata	Poison sanicle	native	perennial herb	-	-	-
Sanicula bipinnatifida	Purple sanicle	native	perennial herb	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Sanicula crassicaulis	Pacific sanicle	native	perennial herb	-	-	-
Sanicula tuberosa	Turkey pea	native	perennial herb	-	-	-
Schoenoplectus acutus* var. *occidentalis	Tule	native	perennial grasslike herb	-	-	OBL
Schoenoplectus tabernaemontani	Softstem bulrush	native	perennial grasslike herb	-	-	OBL
Scleranthus annuus* ssp. *annuus	German knotgrass	non-native	annual herb	-	-	FACU
Scrophularia californica	California bee plant	native	perennial herb	-	-	FAC
Scutellaria antirrhinoides	Snapdragon skullcap	native	perennial herb	-	-	-
Scutellaria californica	California skullcap	native	perennial herb	-	-	-
Scutellaria siphocampyloides	Gray leaved skullcap	native	perennial herb	-	-	FACU
Scutellaria tuberosa	Dannie's skullcap	native	perennial herb	-	-	-
Senecio aronicoides	Butterweed	native	perennial herb	-	-	-
Senecio clevelandii* var. *clevelandii	Cleveland's ragwort	native	perennial herb	Rank 4.3	-	-
Senecio vulgaris	Common groundsel	non-native	annual herb	-	-	FACU
Sherardia arvensis	Field madder	non-native	annual herb	-	-	-
Sidalcea diploscypha	Fringed checker mallow	native	annual herb	-	-	-
Sidalcea hartwegii	Hartweg's checkerbloom	native	annual herb	-	-	-
Sidalcea hirsuta	Hairy checkerbloom	native	annual herb	-	-	OBL
Sidalcea keckii	Keck's checkerbloom	native	annual herb	FE, Rank 1B.1	-	-
Silene gallica	Common catchfly	non-native	annual herb	-	-	-
Silene laciniata* ssp. *californica	California indian pink	native	perennial herb	-	-	-
Silybum marianum	Milk thistle	non-native (invasive)	annual, perennial herb	-	Limited	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Sisymbrium irio	London rocket	non-native (invasive)	annual herb	-	Moderate	-
Sisymbrium officinale	Hedge mustard	non-native	annual herb	-	-	-
Sisyrinchium bellum	Blue eyed grass	native	perennial herb	-	-	FACW
Solanum parishii	Parish's purple nightshade	native	shrub	-	-	-
Solanum xanti	Nightshade	native	perennial herb, shrub	-	-	-
Solidago elongata	West coast canada goldenrod	native	perennial herb	-	-	FACU
Soliva sessilis	South American soliva	non-native	annual herb	-	-	FACU
Sonchus asper* ssp. *asper	Prickly sow thistle	non-native	annual herb	-	-	FAC
Sonchus oleraceus	Common sow thistle	non-native	annual herb	-	-	UPL
Sorghum halepense	Johnsongrass	non-native	perennial grass	-	-	FACU
Spartium junceum	Spanish broom	non-native (invasive)	shrub	-	High	-
Spergularia rubra	Purple sand spurry	non-native	annual, perennial herb	-	-	FAC
Spiranthes porrifolia	Western ladies tresses	native	perennial herb	-	-	FACW
Stachys albens	Cobwebby hedge nettle	native	perennial herb	-	-	OBL
Stachys rigida* var. *quercetorum	Rough hedgenettle	native	perennial herb	-	-	FACW
Stebbinsoseris heterocarpa	Grassland stebbinsoseris	native	annual herb	-	-	-
Stellaria media	Chickweed	non-native	annual herb	-	-	FACU
Stephanomeria virgata* ssp. *pleurocarpa	Tall stephanomeria	native	annual herb	-	-	-
Stipa cernua	Nodding needle grass	native	perennial grass	-	-	-
Stipa lepida	Foothill needle grass	native	perennial grass	-	-	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Stipa miliacea* var. *miliacea	Smilo grass	non-native (invasive)	perennial grass	-	Limited	-
Stipa pulchra	Purple needle grass	native	perennial grass	-	-	-
Streptanthus breweri	Brewer's jewelflower	native	annual herb	-	-	-
Streptanthus glandulosus* ssp. *glandulosus	Jewelflower	native	annual herb	-	-	-
Streptanthus hesperidis	Green jewel-flower	native	annual herb	Rank 1B.2	-	-
Streptanthus morrisonii	Morrison's jewelflower	native	perennial herb	Rank 1B.2	-	-
Symphoricarpos albus* var. *laevigatus	Common snowberry	native	shrub	-	-	FACU
Symphoricarpos mollis	Creeping snowberry	native	shrub	-	-	FACU
Tamarix parviflora	Tamarisk	non-native (invasive)	tree, shrub	-	High	FAC
Taraxacum officinale	Red seeded dandelion	non-native	perennial herb	-	-	FACU
Taraxia ovata	Sun cup	native	perennial herb	-	-	-
Tetrapteron graciliflorum	Hill sun cup	native	annual herb	-	-	-
Thalictrum fendleri* var. *polycarpum	Torrey's meadow rue	native	perennial herb	-	-	FAC
Thermopsis californica* var. *californica	California goldenbanner	native	perennial herb (rhizomatous)	-	-	-
Thysanocarpus curvipes* ssp. *curvipes	Fringe pod	native	annual herb	-	-	-
Torilis arvensis	Field hedge parsley	non-native (invasive)	annual herb	-	Moderate	-
Torilis nodosa	Wild parsley	non-native	annual herb	-	-	-
Toxicodendron diversilobum	Poison oak	native	vine, shrub	-	-	FACU
Toxicoscordion fontanum	Marsh zigadenus	native	perennial herb	Rank 4.2	-	OBL
Toxicoscordion fremontii	Fremont's star lily	native	perennial herb	-	-	-
Toxicoscordion micranthum	Small flowered star lily	native	perennial herb	-	-	OBL
Tragopogon porrifolius	Salsify	non-native	perennial herb	-	-	-
Tribulus terrestris	Puncture vine	non-native (invasive)	annual herb	-	Limited	-

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Trichostema lanceolatum	Vinegarweed	native	annual herb	-	-	FACU
Trichostema laxum	Turpentine weed	native	annual herb	-	-	-
Trifolium albopurpureum	Indian clover	native	annual herb	-	-	FACU
Trifolium bifidum* var. *bifidum	Pinole clover	native	annual herb	-	-	-
Trifolium campestre	Hop clover	non-native	annual herb	-	-	-
Trifolium ciliolatum	Tree clover	native	annual herb	-	-	-
Trifolium depauperatum* var. *depauperatum	Dwarf sack clover	native	annual herb	-	-	FAC
Trifolium depauperatum* var. *truncatum	Dwarf sack clover	native	annual herb	-	-	FAC
Trifolium dichotomum	Branched indian clover	native	annual herb	-	-	-
Trifolium dubium	Shamrock	non-native	annual herb	-	-	UPL
Trifolium fucatum	Bull clover	native	annual herb	-	-	FACU
Trifolium glomeratum	Clustered clover	non-native	annual herb	-	-	-
Trifolium gracilentum	Pin point clover	native	annual herb	-	-	-
Trifolium hirtum	Rose clover	non-native (invasive)	annual herb	-	Limited	-
Trifolium incarnatum	Crimson clover	non-native	annual herb	-	-	-
Trifolium microcephalum	Small head clover	native	annual herb	-	-	FAC
Trifolium microdon	Valparaiso clover	native	annual herb	-	-	-
Trifolium pratense	Red clover	non-native	perennial herb	-	-	FACU
Trifolium subterraneum	Subterranean clover	non-native	annual herb	-	-	-
Trifolium tomentosum	Woolly clover	non-native	annual herb	-	-	-
Trifolium variegatum	Large variegated clover	native	annual herb	-	-	FAC
Trifolium willdenovii	Tomcat clover	native	annual herb	-	-	FACW

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Triglochin scilloides	Flowering-quillwort	native	annual herb (aquatic)	-	-	OBL
Triphysaria eriantha* ssp. *eriantha	Butter 'n' eggs	native	annual herb	-	-	-
Triphysaria pusilla	Little owl's clover	native	annual herb	-	-	-
Triphysaria versicolor* ssp. *faucibarbata	Yellow owl's clover	native	annual herb	-	-	-
Triteleia hyacinthina	Wild hyacinth	native	perennial herb	-	-	FAC
Triteleia laxa	Ithuriel's spear	native	perennial herb	-	-	-
Triteleia lugens	Dark-mouthed triteleia	native	perennial herb	Rank 4.3	-	-
Triteleia peduncularis	Marsh triteleia	native	perennial herb	-	-	FACW
Triticum aestivum	Common wheat	non-native	annual grass	-	-	-
Typha angustifolia	Narrow leaf cattail	non-native	perennial herb (aquatic)	-	-	OBL
Typha latifolia	Broadleaf cattail	native	perennial herb (aquatic)	-	-	OBL
Ulmus pumila	Siberian elm	non-native	tree	-	-	UPL
Umbellularia californica	California bay	native	tree	-	-	FAC
Uropappus lindleyi	Silver puffs	native	annual herb	-	-	-
Urtica dioica* ssp. *holosericea	Stinging nettle	native	perennial herb	-	-	FAC
Verbascum blattaria	Moth mullein	non-native	perennial herb	-	-	UPL
Verbascum thapsus	Woolly mullein	non-native (invasive)	perennial herb	-	Limited	FACU
Verbena lasiostachys* var. *scabrida	Robust vervain	native	perennial herb	-	-	FAC
Veronica anagallis-aquatica	Water speedwell	non-native	perennial herb	-	-	OBL
Veronica peregrina* ssp. *xalapensis	Speedwell	native	annual herb	-	-	FAC
Vicia benghalensis	Purple vetch	non-native	annual herb, vine	-	-	-
Vicia sativa* ssp. *nigra	Smaller common vetch	non-native	annual herb, vine	-	-	FACU

Appendix B. Plant Species Observed within the Guenoc Valley Ranch Property from 2017 through 2023

Scientific Name	Common Name	Origin	Form	Rarity Status[1]	CAL IPC Status[2]	Wetland Status (AW 2020)
Vicia sativa* ssp. *sativa	Common vetch	non-native	annual herb, vine	-	-	FACU
Vicia villosa* ssp. *varia	Smooth vetch	non-native	annual herb, vine	-	-	-
Vicia villosa* ssp. *villosa	Hairy vetch	non-native	annual herb, vine	-	-	-
Viola douglasii	Douglas' violet	native	perennial herb	-	-	-
Viola purpurea* ssp. *quercetorum	Goosefoot yellow violet	native	perennial herb	-	-	-
Vitis californica	California wild grape	native	vine, shrub	-	-	FACU
Vitis vinifera	Cultivated grape	non-native	vine, shrub	-	-	-
Whipplea modesta	Modesty	native	vine, shrub	-	-	-
Woodwardia fimbriata	Western chain fern	native	fern	-	-	FACW
Wyethia angustifolia	Narrow leaved mule ears	native	perennial herb	-	-	FACU
Wyethia glabra	Smooth mule ears	native	perennial herb	-	-	-
Wyethia helenioides	Gray mule ears	native	perennial herb	-	-	-
Xanthium orientale	Cocklebur	native	annual herb	-	-	FAC
Zannichellia palustris	Horned pondweed	native	perennial herb	-	-	OBL
Zeltnera muehlenbergii	Muehlenberg's centaury	native	annual herb	-	-	FAC
Zeltnera trichantha	Alkali centaury	native	annual herb	-	-	FAC

Note: All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2024]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2024] or Rare Plant Inventory (CNPS 2024a). Sp.: "species", intended to indicate that the observer was confident in the identity of the genus but uncertain which species.

[1] **California Native Plant Society. 2024a. Rare Plant Inventory (online edition, v9.5). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: February 2024.**

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extinct in California
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere

Rank 2:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

[2] **California Invasive Plant Council. 2024. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: http://www.cal-ipc.org/paf/; most recently accessed: February 2024.**

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

[3] **U.S. Army Corps of Engineers. 2020. National Wetland Plant List, version 3.5. Engineer Research and Development Center. Cold Regions Research and Engineering Laboratory, Hanover, NH. Online at: http://wetland-plants.usace.army.mil/**

OBL:	Almost always found in wetlands
FACW:	Usually found in wetlands
FAC:	Equally found in wetlands and uplands
FACU:	Usually not found in wetlands
UPL:	Almost never found in wetlands
NL:	Not listed, assumed almost never found in wetlands
NI:	No information; not factored during wetland delineation

APPENDIX C. SPECIAL-STATUS SPECIES POTENTIAL TABLE

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Appendix C-1. Potential Special-Status Plant Species Table. List compiled from database searches focused on the following 7.5-minute USGS quadrangles: Aetna Springs, Calistoga, Chiles Valley, Clearlake Highlands, Detert Reservoir, Glascock Mountain, Jericho Valley, Knoxville, Lower Lake, Mark West Springs, Middletown, Mount Saint Helena, Saint Helena, Walter Springs, Whispering Pines, and Wilson Valley (CNPS 2024a, CDFW 2024a).

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
PLANTS				
Napa false indigo *Amorpha californica* var. *napensis*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland. Elevation ranges from 165 to 6560 feet (50 to 2000 meters). Blooms Apr-Jul.	**Moderate Potential.** Potentially suitable, cool, forested habitat on north-facing slopes and/or along draws exists within the Modified APE, and the species is known from a nearby occurrence.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Cismontane woodland, coastal bluff scrub, valley and foothill grassland. Elevation ranges from 10 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	**Moderate Potential.** Potentially suitable grassland, chaparral, and scrub habitats exist within the Modified APE, and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Konocti manzanita *Arctostaphylos manzanita* ssp. *elegans*	Rank 1B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 1295 to 5300 feet (395 to 1615 meters). Blooms (Jan)Mar-May(Jul).	**High Potential.** This species was observed in two locations on the Guenoc Ranch property outside of the Phase 1 Modified APE, in blue oak woodland. Similar suitable habitat exists in the Modified APE.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Rincon Ridge manzanita *Arctostaphylos stanfordiana* ssp. *decumbens*	Rank 1B.1	Chaparral, cismontane woodland. Elevation ranges from 245 to 1215 feet (75 to 370 meters). Blooms Feb-Apr(May).	**Unlikely.** The Modified APE lacks potentially suitable habitat for this species and the species is limited to volcanic mudflows in the Mayacama Mountains.	No further actions are recommended for this species.
Raiche's manzanita *Arctostaphylos stanfordiana* ssp. *raichei*	Rank 1B.1	Chaparral, lower montane coniferous forest (openings). Elevation ranges from 1475 to 3395 feet (450 to 1035 meters). Blooms Feb-Apr.	**Unlikely.** The Modified APE is well outside of the known range of this species, which is known only from near the Lake/Mendocino County boundary west of Clear Lake and from far northern Mendocino County. The nearest known occurrence is approximately 15 miles northwest of the Modified APE.	No further actions are recommended for this species.
Clara Hunt's milk-vetch *Astragalus claranus*	FE, ST, Rank 1B.1	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 245 to 900 feet (75 to 275 meters). Blooms Mar-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Jepson's milk-vetch *Astragalus rattanii* var. *jepsonianus*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 970 to 2295 feet (295 to 700 meters). Blooms Mar-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Observed**. See Section 7.2 for recommendations.

SPECIES	CONSERVATION	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
big-scale balsamroot *Balsamorhiza macrolepis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 150 to 5100 feet (45 to 1555 meters). Blooms Mar-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Watershield *Brasenia schreberi*	Rank 2B.3	Marshes and swamps (freshwater). Elevation ranges from 0 to 7,220 feet (0 to 2200 meters). Blooms Jun-Sep.	**Moderate Potential.** Potentially suitable lake and reservoir habitat exists within the Modified APE, and the species is known from the region**.**	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
narrow-anthered brodiaea *Brodiaea leptandra*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 360 to 3000 feet (110 to 915 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Northern meadow sedge *Carex praticola*	Rank 2B.2	Meadows and seeps (mesic). Elevation ranges from 0 to 10,500 feet (0 to 3,200 meters). Blooms May-Jul.	**Unlikely.** Although the Modified APE contains meadows and seeps, there is only one documented occurrence of this species in the region (approximately 6 miles west of the Modified APE), and the identity of this occurrence is uncertain. The Modified APE is otherwise well outside the known region of the species.	No further actions are recommended for this species.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
pink creamsacs *Castilleja rubicundula* var. *rubicundula*	Rank 1B.2	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland. Elevation ranges from 65 to 2985 feet (20 to 910 meters). Blooms Apr-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Rincon Ridge ceanothus *Ceanothus confusus*	Rank 1B.1	Chaparral, cismontane woodland, closed-cone coniferous forest. Elevation ranges from 245 to 3495 feet (75 to 1065 meters). Blooms Feb-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Calistoga ceanothus *Ceanothus divergens*	Rank 1B.2	Chaparral. Elevation ranges from 560 to 3115 feet (170 to 950 meters). Blooms Feb-Apr.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
holly-leaved ceanothus *Ceanothus purpureus*	Rank 1B.2	Chaparral, cismontane woodland. Elevation ranges from 395 to 2100 feet (120 to 640 meters). Blooms Feb-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Sonoma ceanothus *Ceanothus sonomensis*	Rank 1B.2	Chaparral. Elevation ranges from 705 to 2625 feet (215 to 800 meters). Blooms Feb-Apr.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Dwarf soaproot *Chlorogalum pomeridianum* var. *minus*	Rank 1B.2	Chaparral (serpentine). Elevation ranges from 1,000 to 3,280 feet (305 to 1,000 meters). Blooms May-Aug.	**Moderate Potential.** The Modified APE contains chaparral on serpentine.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
pappose tarplant *Centromadia parryi* ssp. *parryi*	Rank 1B.2	Chaparral, coastal prairie, marshes and swamps, meadows and seeps, valley and foothill grassland. Elevation ranges from 0 to 1380 feet (0 to 420 meters). Blooms May-Nov.	**Unlikely**. This species is known from alkaline substrate, which is not present within the Modified APE.	No further actions are recommended for this species.
serpentine cryptantha *Cryptantha dissita*	Rank 1B.2	Chaparral. Elevation ranges from 1295 to 1905 feet (395 to 580 meters). Blooms Apr-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
deep-scarred cryptantha *Cryptantha excavata*	Rank 1B.1	Cismontane woodland. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms Apr-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Cascade downingia *Downingia willamettensis*	Rank 2B.2	Cismontane woodland (lake margins), valley and foothill grassland (lake margins), vernal pools. Elevation ranges from 50 to 3640 feet (15 to 1110 meters). Blooms Jun-Jul(Sep).	**Moderate Potential.** Potentially suitable lake margin habitat is present within the Modified APE, and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Brandegee's eriastrum *Eriastrum brandegeeae*	Rank 1B.1	Chaparral, cismontane woodland. Elevation ranges from 1,395 to 2,755 feet (425 to 840 meters). Blooms Apr-Aug.	**Moderate Potential.** Potentially suitable barren, volcanic substrate is present within the Modified APE, and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Greene's narrow-leaved daisy *Erigeron greenei*	Rank 1B.2	Chaparral. Elevation ranges from 260 to 3295 feet (80 to 1005 meters). Blooms May-Sep.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Observed**. See Section 7.2 for recommendations.
Snow Mountain buckwheat *Eriogonum nervulosum*	Rank 1B.2	Chaparral. Elevation ranges from 985 to 6905 feet (300 to 2105 meters). Blooms Jun-Sep.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Loch Lomond button-celery *Eryngium constancei*	FE, SE, Rank 1B.1	Vernal pools. Elevation ranges from 1510 to 2805 feet (460 to 855 meters). Blooms Apr-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Jepson's coyote-thistle *Eryngium jepsonii*	Rank 1B.2	Valley and foothill grassland, vernal pools. Elevation ranges from 10 to 985 feet (3 to 300 meters). Blooms Apr-Aug.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
San Joaquin spearscale *Extriplex joaquinana*	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 5 to 2740 feet (1 to 835 meters). Blooms Apr-Oct.	**Unlikely**. The Modified APE lacks potentially suitable alkaline habitat for this species.	No further actions are recommended for this species.
adobe-lily *Fritillaria pluriflora*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 195 to 2315 feet (60 to 705 meters). Blooms Feb-Apr.	**Moderate Potential.** The Modified APE contains suitable habitat and there are numerous occurrences surrounding and within the larger Langtry Farms property.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Boggs Lake hedge-hyssop *Gratiola heterosepala*	SE, Rank 1B.2	Marshes and swamps, vernal pools. Elevation ranges from 35 to 7790 feet (10 to 2375 meters). Blooms Apr-Aug.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Hall's harmonia *Harmonia hallii*	Rank 1B.2	Chaparral. Elevation ranges from 1000 to 3200 feet (305 to 975 meters). Blooms (Mar)Apr-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
congested-headed hayfield tarplant *Hemizonia congesta* ssp. *congesta*	Rank 1B.2	Valley and foothill grassland. Elevation ranges from 65 to 1835 feet (20 to 560 meters). Blooms Apr-Nov.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Glandular western flax *Hesperolinon adenophyllum*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 490 to 4315 feet (150 to 1315 meters). Blooms May-Aug.	**Moderate Potential.** Potentially suitable chaparral and foothill pine woodland habitat on rocky, serpentine substrate exists within the Modified APE, and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
two-carpellate western flax *Hesperolinon bicarpellatum*	Rank 1B.2	Chaparral. Elevation ranges from 195 to 3295 feet (60 to 1005 meters). Blooms (Apr)May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Observed**. See Section 7.2 for recommendations.
Lake County western flax *Hesperolinon didymocarpum*	SE, Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 1085 to 1200 feet (330 to 365 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Observed**. See Section 7.2 for recommendations.
drymaria-like western flax *Hesperolinon drymarioides*	Rank 1B.2	Chaparral, cismontane woodland, closed-cone coniferous forest, valley and foothill grassland. Elevation ranges from 330 to 3710 feet (100 to 1130 meters). Blooms May-Aug.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Sharsmith's western flax *Hesperolinon sharsmithiae*	Rank 1B.2	Chaparral. Elevation ranges from 885 to 985 feet (270 to 300 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Bolander's horkelia *Horkelia bolanderi*	Rank 1B.2	Chaparral, lower montane coniferous forest, meadows and seeps, valley and foothill grassland. Elevation ranges from 1475 to 3610 feet (450 to 1100 meters). Blooms (May)Jun-Aug.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
California satintail *Imperata brevifolia*	Rank 2B.1	Chaparral, coastal scrub, Mojavean desert scrub, meadows and seeps (often alkali), riparian scrub. Elevation ranges from 0 to 3985 feet (0 to 1215 meters). Blooms Sep-May.	**Unlikely.** This species is only known in the region from a single, historic (1928) occurrence located approximately 11 miles northwest of the Modified APE. The native status of the single plant observed is also in doubt. In addition, the Modified APE lacks alkaline substrate.	No further actions are recommended for this species.
Santa Lucia dwarf rush *Juncus luciensis*	Rank 1B.2	Chaparral, great basin scrub, lower montane coniferous forest, meadows and seeps, vernal pools. Elevation ranges from 985 to 6695 feet (300 to 2040 meters). Blooms Apr-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Burke's goldfields *Lasthenia burkei*	FE, SE, Rank 1B.1	Meadows and seeps, vernal pools. Elevation ranges from 50 to 1970 feet (15 to 600 meters). Blooms Apr-Jun.	**Moderate Potential**. Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Colusa layia *Layia septentrionalis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 330 to 3595 feet (100 to 1095 meters). Blooms Apr-May.	**Moderate Potential**. Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Observed**. See Section 7.2 for recommendations.
legenere *Legenere limosa*	Rank 1B.1	Vernal pools. Elevation ranges from 5 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	**Unlikely.** Suitable vernal pool habitat is absent from the Modified APE.	No further actions are recommended for this species.
Jepson's leptosiphon *Leptosiphon jepsonii*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 330 to 1640 feet (100 to 500 meters). Blooms Mar-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Sebastopol meadowfoam *Limnanthes vinculans*	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 50 to 1000 feet (15 to 305 meters). Blooms Apr-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Cobb Mountain lupine *Lupinus sericatus*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 900 to 5005 feet (275 to 1525 meters). Blooms Mar-Jun.	**Moderate Potential**. Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Marsh microseris *Microseris paludosa*	Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 15 to 1165 feet (5 to 355 meters). Blooms Apr-Jun (Jul).	**Moderate Potential.** Potentially suitable grassland and openings in oak woodland, foothill pine woodland, chaparral, and scrub on fine-textured substrate exist within the Modified APE, and this species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Baker's navarretia *Navarretia leucocephala* ssp. *bakeri*	Rank 1B.1	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 15 to 5710 feet (5 to 1740 meters). Blooms Apr-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
few-flowered navarretia *Navarretia leucocephala* ssp. *pauciflora*	FE, ST, Rank 1B.1	Vernal pools. Elevation ranges from 1310 to 2805 feet (400 to 855 meters). Blooms May-Jun.	**Unlikely.** The Modified APE lacks potentially suitable vernal pool habitat with volcanic ash flow substrate required for this species.	No further actions are recommended for this species.
many-flowered navarretia *Navarretia leucocephala* ssp. *plieantha*	FE, SE, Rank 1B.2	Vernal pools. Elevation ranges from 100 to 3115 feet (30 to 950 meters). Blooms May-Jun.	**Unlikely.** The Modified APE lacks potentially suitable vernal pool habitat with volcanic ash flow substrate required for this species.	No further actions are recommended for this species.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
small pincushion navarretia *Navarretia myersii* ssp. *deminuta*	Rank 1B.1	Vernal pools. Elevation ranges from 1165 to 1165 feet (355 to 355 meters). Blooms Apr-May.	**Unlikely.** Suitable vernal pool habitat is absent from the Modified APE.	No further actions are recommended for this species.
Porter's navarretia *Navarretia paradoxinota*	Rank 1B.3	Meadows and seeps. Elevation ranges from 540 to 2755 feet (165 to 840 meters). Blooms May-Jun (Jul).	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Observed**. See Section 7.2 for recommendations.
Marin County navarretia *Navarretia rosulata*	Rank 1B.2	Chaparral, closed-cone coniferous forest. Elevation ranges from 655 to 2085 feet (200 to 635 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
slender Orcutt grass *Orcuttia tenuis*	FE, SE, Rank 1B.1	Vernal pools. Elevation ranges from 115 to 5775 feet (35 to 1760 meters). Blooms May-Sep (Oct).	**Unlikely.** Suitable vernal pool habitat is absent from the Modified APE.	No further actions are recommended for this species.
Geysers panicum *Panicum acuminatum* var. *thermale*	SE, Rank 1B.2	Closed-cone coniferous forest, riparian forest, valley and foothill grassland. Elevation ranges from 1000 to 8105 feet (305 to 2470 meters). Blooms Jun-Aug.	**Unlikely.** This species is associated with hot springs, and such habitat is not present within the Modified APE. The nearest occurrence of this species is approximately 10 miles west of the Modified APE.	No further actions are recommended for this species.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Sonoma beardtongue *Penstemon newberryi* var. *sonomensis*	Rank 1B.3	Chaparral. Elevation ranges from 2295 to 4495 feet (700 to 1370 meters). Blooms Apr-Aug.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
bearded popcornflower *Plagiobothrys hystriculus*	Rank 1B.1	Valley and foothill grassland, vernal pools. Elevation ranges from 0 to 900 feet (0 to 274 meters). Blooms Apr-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Calistoga popcornflower *Plagiobothrys strictus*	FE, SE, Rank 1B.1	Meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 295 to 525 feet (90 to 160 meters). Blooms Mar-Jun.	**Unlikely.** The Modified APE lacks potentially suitable thermal spring habitat required for this species.	No further actions are recommended for this species.
Napa blue grass *Poa napensis*	FE, Rank 1B.1	Meadows and seeps, valley and foothill grassland. Elevation ranges from 330 to 655 feet (100 to 200 meters). Blooms May-Aug.	**Unlikely.** The Modified APE lacks potentially suitable alkaline habitat near thermal springs.	No further actions are recommended for this species.
eel-grass pondweed *Potamogeton zosteriformis*	Rank 2B.2	Marshes and swamps. Elevation ranges from 0 to 6105 feet (0 to 1860 meters). Blooms Jun-Jul.	**Moderate Potential.** Potentially suitable lake and reservoir habitats are present within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
California alkali grass *Puccinellia simplex*	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 3050 feet (2 to 930 meters). Blooms Mar-May.	**Unlikely.** The Modified APE lacks potentially suitable alkaline habitat for this species.	No further actions are recommended for this species.
Lake County stonecrop *Sedella leiocarpa*	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland, vernal pools. Elevation ranges from 1200 to 2590 feet (365 to 790 meters). Blooms Apr-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Napa checkerbloom *Sidalcea hickmanii* ssp. *napensis*	Rank 1B.1	Chaparral. Elevation ranges from 1360 to 2000 feet (415 to 610 meters). Blooms Apr-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Keck's checkerbloom *Sidalcea keckii*	FE, Rank 1B.1	Cismontane woodland, valley and foothill grassland. Elevation ranges from 245 to 2135 feet (75 to 650 meters). Blooms Apr-May(Jun).	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE.	**Observed**. See Section 7.2 for recommendations.
marsh checkerbloom *Sidalcea oregana* ssp. *hydrophila*	Rank 1B.2	Meadows and seeps, riparian forest. Elevation ranges from 3610 to 7545 feet (1100 to 2300 meters). Blooms (Jun)Jul-Aug.	**Unlikely**. The Modified APE lacks potentially suitable habitat at known elevation range of the species.	No further actions are recommended for this species.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Kenwood Marsh checkerbloom *Sidalcea oregana* ssp. *valida*	FE, SE, Rank 1B.1	Marshes and swamps (freshwater). Elevation ranges from 375 to 490 feet (115 to 150 meters). Blooms Jun-Sep.	**Unlikely.** This species is highly restricted to two known locations, the nearest of which is approximately 12 miles southwest of the Modified APE.	No further actions are recommended for this species.
long-styled sand-spurrey *Spergularia macrotheca* var. *longistyla*	Rank 1B.2	Marshes and swamps, meadows and seeps. Elevation ranges from 0 to 835 feet (0 to 255 meters). Blooms Feb-May.	**Unlikely.** The Modified APE lacks potentially suitable alkaline habitat for this species.	No further actions are recommended for this species.
Socrates Mine jewelflower *Streptanthus brachiatus* ssp. *brachiatus*	Rank 1B.2	Chaparral, closed-cone coniferous forest. Elevation ranges from 1790 to 3280 feet (545 to 1000 meters). Blooms May-Jun.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Freed's jewelflower *Streptanthus brachiatus* ssp. *hoffmanii*	Rank 1B.2	Chaparral, cismontane woodland. Elevation ranges from 1610 to 4005 feet (490 to 1220 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
green jewelflower *Streptanthus hesperidis*	Rank 1B.2	Chaparral, cismontane woodland. Elevation ranges from 425 to 2495 feet (130 to 760 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Observed**. See Section 7.2 for recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
Three Peaks jewelflower *Streptanthus morrisonii* ssp. *elatus*	Rank 1B.2	Chaparral. Elevation ranges from 295 to 2675 feet (90 to 815 meters). Blooms Jun-Sep.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Kruckeberg's jewelflower *Streptanthus morrisonii* ssp. *kruckebergii*	Rank 1B.2	Cismontane woodland. Elevation ranges from 705 to 3395 feet (215 to 1035 meters). Blooms Apr-Jul.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
early jewelflower *Streptanthus vernalis*	Rank 1B.2	Chaparral, closed-cone coniferous forest. Elevation ranges from 2000 to 2000 feet (610 to 610 meters). Blooms Mar-May.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from nearby occurrences.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Northern slender pondweed *Stuckenia filiformis* ssp. *alpina*	Rank 2B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 980 to 7055 feet (300 to 2150 meters). Blooms May-Jul.	**Moderate Potential.** Potentially suitable pond and reservoir habitats exist within the Modified APE, and this species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.
Napa bluecurls *Trichostema ruygtii*	Rank 1B.2	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland, vernal pools. Elevation ranges from 100 to 2230 feet (30 to 680 meters). Blooms Jun-Oct.	**Moderate Potential.** Potentially suitable habitat exists within the Modified APE and the species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]
saline clover *Trifolium hydrophilum*	Rank 1B.2	Marshes and swamps, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	**Unlikely.** The Modified APE lacks potentially suitable alkaline habitat for this species.	No further actions are recommended for this species.
Oval-leaved viburnum *Viburnum ellipticum*	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 705 to 4595 feet (215 to 1400 meters). Blooms May-Jun.	**Moderate Potential.** Potentially suitable chaparral, foothill pine woodland, and oak woodland habitats are present within the Modified APE, and this species is known from the region.	**Not Observed**. This species was not observed during seasonally appropriate floristic surveys and is presumed absent. No further recommendations.

[1]Key to Conservation Status:

FE	Federal Endangered
FT	Federal Threatened
SE	State Endangered
ST	State Threatened
Rank 1A	CNPS Rank 1A: Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B.1	CNPS Rank 1B.1: Rare, threatened, or endangered in California and elsewhere (seriously threatened in California)
Rank 1B.2	CNPS Rank 1B.2: Rare, threatened, or endangered in California and elsewhere (moderately threatened in California)
Rank 1B.3	CNPS Rank 1B.3: Rare, threatened, or endangered in California and elsewhere (not very threatened in California)
Rank 2A	CNPS Rank 2A: Presumed extirpated in California, but more common elsewhere
Rank 2B.1	CNPS Rank 2B.1: Rare, threatened, or endangered in California, but more common elsewhere (seriously threatened in California)
Rank 2B.2	CNPS Rank 2B.2: Rare, threatened, or endangered in California, but more common elsewhere (moderately threatened in California)
Rank 2B.3	CNPS Rank 2B.3: Rare, threatened, or endangered in California, but more common elsewhere (not very threatened in California)

[2]Potential To Occur in the Modified APE:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

SPECIES	CONSERVATION STATUS[1]	HABITAT REQUIREMENTS	POTENTIAL TO OCCUR IN THE MODIFIED APE[2]	RESULTS AND RECOMMENDATIONS[3]

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.
High Potential. All the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.
Present. The species was observed onsite or has been recently documented from the site in the CNDDB.

[3]**Results and Recommendations:**
Present: Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.
Assumed Present: Species is assumed to be present on-site based on the presence of key habitat components.
Presumed Absent: Species is presumed to not be present due to a lack of key habitat components.
Not Present: Species is considered not present due to a clear lack of any suitable habitat and/or local range limitations.
Not Observed: Species was not observed during dedicated/formal surveys.
Presence Unknown: Species has the potential to be present, but no dedicated surveys to determine absence/presence were performed**.**

Appendix C-2. Potential Special-Status Wildlife Species Table. List compiled from database searches focused on the following 7.5-minute USGS quadrangles: Aetna Springs, Calistoga, Chiles Valley, Clearlake Highlands, Detert Reservoir, Glascock Mountain, Jericho Valley, Knoxville, Lower Lake, Mark West Springs, Middletown, Mount Saint Helena, Saint Helena, Walter Springs, Whispering Pines, and Wilson Valley (USFWS 2024b, CDFW 2024a).

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
MAMMALS				
Pallid bat ***Antrozous pallidus***	SSC, WBWG	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Sensitive to disturbance of roosting sites.	**High Potential.** The Modified APE contains shrubland, forested habitats, and rocky outcroppings, that are typically associated with the species. Stream, and grassland boarding open water provide foraging for this species.	See Section 7.2 for further recommendations.
Ring-tailed cat (Ringtail) ***Bassariscus astutus***	CFP	Widely distributed throughout most of California, absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats throughout the western US including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 1400m in elevation. Typically uses cliffs or large trees for shelter.	**Moderate Potential.** There is a large amount of oak woodland, scrub and chaparral within the Modified APE that provides potentially suitable habitat for this species. Additionally, these densely vegetated areas are directly connected to additional large, undeveloped habitat areas that may provide suitable habitat for the species.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Townsend's big-eared bat ***Corynorhinus townsendii***	SSC, WBWG	This species is associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging occurs in open forest habitats where they glean moths from vegetation.	**Moderate Potential.** The Modified APE contains trees that may be suitable for roosting, along with the mixed forest and many water features which provide foraging habitat. There are also many occurrences of this species within five miles of the Modified APE (CDFW 2024a).	See Section 7.2 for further recommendations.
Silver-haired bat ***Lasionycteris noctivagans***	WBWG	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**High Potential.** The Modified APE contains woodland, forest, and open habitat suitable for this species. The Modified APE could also support roosting in hollow trees, snags, and rock crevices in the Modified APE.	See Section 7.2 for further recommendations.
Western red bat ***Lasiurus blossevillii***	SSC, WBWG	This species is highly migratory and is typically solitary, roosting primarily in the foliage of trees or shrubs. It is associated with broad-leaved tree species including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**Moderate Potential.** The Modified APE contains broad-leaved tree species typically associated with this species. Stream channel, open water and edge habitats provide foraging for this species.	See Section 7.2 for further recommendations.
Hoary bat ***Lasiurus cinereus***	WBWG	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths. Requires water.	**High Potential.** The Modified APE contains forested habitats and habitat mosaics, with oak trees. Grassland bordering open water and edge habitats along forested areas provide foraging for this species.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Fisher, west coast DPS ***Martes pennanti*** **[*M. pennant pacifica*]**	FC, SC (threatened), SSC	Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure. Use cavities, snags, logs and rocky areas for cover and denning. Need large areas of mature, dense forest.	**No Potential.** The project does not contain suitable coniferous forest and is located outside of the species range.	No further recommendations.
Long-eared myotis ***Myotis evotis***	WBWG	Occurs in semiarid shrublands, sage, chaparral, and agricultural areas, but is usually associated with coniferous forests from sea level to 9000 feet. Individuals roost under exfoliating tree bark, and in hollow trees, caves, mines, cliff crevices, and rocky outcrops on the ground. They also sometimes roost in buildings and under bridges.	**High Potential.** The Modified APE contains shrubland, forested habitats, rocky outcroppings, chaparral, and agricultural areas that are typically associated with the species. Grassland bordering open water and edge habitats along forested areas provide foraging for this species.	See Section 7.2 for further recommendations.
Fringed myotis ***Myotis thysanodes***	WBWG	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	**Moderate Potential.** The Modified APE contains dry woodland and grassland habitat that could provide suitable foraging for this species. Trees within the Modified APE could also provide suitable roosting habitat for this species.	See Section 7.2 for further recommendations.
Long-legged myotis ***Myotis volans***	WBWG	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	**Moderate Potential.** The Modified APE contains dry woodland and grassland habitat that could provide suitable foraging for this species. Rock crevices, and trees within the Modified APE could also provide suitable roosting habitat for this species.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
American badger *Taxidea taxus*	SSC	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Moderate Potential.** The Modified APE contains, and is surrounded by, large expanses of uncultivated open ground with shrub, grassland, and forest habitat. Burrowing rodents were observed within the Modified APE, which may support a prey base for the species.	See Section 7.2 for further recommendations.
BIRDS				
Tricolored blackbird *Agelaius tricolor*	BCC, SSC, ST	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**Moderate Potential.** The Phase 1 Modified APE is directly adjacent to several reservoirs containing extensive amounts of emergent vegetation that may support nesting and the species has been documented to nest within 1 mile of the property (CDFW 2024a).	See Section 7.2 for further recommendations.
Grasshopper sparrow *Ammodramus savannarum*	BCC, SSC	Summer resident. Breeds in open grasslands, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**High Potential.** The Modified APE is within this species' breeding range, and the Modified APE contains large areas of grasslands to support foraging and nesting This species has been documented near the Modified APE (eBird 2024).	See Section 7.2 for further recommendations.
Golden eagle *Aquila chrysaetos*	BCC, CFP	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**Present.** This species was observed nesting just south of property in 2018. Adult and juvenile golden eagles were observed in oak woodland communities within the property. The Modified APE contains suitable open areas with large trees to support nesting and foraging.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Short-eared owl ***Asio flammeus***	SSC	Occurs year-round, but primarily as a winter visitor; breeding very restricted in most of California. Found in open, treeless areas (e.g., marshes, grasslands) with elevated sites for foraging perches and dense herbaceous vegetation for roosting and nesting. Preys mostly on small mammals, particularly voles.	**Unlikely.** The Modified APE contains some suitable marsh and grassland foraging habitat for this species, which may winter there. However, this species does not breed in Lake County (CDFW 2024a, eBird 2024).	No further recommendations.
Long-eared owl ***Asio otus***	SSC	Occurs year-round in California. Nests in trees in a variety of woodland habitats, including oak and riparian, as well as tree groves. Requires adjacent open land with rodents for foraging, and the presence of old nests of larger birds (hawks, crows, magpies) for breeding.	**Moderate Potential.** The Modified APE contains oak and riparian habitats adjacent to open lands that could support foraging and nesting.	See Section 7.2 for further recommendations.
Burrowing owl ***Athene cunicularia***	SSC, BCC	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**Moderate Potential/ Unlikely to Nest.** This species does not breed in Lake County (CDFW 2024a, eBird 2024). This species may occasionally winter within uncanopied grassland areas within the Modified APE with suitable burrows. This species has been documented to winter approximately 7 miles southeast of the Modified APE (CDFW 2024a). Although burrows suitable for burrowing owl occupation were rarely observed during the site visits, ground squirrels are present within the Modified APE and suitable burrow habitat for owls may arise in the future.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Oak titmouse ***Baeolophus inornatus***	BCC	Occurs year-round in woodland and savannah habitats where oaks are present, as well as riparian areas. Nests in tree cavities.	**Present/ Likely to Nest.** This species has been observed within the woodland communities near the Modified APE, and the Modified APE contains woodland and tree cavities suitable for nesting.	See Section 7.2 for further recommendations.
Vaux's swift ***Chaetura vauxi***	SSC	Summer resident, breeding primarily in forested areas. Nests in tree cavities, favoring those with a large vertical extent; also uses chimneys and other man-made substrates. Forages aerially for insects.	**Unlikely.** The Modified APE does not contain the dense coniferous forest this species prefers and is outside of the known breeding range of the species (CDFW 2024a).	No further recommendations.
Northern harrier ***Circus cyaneus***	SSC	Year-round resident and winter visitor. Found in open habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**Moderate Potential/ Unlikely to Nest.** Although this species was observed foraging near the Modified APE, the Modified APE does not contain dense, dry herbaceous vegetation near water that typically supports nesting.	See Section 7.2 for further recommendations.
Olive-sided flycatcher ***Contopus cooperi***	SSC, BCC	Summer resident. Typical breeding habitat is montane coniferous forests. At lower elevations, also occurs in wooded canyons and mixed forests and woodlands. Often associated with forest edges. Arboreal nest sites located well off the ground.	**Moderate Potential.** The Modified APE contains woodland habitats that may support nesting.	See Section 7.2 for further recommendations.
White-tailed kite ***Elanus leucurus***	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**Present.** This species has been observed flying over the Modified APE and this species is known to the region (CDFW 2024a). The Modified APE provides open foraging habitat for this species and large trees and shrubs that may provide suitable nesting substrates.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Prairie falcon ***Falco mexicanus***	BCC	Year-round resident and winter visitor. Inhabits dry, open terrains, including foothills and valleys. Breeding sites located on steep cliffs. Forages widely.	**Moderate Potential/ Unlikely to Nest.** The Modified APE contains open areas and low rocky outcrops that provide potential foraging habitat for this species. However, sheer rocky cliffs with suitable ledges for nesting are absent in the Modified APE and its immediate surroundings.	See Section 7.2 for further recommendations.
American peregrine falcon ***Falco peregrinus anatum***	FD, SD, CFP, BCC	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	**High Potential/ Unlikely to Nest.** The Modified APE contains open areas and low rocky outcrops that provide potential foraging habitat for this species. However, sheer rocky cliffs with suitable ledges for nesting are absent in the Modified APE and its immediate surroundings.	See Section 7.2 for further recommendations.
Bald eagle ***Haliaeetus leucocephalus***	FD, SE, CFP, BCC	Occurs year-round in California, but primarily a winter visitor. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**High Potential/ Unlikely to Nest.** Adult and juvenile bald eagles were observed flying and roosting adjacent to multiple reservoirs near the Modified APE. Bald eagles have been observed nesting around reservoirs. However, the Modified APEs described herein are not near these nesting sites and/ or do not have line of site to them and work would not have a significant impact on them.	See Section 7.2 for further recommendations.
Yellow-breasted chat ***Icteria virens***	SSC	Summer resident, occurring in riparian areas with an open canopy, very dense understory, and trees for song perches. Nests in thickets of willow, blackberry, and wild grape.	**Moderate Potential.** One region of the Modified APE contains small area of dense vegetation adjacent to perennial stream habitat which may support nesting, and this species has been documented south of the Modified APE.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Least bittern ***Ixobrychus exilis***	SSC, BCC	Summer resident primarily in portions of the Central Valley and southern California. Typically breeds in deeper freshwater marshes with dense emergent and woody vegetation.	**Moderate Potential.** The Modified APE is adjacent to several deep reservoirs containing extensive emergent vegetation. This species has not been observed in the vicinity of the Modified APE.	See Section 7.2 for further recommendations.
Loggerhead shrike ***Lanius ludovicianus***	BCC, SSC	Year-round resident in open woodland, grassland, savannah and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	**Moderate Potential.** Some of the Modified APEs provides open areas for foraging as well as suitably dense vegetation in scrub and woodland communities to support nesting. This species has been documented near the Modified APE (eBird 2024), though has not been observed during site visits.	See Section 7.2 for further recommendations.
Lewis's woodpecker ***Melanerpes lewis***	BCC	Uncommon resident in California occurring on open oak savannahs, broken deciduous and coniferous habitats. Breeds primarily in ponderosa pine forests, riparian woodlands and disturbed pine forests but is also known to nest in orchards and oak woodlands.	**High Potential.** The Modified APE contains oak savannah and woodland habitat to support this species, and the Modified APE is within the known breeding range of this species (CDFW 2024a). This species has been documented near the Modified APE (eBird 2024).	See Section 7.2 for further recommendations.
Flammulated owl ***Otus flammeolus***	BCC	Nesting habitat includes multi-age class stands with multiple canopy layers, including a veteran tree component for nesting and roosting. Secondary cavity nester, utilizing natural cavities or those excavated by woodpeckers.	**Unlikely.** The Modified APE does not contain dense canopied-coniferous forest habitat that this species prefers, and this species is not known to inhabit eastern Lake County (CDFW 2024a)	No further recommendations.
Nuttall's woodpecker ***Picoides nuttallii***	BCC	Year-round resident in lowland woodlands throughout much of California west of the Sierra Nevada. Typical habitat is dominated by oaks; also occurs in riparian woodland. Nests in tree cavities.	**Present.** This species was observed within the woodland communities near the Modified APE, and the Modified APE contains woodland and tree cavities suitable for nesting.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Purple martin ***Progne subis***	SSC	Inhabits woodlands and low elevation coniferous forests. Nests in old woodpecker cavities and human-made structures. Nest is often located in tall, isolated tree or snag.	**Moderate Potential.** Some of the Modified APEs contains woodlands with snags and cavities to support nesting, and this species has been documented to nest near the Modified APE (CDFW 2024a).	See Section 7.2 for further recommendations.
Bank swallow ***Riparia riparia***	ST	Summer resident in riparian and other lowland habitats near rivers, lakes and the ocean in northern California. Nests colonially in excavated burrows on vertical cliffs and bank cuts (natural and manmade) with fine-textured soils. Historical nesting range in southern and central areas of California has been eliminated by habitat loss. Currently known to breed in Siskiyou, Shasta, and Lassen Cos., portions of the north coast, and along Sacramento River from Shasta Co. south to Yolo Co.	**Unlikely.** The Modified APE is outside the breeding range for this species. There are no documented sightings of this species within 12 miles of the Modified APE (CDFW 2024a).	No further recommendations.
Allen's hummingbird ***Selasphorus sasin***	BCC	Summer resident along the California coast, breeding in a variety of woodland and forest habitats, including parks and gardens with abundant nectar sources. Nest in shrubs and trees with dense vegetation.	**High Potential.** This species was observed near the Modified APE during site assessments. The Modified APE contains woodland habitats with nectar sources that may support nesting.	See Section 7.2 for further recommendations.
Yellow warbler ***Setophaga* [*Dendroica*] *petechia brewsteri***	SSC, BCC	Summer resident throughout much of California. Breeds in riparian vegetation close to water, including streams and wet meadows. Microhabitat used for nesting variable, but dense willow growth is typical. Occurs widely on migration.	**High Potential.** This species was observed near the Modified APE. One region of the Modified APE contains small area of dense vegetation adjacent to perennial stream habitat which may support nesting.	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Lawrence's goldfinch ***Spinus* [*Carduelis*] *lawrencei***	BCC	Summer resident; generally uncommon and local. Typically found in arid open woodlands, including oak savannah. Breeding distribution is erratic from year to year.	**Moderate Potential.** The Modified APE contains large amounts of undisturbed oak savannah, which provides breeding habitat for this species, and this species is regularly documented in the region (eBird 2024).	See Section 7.2 for further recommendations.
Black-chinned sparrow ***Spizella atrogularis***	BCC	Prefers sloping ground in mixed chaparral, chamise-redshank chaparral, sagebrush, and similar brushy habitats. Often on arid, south-facing slopes with ceanothus, manzanita, sagebrush, and chamise.	**High Potential.** The Modified APE is within this species' breeding range, and the Modified APE contains large amounts of dense shrub and chaparral habitats this species requires for nesting (CDFW 2024a, eBird 2024).	See Section 7.2 for further recommendations.
Northern spotted owl ***Strix occidentalis caurina***	FT, SC, SSC	Year-round resident in dense, structurally complex forests, primarily those with old-growth conifers. Nests on platform-like substrates in the forest canopy, including in tree cavities. Preys on mammals.	**No Potential.** The Modified APE does not contain the dense, old growth coniferous forest this species prefers. The nearest documented occurrence of this species is near Robert Louis Stevenson State Park, 5 miles southwest of the Modified APE (CDFW 2024a).	No further recommendations.
Yellow-headed blackbird ***Xanthocephalus xanthocephalus***	SSC	Summer resident. Breeds colonially in freshwater emergent wetlands with dense vegetation and deep water, often along borders of lakes or ponds. Requires abundant large insects such as dragonflies; nesting is timed for maximum emergence of insect prey.	**Present.** This species was observed nesting in emergent vegetation in the property, directly adjacent to the Phase 1 Modified APE in 2018 and 2019. The Modified APE has freshwater emergent vegetation and may support nesting by this species.	See Section 7.2 for further recommendations.
REPTILES AND AMPHIBIANS				

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Northern pond turtle ***Actinemys marmorata* ssp. *marmorata***	FP, SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**Moderate Potential.** The species was observed in areas near the Modified APE. For areas near aquatic features (within 300 feet), this species has some potential to be present.	See Section 7.2 for further recommendations.
California giant salamander ***Dicamptodon ensatus***	SSC	Occurs in the north-central Coast Ranges. Moist coniferous and mixed forests are typical habitat; also uses woodland and chaparral. Adults are terrestrial and fossorial, breeding in cold, permanent or semi-permanent streams. Larvae usually remain aquatic for over a year.	**Unlikely.** The Modified APE does not contain suitable coniferous forest typical of the species habitat requirements. Streams in the Modified APE are suboptimal to unsuitable for this species with warm summer water temperatures and non-native predatory fish and bullfrogs. The Modified APE is also located outside of the species known range.	No further recommendations.
Foothill yellow-legged frog ***Rana boylii***	SSC	Found in or near rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates.	**Moderate Potential.** The species was observed adjacent to portions of the Modified APE, in association with Butts Creek. Streams with rocky substrate provide potentially suitable habitat for the species, including areas within the Modified APE. This species has also been documented in CNDDB within and in close proximity to the Modified APE (CDFW 2024a).	See Section 7.2 for further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
California red-legged frog ***Rana draytonii***	FT, SSC	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	**Unlikely.** Focused surveys for the species were conducted within the Modified APE and found no individuals. Aquatic habitat features within the Modified APE are dominated by several non-native predators including bass, sunfish, American bullfrog, and crayfish. There are no CNDDB occurrences of the species within 5-miles of the site. Due to the lack of detections and non-native predator dominated aquatic habitat, it is unlikely that the species would occur within the Modified APE.	No further recommendations.
Red-bellied newt ***Taricha rivularis***	SSC	Inhabits coastal forests from southern Sonoma County northward, with an isolated population in Santa Clara County. Redwood forest provides typical habitat, though other forest types (e.g., hardwood) are also occupied. Adults are terrestrial and fossorial. Breeding occurs in streams, usually with relatively strong flow.	**Unlikely.** The Modified APE does not contain suitable redwood or hardwood forest typical of the species habitat requirements. The Modified APE is also located outside of the species known range.	No further recommendations.
FISH				
Pacific lamprey ***Entosphenus* [*Lampetra*] *tridentatus***	SSC	Spawns between March and July in gravel bottomed streams in riffle habitat. Larvae drift downstream to areas of low velocity and fine substrates and are relatively immobile in the stream substrates.	**No Potential.** The Modified APE does not contain anadromous aquatic habitat necessary to support this species. The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa, which forms a complete fish passage barrier for fish returning from the ocean and blocks this species from the Modified APE.	No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Clear Lake tule perch ***Hysterocarpus traski lagunae***	SSC	Occurs in low elevation streams of the Russian River system. Requires clear, flowing water with abundant cover and deep (> 1 m) pools.	**No Potential.** The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa. This species is only known for Clear Lake and associated tributaries, which is outside of the Modified APE. Tule perch is not known in the upper Putah Creek Watershed.	No further recommendations.
Russian River tule perch ***Hysterocarpus traski pomo***	SSC	Occurs in low elevation streams of the Russian River system. Requires clear, flowing water with abundant cover and deep (> 1 m) pools.	**No Potential.** The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa. This species is only known for the Russian River and its tributaries, which is outside of the Modified APE.	No further recommendations.
River lamprey ***Lampetra ayresi***	SSC	Lower Sacramento River, San Joaquin River and Russian River. May occur in coastal streams north of San Francisco Bay. Adults need clean, gravelly riffles, Ammocoetes need sandy backwaters or stream edges, good water quality and temps < 25 degrees C.	**No Potential.** The Modified APE does not contain anadromous aquatic habitat necessary to support this species. The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa, which forms a complete fish passage barrier for fish returning from the ocean and blocks this species from the Modified APE.	No further recommendations.
Clear Lake hitch ***Lavinia exilicauda chi***	ST, SSC	Found only in Clear Lake, Lake County, and associated ponds. Spawns in streams flowing into Clear Lake. Adults found in the limnetic zone. Juveniles found in the nearshore shallow-water habitat hiding in the vegetation.	**Unlikely.** The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa. This species is only known for Clear Lake and associated tributaries, which is outside of the Modified APE.	No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Clear Lake – Russian River roach ***Lavinia symmetricus ssp. 4***	SSC	Habitat generalists. Found in warm intermittent streams as well as cold, well-aerated streams.	**Unlikely.** The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa. This species is only known for Clear Lake and associated tributaries, which is outside of the Modified APE. Roach in the Modified APE are within the range and distribution of Central California roach, which are not a special-status species.	No further recommendations.
Navarro roach ***Lavinia symmetricus navarroensis***	SSC	Occurs only in the Navarro River and its tributaries. Adaptable; found in warm, intermittent streams as well as cold, well-aerated streams.	**Unlikely.** The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa. This species is only known for the Navarro River and its tributaries, which is outside of the Modified APE.	No further recommendations.
Coho salmon - central CA coast ESU ***Oncorhynchus kisutch***	FE, SE, NMFS	Federal listing includes populations between Punta Gorda and San Lorenzo River. State listing includes populations south of San Francisco Bay only. Occurs inland and in coastal marine waters. Requires beds of loose, silt-free, coarse gravel for spawning. Also needs cover, cool water and sufficient dissolved oxygen.	**No Potential.** This species is considered extirpated from San Francisco Bay and associated tributaries, including the greater Sacramento River Watershed. The Modified APE does not contain anadromous aquatic habitat necessary to support this species. The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa, which forms a complete fish passage barrier for fish returning from the ocean and blocks this species from the Modified APE.	No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Steelhead - Central Valley DPS ***Oncorhynchus mykiss***	FT, NMFS	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**Unlikely.** The Modified APE does not contain anadromous aquatic habitat necessary to support this species. The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa, which forms a complete fish passage barrier for fish returning from the ocean and blocks this species from the Modified APE. The resident form, rainbow trout, is known to occur in Lake Berryessa and may utilize portions of upper Putah Creek and associated tributaries that are within the Modified APE. Rainbow trout was observed within Butts Creek. However, the resident form of the species is not protected as a steelhead in areas where anadromy is blocked, such as the waters within the Modified APE.	No further recommendations.
Chinook salmon - California coastal ESU ***Oncorhynchus tshawytscha***	FT, RP, NMFS	California Coastal Chinook Salmon ESU includes all naturally spawned populations of Chinook salmon from rivers and streams south of the Klamath River (exclusive) to the Russian River (inclusive). Adult numbers depend on pool depth and volume, amount of cover, and proximity to gravel. Water temps >27 degrees C lethal to adults.	**No Potential.** The Modified APE does not contain anadromous aquatic habitat necessary to support this species. The Modified APE is within the upper Putah Creek Watershed that drains into Lake Berryessa, which forms a complete fish passage barrier for fish returning from the ocean and blocks this species from the Modified APE.	No further recommendations.
INVERTEBRATES				

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Western bumblebee ***Bombus occidentalis***	SC	Grassland and scrub habitats, and sometimes forested, urban, and agricultural areas, with sufficient flowering resources. Currently restricted to coastal areas and high meadows. Nests in pre-existing cavities, such as abandoned rodent burrows, grass tufts, rock piles, abandoned bird nests, and tree cavities. Queens overwinter in dense duff or leaf litter.	**Unlikely.** This species has undergone significant declines in distribution and abundance in the past 20 years and may be extirpated from the region. This species has not been encountered in the region during recent surveys.	No further recommendations.
Monarch butterfly ***Danaus plexippus***	FC, winter roosts protected by CDFW	Widespread and migratory species. Breeding habitat consists of grassland with spring and summer blooming nectar plants, and host plants (milkweeds). Migratory habitat consists of summer and fall blooming nectar plant, and wind-protected trees. Often migrates along riparian corridors. Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**Assumed Present/Unlikely to be impacted.** This species may be seen migrating across the Modified APE, but the project will not remove roost sites.	This species may migrate across the Modified APE, but roost sites are unlikely to occur. No further recommendations.
Conservancy fairy shrimp ***Branchinecta conservation***	FE, SSI	Endemic to the grasslands of the northern two-thirds of the Central Valley, found in large, turbid pools. Inhabits astatic pools located in swales formed by old, braided alluvium, filled by winter/spring rains, lasting until June.	**Unlikely.** Although there are vernal pools that are a part of the Lake-Napa Vernal Pool complex about 2 miles northwest of the Modified APE, this species has not been documented in Lake County (CDFW 2024a, Erikson and Belk, 1999). Additionally, no vernal pools with soil and/or hydrological characteristics that could support this species were observed within the Modified APE.	No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
Vernal pool fairy shrimp ***Branchinecta lynchi***	FT, SSI	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabits small, clear-water sandstone-depression pools, and grassy swales, earth slumps, or basalt-flow depression pools.	**Unlikely.** Although there are vernal pools that are a part of the Lake-Napa Vernal Pool complex about 2 miles north west of the Modified APE, this species has not been documented in Lake County (CDFW 2024a, Erikson and Belk, 1999). Additionally, no vernal pools with soil and/or hydrological characteristics that could support this species were observed within the Modified APE.	No further recommendations.
Valley elderberry longhorn beetle ***Desmocerus californicus dimorphus***	FT, SSI, RP	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus mexicana*). Prefers to lay eggs in elderberry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	**Unlikely.** The Modified APE is located west of this species' documented range in the Central Valley. A non-listed subspecies, *Desmocerus californicus californicus*, is known to occur in the coast range hills. The closest documented occurrence of valley elderberry longhorn beetle is 12 miles northeast of the Modified APE in the Cache Creek watershed (CDFW 2024a.) Given the low dispersal ability of this species, it is unlikely to occur within the Modified APE (Collinge et al. 2001)	No further recommendations.
Ricksecker's water scavenger beetle ***Hydrochara rickseckeri***	SSI	Small aquatic beetle known only from pond habitats scattered around the San Francisco Bay area, including Marin, Sonoma, Alameda, Lake, and Contra Costa counties. Extensive surveys from 1988 failed to locate this species. The locations of existing populations remain unknown (Hafernick 1989).	**Unlikely.** This species' current range is unknown, and has only been found in very few locations, the closest of which is 1.2 miles from the Modified APE is not directly hydrologically connected to the Modified APE (CDFW 2024a).	No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]
California linderiella ***Linderiella occidentalis***	SSI	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity, and TDS.	**Unlikely.** Although there are vernal pools that are a part of the Lake-Napa Vernal Pool complex about 2 miles north west of the Modified APE, this species has not been documented in Lake County (CDFW 2024a, Erikson and Belk, 1999). Additionally, no vernal pools with soil and/or hydrological characteristics that could support this species were observed within the Modified APE.	No further recommendations.
California freshwater shrimp ***Syncaris pacifica***	FE, SE, SSI	Endemic to Marin, Napa, and Sonoma counties. Found in low elevation, low gradient streams where riparian cover is moderate to heavy. Shallow pools away from main stream flow. Winter: undercut banks with exposed roots. Summer: leafy branches touching water.	**No Potential.** Although the Modified APE contains perennial streams, this species has not been documented in Lake County and the nearest documented occurrence is over 10 miles southwest of the Modified APE near Calistoga, in a different watershed from the Modified APE (CDFW 2024a).	No further recommendations.

SPECIES	CONSERVATION STATUS[1]	HABITAT	POTENTIAL FOR OCCURRENCE[2]	RECOMMENDATIONS[3]

[1]Key to Conservation Status:

FE	**Federal Endangered**
FD	**Federal Delisted**
FT	**Federal Threatened**
FP	**Federal Proposed**
FC	**Federal Candidate**
BCC	**USFWS Birds of Conservation Concern**
SE	**State Endangered**
ST	**State Threatened**
SC	**State Candidate**
SD	**State Delisted**
SSC	**CDFW Species of Special Concern**
SSI	**CDFW Special-Status Invertebrate**
CFP	**California Fully Protected Animal**
WBWG	**Western Bat Working Group High or Medium Priority Species**
RP	**Recovery Plan**

[2]Potential for Occurrence:

No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

Present. Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

[3]Results and Recommendations:

Present: Species was observed on the site or has been recorded (i.e. CNDDB, other reports) on the site recently.

Assumed Present: Species is assumed to be present on-site based on the presence of key habitat components.

Presumed Absent: Species is presumed to not be present due to a lack of key habitat components.

Not Present: Species is considered not present due to a clear lack of any suitable habitat and/or local range limitations.

Not Observed: Species was not observed during dedicated/formal surveys.

Presence Unknown: Species has the potential to be present, but no dedicated surveys to determine absence/presence were performed**.**

APPENDIX D. 2024 DATABASE RESULTS

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CNPS 2024 Database Results

ScientificName	CommonName	Family	Lifeform	CRPR	CRPRChangeDate	GRank	SRank	OtherStatus	CESA	FESA
Amorpha californica var. napensis	Napa false indigo	Fabaceae	perennial deciduous shrub	1B.2		G4T2	S2	SB_CalBG/RSABG	None	None
Amsinckia lunaris	bent-flowered fiddleneck	Boraginaceae	annual herb	1B.2		G3	S3	BLM_S; SB_UCBG; SB_UCSC	None	None
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Ericaceae	perennial evergreen shrub	1B.3		G5T3	S3	SB_UCSC	None	None
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	Ericaceae	perennial evergreen shrub	1B.1		G3T1	S1	SB_UCSC	None	None
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Ericaceae	perennial evergreen shrub	1B.1		G3T2	S2	BLM_S; SB_CalBG/RSABG; SB_USDA	None	None
Astragalus claranus	Clara Hunt's milk-vetch	Fabaceae	annual herb	1B.1		G1	S1	SB_CalBG/RSABG	CE	FE
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	Fabaceae	annual herb	1B.2		G4T3	S3	BLM_S; SB_UCSC	None	None
Balsamorhiza macrolepis	big-scale balsamroot	Asteraceae	perennial herb	1B.2		G2	S2	BLM_S; USFS_S	None	None
Brasenia schreberi	watershield	Cabombaceae	perennial rhizomatous herb (aquatic)	2B.3	6/12/2013 15:14	G5	S3	IUCN_LC	None	None
Brodiaea leptandra	narrow-anthered brodiaea	Themidaceae	perennial bulbiferous herb	1B.2		G3?	S3?	SB_CalBG/RSABG	None	None
Carex praticola	northern meadow sedge	Cyperaceae	perennial herb	2B.2	6/12/2013 15:18	G5	S2		None	None
Castilleja rubicundula var. rubicundula	pink creamsacs	Orobanchaceae	annual herb (hemiparasitic)	1B.2		G5T2	S2	BLM_S; SB_UCSC	None	None
Ceanothus confusus	Rincon Ridge ceanothus	Rhamnaceae	perennial evergreen shrub	1B.1		G1	S1	BLM_S; SB_SBBG	None	None
Ceanothus divergens	Calistoga ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2		G2	S2	SB_UCSC	None	None
Ceanothus purpureus	holly-leaved ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2		G2	S2	SB_SBBG	None	None
Ceanothus sonomensis	Sonoma ceanothus	Rhamnaceae	perennial evergreen shrub	1B.2		G2	S2	SB_SBBG	None	None
Centromadia parryi ssp. parryi	pappose tarplant	Asteraceae	annual herb	1B.2	7/27/2004 0:00	G3T2	S2	BLM_S	None	None
Chlorogalum pomeridianum var. minus	dwarf soaproot	Agavaceae	perennial bulbiferous herb	1B.2		G5T3	S3	BLM_S; SB_SBBG; USFS_S	None	None
Cryptantha dissita	serpentine cryptantha	Boraginaceae	annual herb	1B.2	10/25/2011 16:07	G3	S3	BLM_S	None	None
Cryptantha excavata	deep-scarred cryptantha	Boraginaceae	annual herb	1B.1	4/24/2017 16:45	G1	S1	BLM_S	None	None
Downingia willamettensis	Cascade downingia	Campanulaceae	annual herb	2B.2	9/20/2018 0:00	G4	S2		None	None
Eriastrum brandegeeae	Brandegee's eriastrum	Polemoniaceae	annual herb	1B.1	8/23/2012 0:00	G1Q	S1	BLM_S	None	None
Erigeron greenei	Greene's narrow-leaved daisy	Asteraceae	perennial herb	1B.2		G3	S3		None	None
Eriogonum nervulosum	Snow Mountain buckwheat	Polygonaceae	perennial rhizomatous herb	1B.2		G2	S2	BLM_S; SB_CalBG/RSABG; SB_SBBG; USFS_S	None	None
Eryngium constancei	Loch Lomond button-celery	Apiaceae	annual/perennial herb	1B.1		G1	S1	SB_CalBG/RSABG	CE	FE
Eryngium jepsonii	Jepson's coyote-thistle	Apiaceae	perennial herb	1B.2	9/13/2016 11:00	G2	S2	SB_CalBG/RSABG	None	None
Extriplex joaquinana	San Joaquin spearscale	Chenopodiaceae	annual herb	1B.2		G2	S2	BLM_S; SB_CalBG/RSABG	None	None
Fritillaria pluriflora	adobe-lily	Liliaceae	perennial bulbiferous herb	1B.2		G2G3	S2S3	BLM_S; SB_CalBG/RSABG; SB_UCBG	None	None
Gratiola heterosepala	Boggs Lake hedge-hyssop	Plantaginaceae	annual herb	1B.2		G2	S2	BLM_S	CE	None
Grimmia torenii	Toren's grimmia	Grimmiaceae	moss	1B.3	5/14/2014 17:25	G2	S2	BLM_S	None	None
Harmonia hallii	Hall's harmonia	Asteraceae	annual herb	1B.2		G2?	S2?	BLM_S; SB_CalBG/RSABG	None	None
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Asteraceae	annual herb	1B.2	9/30/2008 13:59	G5T2	S2	SB_UCBG	None	None
Hesperolinon adenophyllum	glandular western flax	Linaceae	annual herb	1B.2		G2G3	S2S3	BLM_S	None	None
Hesperolinon bicarpellatum	two-carpellate western flax	Linaceae	annual herb	1B.2		G2	S2	BLM_S; SB_UCSC	None	None
Hesperolinon didymocarpum	Lake County western flax	Linaceae	annual herb	1B.2		G1	S1	SB_UCSC	CE	None
Hesperolinon drymarioides	drymaria-like western flax	Linaceae	annual herb	1B.2		G2	S2	BLM_S; USFS_S	None	None
Hesperolinon sharsmithiae	Sharsmith's western flax	Linaceae	annual herb	1B.2	12/14/2012 17:53	G2Q	S2	BLM_S; SB_UCSC	None	None
Horkelia bolanderi	Bolander's horkelia	Rosaceae	perennial herb	1B.2		G1	S1	BLM_S	None	None
Imperata brevifolia	California satintail	Poaceae	perennial rhizomatous herb	2B.1	6/12/2013 16:33	G3	S3	SB_CalBG/RSABG; SB_SBBG; USFS_S	None	None
Juncus luciensis	Santa Lucia dwarf rush	Juncaceae	annual herb	1B.2	4/30/2009 0:00	G3	S3	BLM_S; USFS_S	None	None
Lasthenia burkei	Burke's goldfields	Asteraceae	annual herb	1B.1		G1	S1	SB_CalBG/RSABG; SB_UCBG	CE	FE
Layia septentrionalis	Colusa layia	Asteraceae	annual herb	1B.2		G2	S2	BLM_S; SB_UCBG	None	None
Legenere limosa	legenere	Campanulaceae	annual herb	1B.1		G2	S2	BLM_S; SB_UCBG	None	None
Leptosiphon jepsonii	Jepson's leptosiphon	Polemoniaceae	annual herb	1B.2		G2G3	S2S3	SB_CalBG/RSABG; SB_USDA	None	None
Limnanthes vinculans	Sebastopol meadowfoam	Limnanthaceae	annual herb	1B.1		G1	S1	SB_CalBG/RSABG; SB_UCBG	CE	FE
Lupinus sericatus	Cobb Mountain lupine	Fabaceae	perennial herb	1B.2		G2?	S2?	BLM_S; SB_UCSC	None	None
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	1B.2		G2	S2	BLM_S; SB_SBBG; SB_UCSC	None	None
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Polemoniaceae	annual herb	1B.1		G4T2	S2	SB_CalBG/RSABG	None	None
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Polemoniaceae	annual herb	1B.1		G4T1	S1	BLM_S; SB_CalBG/RSABG	CT	FE
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Polemoniaceae	annual herb	1B.2		G4T1	S1	SB_CalBG/RSABG	CE	FE
Navarretia myersii ssp. deminuta	small pincushion navarretia	Polemoniaceae	annual herb	1B.1		G2T1	S1		None	None
Navarretia paradoxinota	Porter's navarretia	Polemoniaceae	annual herb	1B.3	4/27/2016 16:54	G2	S2	BLM_S	None	None
Navarretia rosulata	Marin County navarretia	Polemoniaceae	annual herb	1B.2		G2	S2	BLM_S; SB_CalBG/RSABG	None	None
Orcuttia tenuis	slender Orcutt grass	Poaceae	annual herb	1B.1		G2	S2	SB_UCBG	CE	FT
Panicum acuminatum var. thermale	Geysers panicum	Poaceae	annual/perennial herb	1B.2	9/12/2012 15:37	G5T2Q	S2	SB_UCSC	CE	None
Penstemon newberryi var. sonomensis	Sonoma beardtongue	Plantaginaceae	perennial herb	1B.3		G4T3	S3	BLM_S	None	None
Plagiobothrys hystriculus	bearded popcornflower	Boraginaceae	annual herb	1B.1	6/8/2006 17:43	G2	S2		None	None
Plagiobothrys strictus	Calistoga popcornflower	Boraginaceae	annual herb	1B.1		G1	S1	SB_UCBG	CT	FE
Poa napensis	Napa blue grass	Poaceae	perennial herb	1B.1		G1	S1	SB_CalBG/RSABG	CE	FE
Potamogeton zosteriformis	eel-grass pondweed	Potamogetonaceae	annual herb (aquatic)	2B.2	6/12/2013 16:57	G5	S3		None	None
Puccinellia simplex	California alkali grass	Poaceae	annual herb	1B.2	10/15/2015 13:25	G2	S2		None	None
Sedella leiocarpa	Lake County stonecrop	Crassulaceae	annual herb	1B.1		G1	S1		CE	FE
Sidalcea hickmanii ssp. napensis	Napa checkerbloom	Malvaceae	perennial herb	1B.1	4/2/2009 0:00	G3T1	S1	SB_CalBG/RSABG	None	None
Sidalcea keckii	Keck's checkerbloom	Malvaceae	annual herb	1B.1		G2	S2	SB_CalBG/RSABG	None	FE
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Malvaceae	perennial herb	1B.2		G5T2	S2	SB_UCSC	None	None
Sidalcea oregana ssp. valida	Kenwood Marsh checkerbloom	Malvaceae	perennial rhizomatous herb	1B.1		G5T1	S1	SB_CalBG/RSABG; SB_UCBG	CE	FE
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	Caryophyllaceae	perennial herb	1B.2	6/16/2017 16:27	G5T2	S2		None	None
Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	Brassicaceae	perennial herb	1B.2		G2T1	S1	BLM_S	None	None
Streptanthus brachiatus ssp. hoffmanii	Freed's jewelflower	Brassicaceae	perennial herb	1B.2		G2T2	S2	BLM_S	None	None
Streptanthus hesperidis	green jewelflower	Brassicaceae	annual herb	1B.2		G2G3	S2S3	BLM_S; SB_CalBG/RSABG	None	None
Streptanthus morrisonii ssp. elatus	Three Peaks jewelflower	Brassicaceae	perennial herb	1B.2		G2T1	S1	BLM_S	None	None
Streptanthus morrisonii ssp. kruckebergii	Kruckeberg's jewelflower	Brassicaceae	perennial herb	1B.2		G2T1	S1	BLM_S	None	None
Streptanthus vernalis	early jewelflower	Brassicaceae	annual herb	1B.2	2/4/2009 0:00	G1	S1	BLM_S; SB_UCBG	None	None
Stuckenia filiformis ssp. alpina	northern slender pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	2B.2	6/12/2013 17:08	G5T5	S2S3		None	None
Trichostema ruygtii	Napa bluecurls	Lamiaceae	annual herb	1B.2	6/8/2009 0:00	G1G2	S1S2	SB_CalBG/RSABG	None	None
Trifolium hydrophilum	saline clover	Fabaceae	annual herb	1B.2		G2	S2		None	None
Viburnum ellipticum	oval-leaved viburnum	Viburnaceae	perennial deciduous shrub	2B.3	6/12/2013 17:12	G4G5	S3?		None	None

CNDDB Plants 2024 Database Results

SciName	ComName	TaxonGrou	ElmCode	TotalOccs	FedList	CalList	GRank	SRank	RPlantRan
Amorpha californica var. napensis	Napa false indigo	Dicots	PDFAB08012	123	None	None	G4T2	S2	1B.2
Amsinckia lunaris	bent-flowered fiddleneck	Dicots	PDBOR01070	93	None	None	G3	S3	1B.2
Arctostaphylos manzanita ssp. elegans	Konocti manzanita	Dicots	PDERI04271	69	None	None	G5T3	S3	1B.3
Arctostaphylos stanfordiana ssp. decumbens	Rincon Ridge manzanita	Dicots	PDERI041G4	12	None	None	G3T1	S1	1B.1
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	Dicots	PDERI041G2	13	None	None	G3T2	S2	1B.1
Astragalus claranus	Clara Hunt's milk-vetch	Dicots	PDFAB0F240	6	Endangered	Endangere	G1	S1	1B.1
Astragalus rattanii var. jepsonianus	Jepson's milk-vetch	Dicots	PDFAB0F7E1	53	None	None	G4T3	S3	1B.2
Balsamorhiza macrolepis	big-scale balsamroot	Dicots	PDAST11061	51	None	None	G2	S2	1B.2
Brasenia schreberi	watershield	Dicots	PDCAB01010	43	None	None	G5	S3	2B.3
Brodiaea leptandra	narrow-anthered brodiaea	Monocots	PMLIL0C022	39	None	None	G3?	S3?	1B.2
Carex praticola	northern meadow sedge	Monocots	PMCYP03B20	14	None	None	G5	S2	2B.2
Castilleja rubicundula var. rubicundula	pink creamsacs	Dicots	PDSCR0D482	42	None	None	G5T2	S2	1B.2
Ceanothus confusus	Rincon Ridge ceanothus	Dicots	PDRHA04220	33	None	None	G1	S1	1B.1
Ceanothus divergens	Calistoga ceanothus	Dicots	PDRHA04240	26	None	None	G2	S2	1B.2
Ceanothus purpureus	holly-leaved ceanothus	Dicots	PDRHA04160	43	None	None	G2	S2	1B.2
Ceanothus sonomensis	Sonoma ceanothus	Dicots	PDRHA04420	30	None	None	G2	S2	1B.2
Centromadia parryi ssp. parryi	pappose tarplant	Dicots	PDAST4R0P2	39	None	None	G3T2	S2	1B.2
Chlorogalum pomeridianum var. minus	dwarf soaproot	Monocots	PMLIL0G042	31	None	None	G5T3	S3	1B.2
Cryptantha dissita	serpentine cryptantha	Dicots	PDBOR0A0H2	23	None	None	G3	S3	1B.2
Cryptantha excavata	deep-scarred cryptantha	Dicots	PDBOR0A0W0	5	None	None	G1	S1	1B.1
Downingia willamettensis	Cascade downingia	Dicots	PDCAM060E0	8	None	None	G4	S2	2B.2
Eriastrum brandegeeae	Brandegee's eriastrum	Dicots	PDPLM030H0	6	None	None	G1Q	S1	1B.1
Erigeron greenei	Greene's narrow-leaved daisy	Dicots	PDAST3M5G0	20	None	None	G3	S3	1B.2
Eriogonum nervulosum	Snow Mountain buckwheat	Dicots	PDPGN08440	9	None	None	G2	S2	1B.2
Eryngium constancei	Loch Lomond button-celery	Dicots	PDAPI0Z0W0	4	Endangered	Endangere	G1	S1	1B.1
Eryngium jepsonii	Jepson's coyote-thistle	Dicots	PDAPI0Z130	19	None	None	G2	S2	1B.2
Extriplex joaquinana	San Joaquin spearscale	Dicots	PDCHE041F3	127	None	None	G2	S2	1B.2
Fritillaria pluriflora	adobe-lily	Monocots	PMLIL0V0F0	114	None	None	G2G3	S2S3	1B.2
Gratiola heterosepala	Boggs Lake hedge-hyssop	Dicots	PDSCR0R060	99	None	Endangere	G2	S2	1B.2
Grimmia torenii	Toren's grimmia	Bryophytes	NBMUS32330	13	None	None	G2	S2	1B.3
Harmonia hallii	Hall's harmonia	Dicots	PDAST650A0	23	None	None	G2?	S2?	1B.2
Hemizonia congesta ssp. congesta	congested-headed hayfield tarplant	Dicots	PDAST4R0W1	52	None	None	G5T2	S2	1B.2
Hesperolinon adenophyllum	glandular western flax	Dicots	PDLIN01010	48	None	None	G2G3	S2S3	1B.2
Hesperolinon bicarpellatum	two-carpellate western flax	Dicots	PDLIN01020	25	None	None	G2	S2	1B.2
Hesperolinon didymocarpum	Lake County western flax	Dicots	PDLIN01070	6	None	Endangere	G1	S1	1B.2
Hesperolinon drymarioides	drymaria-like western flax	Dicots	PDLIN01090	24	None	None	G2	S2	1B.2
Hesperolinon sharsmithiae	Sharsmith's western flax	Dicots	PDLIN010E0	32	None	None	G2Q	S2	1B.2
Horkelia bolanderi	Bolander's horkelia	Dicots	PDROS0W011	13	None	None	G1	S1	1B.2
Imperata brevifolia	California satintail	Monocots	PMPOA3D020	32	None	None	G3	S3	2B.1
Juncus luciensis	Santa Lucia dwarf rush	Monocots	PMJUN013J0	37	None	None	G3	S3	1B.2
Lasthenia burkei	Burke's goldfields	Dicots	PDAST5L010	36	Endangered	Endangere	G1	S1	1B.1
Layia septentrionalis	Colusa layia	Dicots	PDAST5N0F0	69	None	None	G2	S2	1B.2
Legenere limosa	legenere	Dicots	PDCAM0C010	83	None	None	G2	S2	1B.1
Leptosiphon jepsonii	Jepson's leptosiphon	Dicots	PDPLM09140	51	None	None	G2G3	S2S3	1B.2
Limnanthes vinculans	Sebastopol meadowfoam	Dicots	PDLIM02090	46	Endangered	Endangere	G1	S1	1B.1
Lupinus sericatus	Cobb Mountain lupine	Dicots	PDFAB2B3J0	46	None	None	G2?	S2?	1B.2
Microseris paludosa	marsh microseris	Dicots	PDAST6E0D0	38	None	None	G2	S2	1B.2
Navarretia leucocephala ssp. bakeri	Baker's navarretia	Dicots	PDPLM0C0E1	64	None	None	G4T2	S2	1B.1
Navarretia leucocephala ssp. pauciflora	few-flowered navarretia	Dicots	PDPLM0C0E4	10	Endangered	Threatene	G4T1	S1	1B.1
Navarretia leucocephala ssp. plieantha	many-flowered navarretia	Dicots	PDPLM0C0E5	8	Endangered	Endangere	G4T1	S1	1B.2
Navarretia myersii ssp. deminuta	small pincushion navarretia	Dicots	PDPLM0C0X2	1	None	None	G2T1	S1	1B.1
Navarretia paradoxinota	Porter's navarretia	Dicots	PDPLM0C160	9	None	None	G2	S2	1B.3
Navarretia rosulata	Marin County navarretia	Dicots	PDPLM0C0Z0	15	None	None	G2	S2	1B.2
Orcuttia tenuis	slender Orcutt grass	Monocots	PMPOA4G050	100	Threatened	Endangere	G2	S2	1B.1
Panicum acuminatum var. thermale	Geysers panicum	Monocots	PMPOA24028	11	None	Endangere	G5T2Q	S2	1B.2
Penstemon newberryi var. sonomensis	Sonoma beardtongue	Dicots	PDSCR1L483	15	None	None	G4T3	S3	1B.3
Plagiobothrys hystriculus	bearded popcornflower	Dicots	PDBOR0V0H0	15	None	None	G2	S2	1B.1
Plagiobothrys strictus	Calistoga popcornflower	Dicots	PDBOR0V120	3	Endangered	Threatene	G1	S1	1B.1
Poa napensis	Napa blue grass	Monocots	PMPOA4Z1R0	2	Endangered	Endangere	G1	S1	1B.1
Potamogeton zosteriformis	eel-grass pondweed	Monocots	PMPOT03160	20	None	None	G5	S3	2B.2
Puccinellia simplex	California alkali grass	Monocots	PMPOA53110	80	None	None	G2	S2	1B.2
Sedella leiocarpa	Lake County stonecrop	Dicots	PDCRA0F020	5	Endangered	Endangere	G1	S1	1B.1
Sidalcea hickmanii ssp. napensis	Napa checkerbloom	Dicots	PDMAL110A6	2	None	None	G3T1	S1	1B.1
Sidalcea keckii	Keck's checkerbloom	Dicots	PDMAL110D0	50	Endangered	None	G2	S2	1B.1
Sidalcea oregana ssp. hydrophila	marsh checkerbloom	Dicots	PDMAL110K2	35	None	None	G5T2	S2	1B.2
Sidalcea oregana ssp. valida	Kenwood Marsh checkerbloom	Dicots	PDMAL110K5	2	Endangered	Endangere	G5T1	S1	1B.1
Spergularia macrotheca var. longistyla	long-styled sand-spurrey	Dicots	PDCAR0W062	22	None	None	G5T2	S2	1B.2
Streptanthus brachiatus ssp. brachiatus	Socrates Mine jewelflower	Dicots	PDBRA2G072	10	None	None	G2T1	S1	1B.2
Streptanthus brachiatus ssp. hoffmanii	Freed's jewelflower	Dicots	PDBRA2G071	13	None	None	G2T2	S2	1B.2
Streptanthus hesperidis	green jewelflower	Dicots	PDBRA2G510	35	None	None	G2G3	S2S3	1B.2
Streptanthus morrisonii ssp. elatus	Three Peaks jewelflower	Dicots	PDBRA2G0S1	7	None	None	G2T1	S1	1B.2
Streptanthus morrisonii ssp. kruckebergii	Kruckeberg's jewelflower	Dicots	PDBRA2G0S4	5	None	None	G2T1	S1	1B.2

Streptanthus vernalis	early jewelflower	Dicots	PDBRA2G120	1	None	None	G1	S1	1B.2
Stuckenia filiformis ssp. alpina	northern slender pondweed	Monocots	PMPOT03091	21	None	None	G5T5	S2S3	2B.2
Trichostema ruygtii	Napa bluecurls	Dicots	PDLAM220H0	19	None	None	G1G2	S2	1B.2
Trifolium hydrophilum	saline clover	Dicots	PDFAB400R5	56	None	None	G2	S2	1B.2
Viburnum ellipticum	oval-leaved viburnum	Dicots	PDCPR07080	39	None	None	G4G5	S3?	2B.3

SciName	ComName	TaxonGroup	ElmCode	TotalOccs	FedList	CalList	GRank	SRank	OthrStatus
Accipiter striatus	sharp-shinned hawk	Birds	ABNKC12020	22	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern
Agelaius tricolor	tricolored blackbird	Birds	ABPBXB0020	960	None	Threatened	G1G2	S2	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered | USFWS_BCC-Birds of Conservation Concern
Antrozous pallidus	pallid bat	Mammals	AMACC10010	420	None	None	G4	S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive
Aquila chrysaetos	golden eagle	Birds	ABNKC22010	332	None	None	G5	S3	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | CDFW_WL-Watch List | IUCN_LC-Least Concern
Archoplites interruptus	Sacramento perch	Fish	AFCQB07010	5	None	None	G1	S1	AFS_TH-Threatened | CDFW_SSC-Species of Special Concern | IUCN_EN-Endangered
Athene cunicularia	burrowing owl	Birds	ABNSB10010	2017	None	None	G4	S2	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFWS_BCC-Birds of Conservation Concern
Bombus caliginosus	obscure bumble bee	Insects	IIHYM24380	181	None	None	G2G3	S1S2	IUCN_VU-Vulnerable
Bombus occidentalis	western bumble bee	Insects	IIHYM24252	306	None	Candidate Endangered	G3	S1	IUCN_VU-Vulnerable | USFS_S-Sensitive
Bombus pensylvanicus	American bumble bee	Insects	IIHYM24260	320	None	None	G3G4	S2	IUCN_VU-Vulnerable
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Birds	ABNRB02022	165	Threatened	Endangered	G5T2T3	S1	BLM_S-Sensitive | USFS_S-Sensitive
Corynorhinus townsendii	Townsend's big-eared bat	Mammals	AMACC08010	635	None	None	G4	S2	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	Insects	IICOL48011	271	Threatened	None	G3T3	S3	
Dicamptodon ensatus	California giant salamander	Amphibians	AAAAH01020	234	None	None	G2G3	S2S3	CDFW_SSC-Species of Special Concern | IUCN_NT-Near Threatened
Dubiraphia brunnescens	brownish dubiraphian riffle beetle	Insects	IICOL5A010	1	None	None	G1	S1	
Emys marmorata	western pond turtle	Reptiles	ARAAD02030	1559	Proposed Threatened	None	G3G4	S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable | USFS_S-Sensitive
Erethizon dorsatum	North American porcupine	Mammals	AMAFJ01010	523	None	None	G5	S3	IUCN_LC-Least Concern
Falco mexicanus	prairie falcon	Birds	ABNKD06090	451	None	None	G5	S4	CDFW_WL-Watch List | IUCN_LC-Least Concern
Falco peregrinus anatum	American peregrine falcon	Birds	ABNKD06071	75	Delisted	Delisted	G4T4	S3S4	CDF_S-Sensitive
Gonidea angulata	western ridged mussel	Mollusks	IMBIV19010	158	None	None	G3	S2	IUCN_VU-Vulnerable
Haliaeetus leucocephalus	bald eagle	Birds	ABNKC10010	333	Delisted	Endangered	G5	S3	BLM_S-Sensitive | CDF_S-Sensitive | CDFW_FP-Fully Protected | IUCN_LC-Least Concern | USFS_S-Sensitive
Hedychridium milleri	Borax Lake cuckoo wasp	Insects	IIHYM68020	1	None	None	G1	S1	
Hesperoleucus venustus navarroensis	northern coastal roach	Fish	AFCJB19031	4	None	None	GNRT3	S3	CDFW_SSC-Species of Special Concern
Hydrochara rickseckeri	Ricksecker's water scavenger beetle	Insects	IICOL5V010	13	None	None	G2?	S2?	
Hysterocarpus traskii lagunae	Clear Lake tule perch	Fish	AFCQK02013	3	None	None	G5T3	S3	CDFW_SSC-Species of Special Concern
Hysterocarpus traskii pomo	Russian River tule perch	Fish	AFCQK02011	4	None	None	G5T4	S4	AFS_VU-Vulnerable | CDFW_SSC-Species of Special Concern
Lasionycteris noctivagans	silver-haired bat	Mammals	AMACC02010	139	None	None	G3G4	S3S4	IUCN_LC-Least Concern
Lasiurus cinereus	hoary bat	Mammals	AMACC05032	238	None	None	G3G4	S4	IUCN_LC-Least Concern
Lasiurus frantzii	western red bat	Mammals	AMACC05080	128	None	None	G4	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern
Lavinia exilicauda chi	Clear Lake hitch	Fish	AFCJB19011	4	None	Threatened	G4T1	S1	AFS_VU-Vulnerable | USFS_S-Sensitive
Lytta molesta	molestan blister beetle	Insects	IICOL4C030	17	None	None	G2	S2	
Myotis evotis	long-eared myotis	Mammals	AMACC01070	139	None	None	G5	S3	BLM_S-Sensitive | IUCN_LC-Least Concern
Myotis thysanodes	fringed myotis	Mammals	AMACC01090	86	None	None	G4	S3	BLM_S-Sensitive | IUCN_LC-Least Concern | USFS_S-Sensitive
Myotis yumanensis	Yuma myotis	Mammals	AMACC01020	265	None	None	G5	S4	BLM_S-Sensitive | IUCN_LC-Least Concern
Oncorhynchus kisutch pop. 4	coho salmon - central California coast ESU	Fish	AFCHA02034	23	Endangered	Endangered	G5T2Q	S2	AFS_EN-Endangered
Oncorhynchus mykiss irideus pop. 8	steelhead - central California coast DPS	Fish	AFCHA0209G	44	Threatened	None	G5T3Q	S3	AFS_TH-Threatened
Pandion haliaetus	osprey	Birds	ABNKC01010	504	None	None	G5	S4	CDF_S-Sensitive | CDFW_WL-Watch List | IUCN_LC-Least Concern
Pekania pennanti	Fisher	Mammals	AMAJF01020	555	None	None	G5	S2S3	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern | USFS_S-Sensitive
Progne subis	purple martin	Birds	ABPAU01010	71	None	None	G5	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern
Pyrgulopsis ventricosa	Clear Lake pyrg	Mollusks	IMGASJ0F40	2	None	None	G1	S1	IUCN_CR-Critically Endangered
Rana boylii pop. 1	foothill yellow-legged frog - north coast DPS	Amphibians	AAABH01051	1608	None	None	G3T4	S4	BLM_S-Sensitive | CDFW_SSC-Species of Special Concern | USFS_S-Sensitive
Rana draytonii	California red-legged frog	Amphibians	AAABH01022	1764	Threatened	None	G2G3	S2S3	CDFW_SSC-Species of Special Concern | IUCN_VU-Vulnerable
Saldula usingeri	Wilbur Springs shorebug	Insects	IIHEM07010	4	None	None	G2	S2	
Stygobromus cherylae	Barr's amphipod	Crustaceans	ICMAL05D60	1	None	None	G1	S1	
Syncaris pacifica	California freshwater shrimp	Crustaceans	ICMAL27010	20	Endangered	Endangered	G2	S2	IUCN_EN-Endangered
Taricha rivularis	red-bellied newt	Amphibians	AAAAF02020	136	None	None	G2	S2	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern
Taxidea taxus	American badger	Mammals	AMAJF04010	645	None	None	G5	S3	CDFW_SSC-Species of Special Concern | IUCN_LC-Least Concern
Trachykele hartmani	serpentine cypress wood-boring beetle	Insects	IICOLX6010	3	None	None	G1	S1	
Vandykea tuberculata	serpentine cypress long-horned beetle	Insects	IICOLX7010	2	None	None	G1	S2	

Appendix I-2

WRA Special-Status Plant Survey

MEMORANDUM

TO:	Kevin Case, Mahaman	**FROM:**	Rhiannon Korhummel, WRA
DATE:	October 4, 2024		
SUBJECT:	June 2024 Unsurveyed Area Special-status Plant Survey		

On June 18, 2024, WRA biologist conducted a special-status plant survey within the 55 acres of previously unsurveyed areas of the Modified APE (Study Area) as illustrated in the 2024 PREIR. These areas were identified as being unsurveyed during the biological assessment process in early 2024 for the PREIR. This memo summarizes the methods and results of the survey.

METHODS

The surveys followed the protocol for plant surveys described in recommended resourced agency guidelines (CDFW 2018[1]). The assessment was conducted by botanists familiar with the flora of Lake County and surrounding counties.

During the surveys, the Study Area was traversed on foot using intuitively guided, meandering transects and all plant species observed were documented. All plants were identified using the Jepson eFlora (Jepson Flora Project 2024[2]) to the taxonomic level necessary to determine rarity status. Names given follow the Jepson Flora Project (2024). Plant surveys were floristic in nature with all observed species recorded and included on a species list provided in Attachment B.

Locations of observed special-status plant species were recorded using a combination of GPS unit with sub-meter accuracy and hand-drawn locations on field maps that contained recent and high-resolution (0.3- to 0.6-meter ground resolution) aerial photographs overlain with 10-foot contours. Hand-drawn locations were digitized in the office using ArcGIS software.

RESULTS

Land Cover

WRA observed 10 landcover types in the Study Area. Each of the landcover types observed have been previously observed. The following types occur in the Study Area:

Non-sensitive

- Non-native Annual Grassland

[1] California Department of Fish and Wildlife (CDFW). 2018. Protocols for Surveying and Evaluating Impacts to Special-status Native Plant Populations and Natural Communities. California Natural Resources Agency, California Department of Fish and Game. March 20, 2018.

[2] Jepson Flora Project (eds.). 2024. Jepson eFlora. Online at: http://ucjeps.berkeley.edu/IJM.html; most recently accessed: June 2024

- Whiteleaf manzanita chaparral
- Chamise Chaparral
- Leather oak chaparral
- Foothill Pine Woodland

Sensitive

- Blue oak woodland
- Interior live oak woodland
- Ephemeral stream
- Intermittent stream
- Perennial stream

For a complete description of these landcover types, refer to the 2020 BRA and 2020 EIR. An observed plant species list is included as Attachment B.

Special-status Plants

Late-season surveys were conducted in the Study Area in June 2024, subsequent to completion of the 2024 biological report used for the PREIR. Four special-status plants were observed during the June floristic survey in the Study Area (Attachment A). Green jewel flower (*Streptanthus hesperidis*; Rank 1B.2) was observed in 2 patches, two carpellate flax (*Hesperolinon bicarpellatum*; Rank 1B.2) was observed in 4 patches, Lake County flax (*Hesperolinon didymocarpum*; Rank 1B.2, SE) was observed in 1 patch, and Green's narrow-leaved daisy (*Erigeron greenei*; Rank 1B.2) was observed in 1 patch. No special-status plants were observed in 13 patches during the late season survey.

Table 1. Special-status Plants Summary

Common Name	Scientific Name	Rank	Area (acre)	Estimated Number of Individuals
Green jewel flower	*Streptanthus hesperidis*	Rank 1B.2	0.49	135
two carpellate flax	*Hesperolinon bicarpellatum*	Rank 1B.2	6.17	5,260
Lake County flax	*Hesperolinon didymocarpum*	Rank 1B.2, SE	3.62	6,000
Green's narrow-leaved daisy	*Erigeron greenei*	Rank 1B.2	0.45	60

In addition to the four special-status plants, three Rank 4 species were observed: tall snapdragon (*Antirrhinum virga*; Rank 4.3), Napa lomatium (*Lomatium repostum*; Rank 4.2), and green monardella (*Monardella viridis*; Rank 4.3). Based on a search of CalFlora, each of these species are documented in several other counties, with the Study Area occurring in the center of the distribution, and each having greater than 100 documented records (CalFlora 2024[3]).

[3] Calflora: Information on California plants for education, research, and conservation. Web application. Berkeley, California: The CalFlora Database, a non-profit organization. Available online at:https:www.calflora.org. Accessed October 2024

CONCLUSION

As the floristic surveys were only conducted in June, additional surveys are anticipated in April and May 2025 to capture other special-status plants that have the potential to occur in the habitats observed.

The land cover types observed have the same potential to support the same special-status plants as those previously evaluated; no new special-status plants have the potential to occur than those identified in the 2020 EIR. The land cover types observed have been previously observed and assessed in the 2020 EIR; no new land cover types were identified in the Study Area.

Attachments:

Attachment A: Observed Special-Status Plants Figures
Attachment B. Observed Plant List

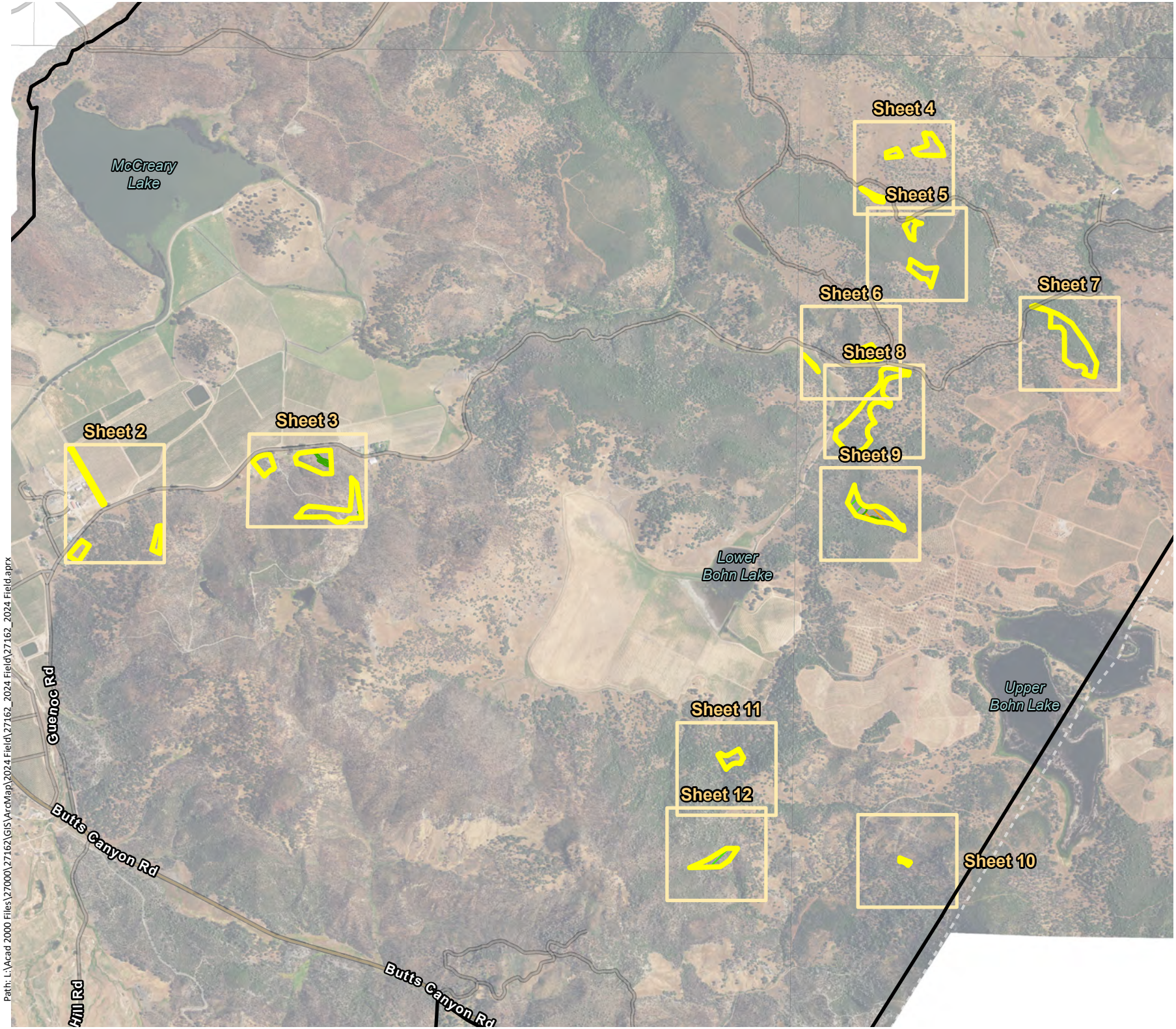


Figure 1-1. Special-Status Plants Mapped within the Study Area (Overview)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Mapbook Sheets

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024



Figure 1-2. Special-Status Plants Mapped within the Study Area (Sheet 1)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

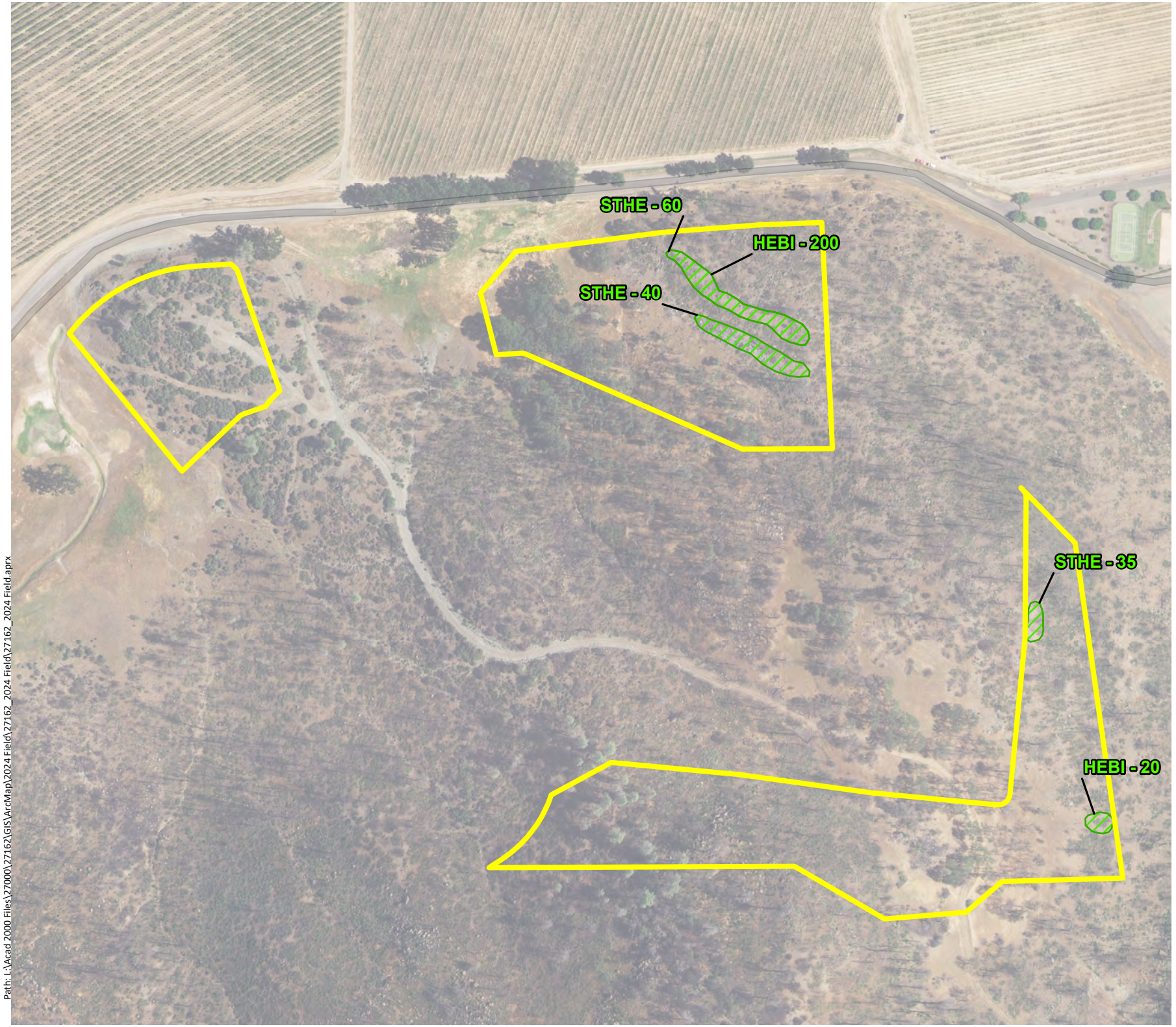


Figure 1-3. Special-Status Plants Mapped within the Study Area (Sheet 2)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

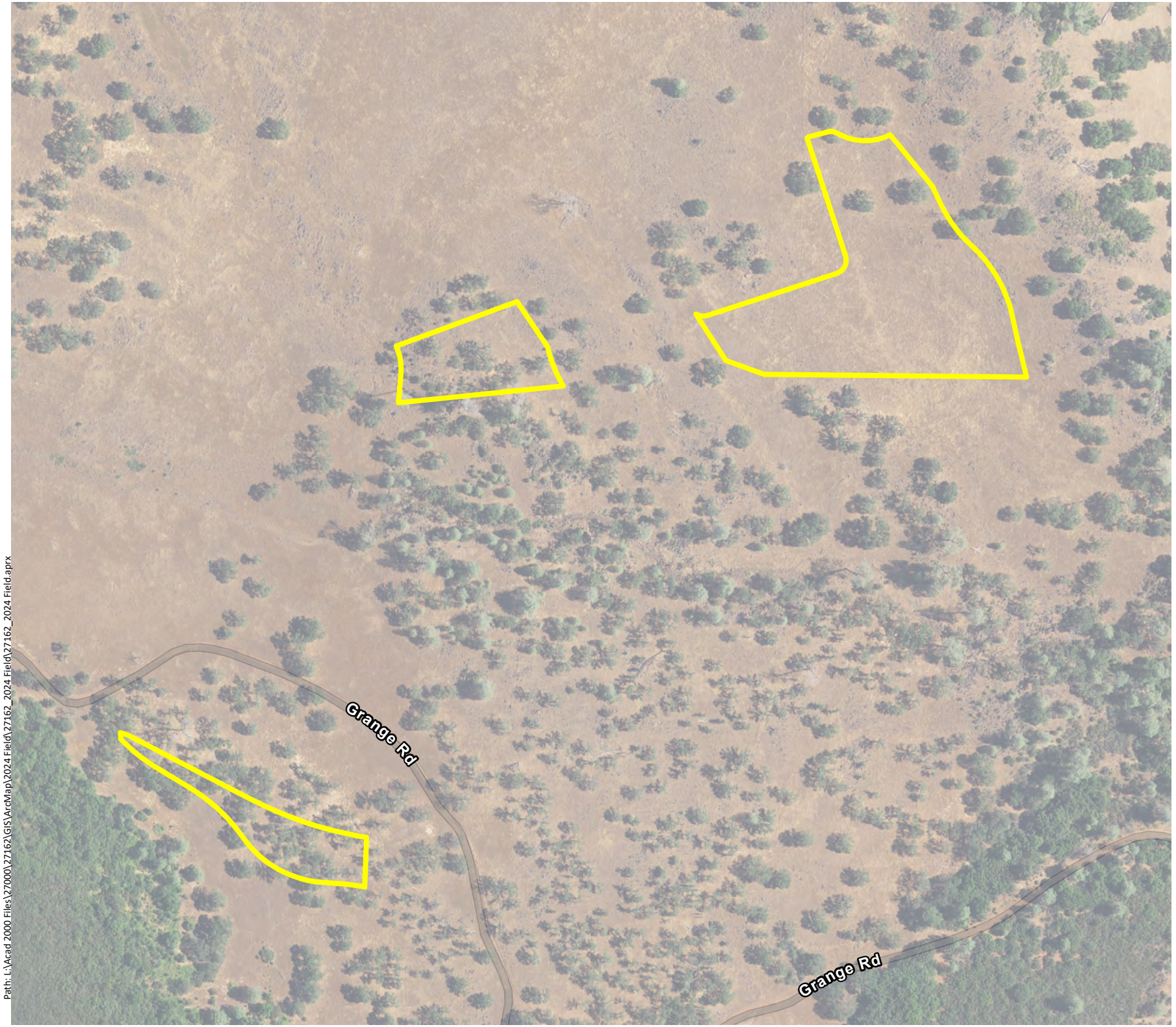
wra Environmental Consultants

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Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

Figure 1-4. Special-Status Plants Mapped within the Study Area (Sheet 3)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California



Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

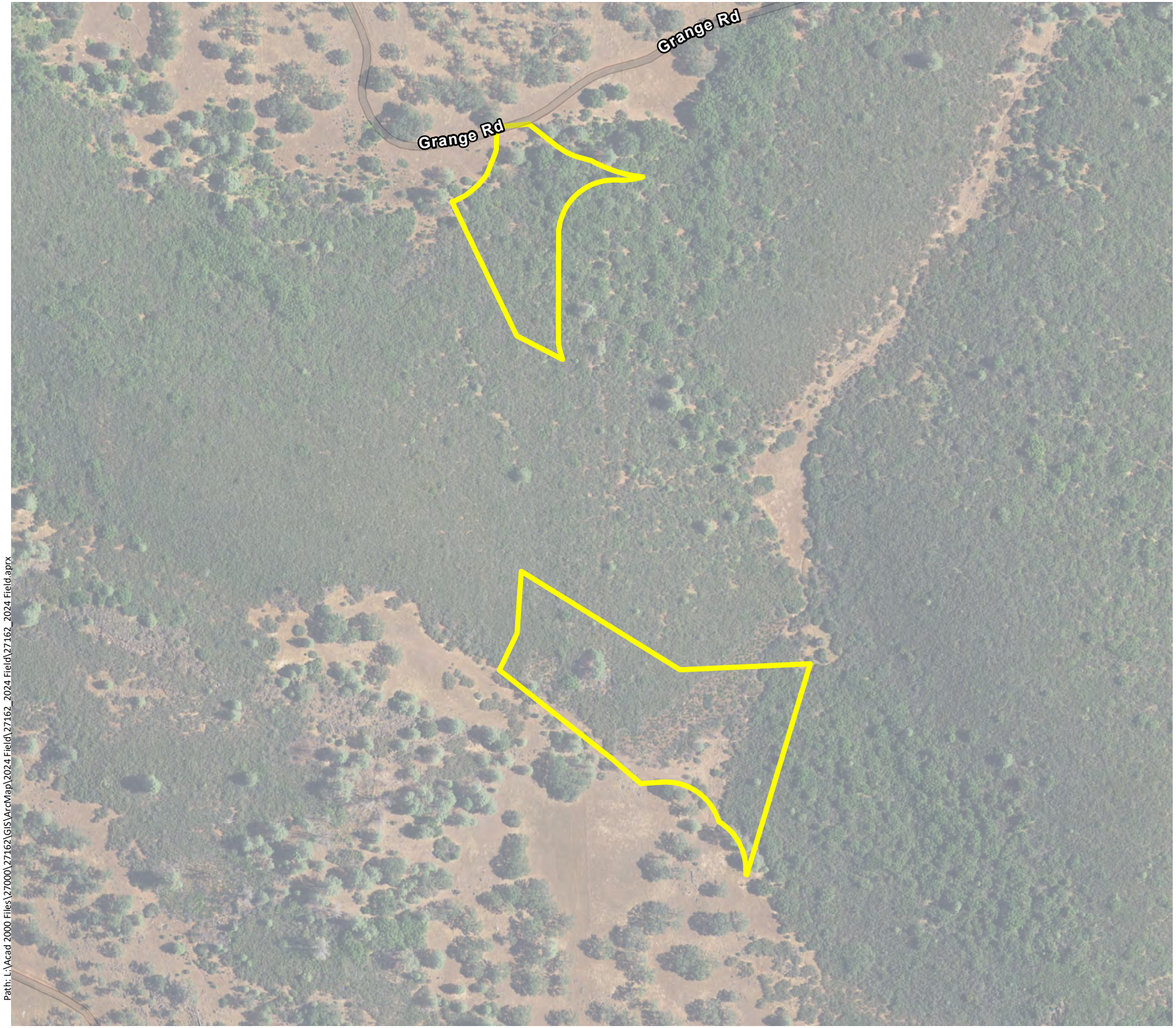


Figure 1-5. Special-Status Plants Mapped within the Study Area (Sheet 4)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

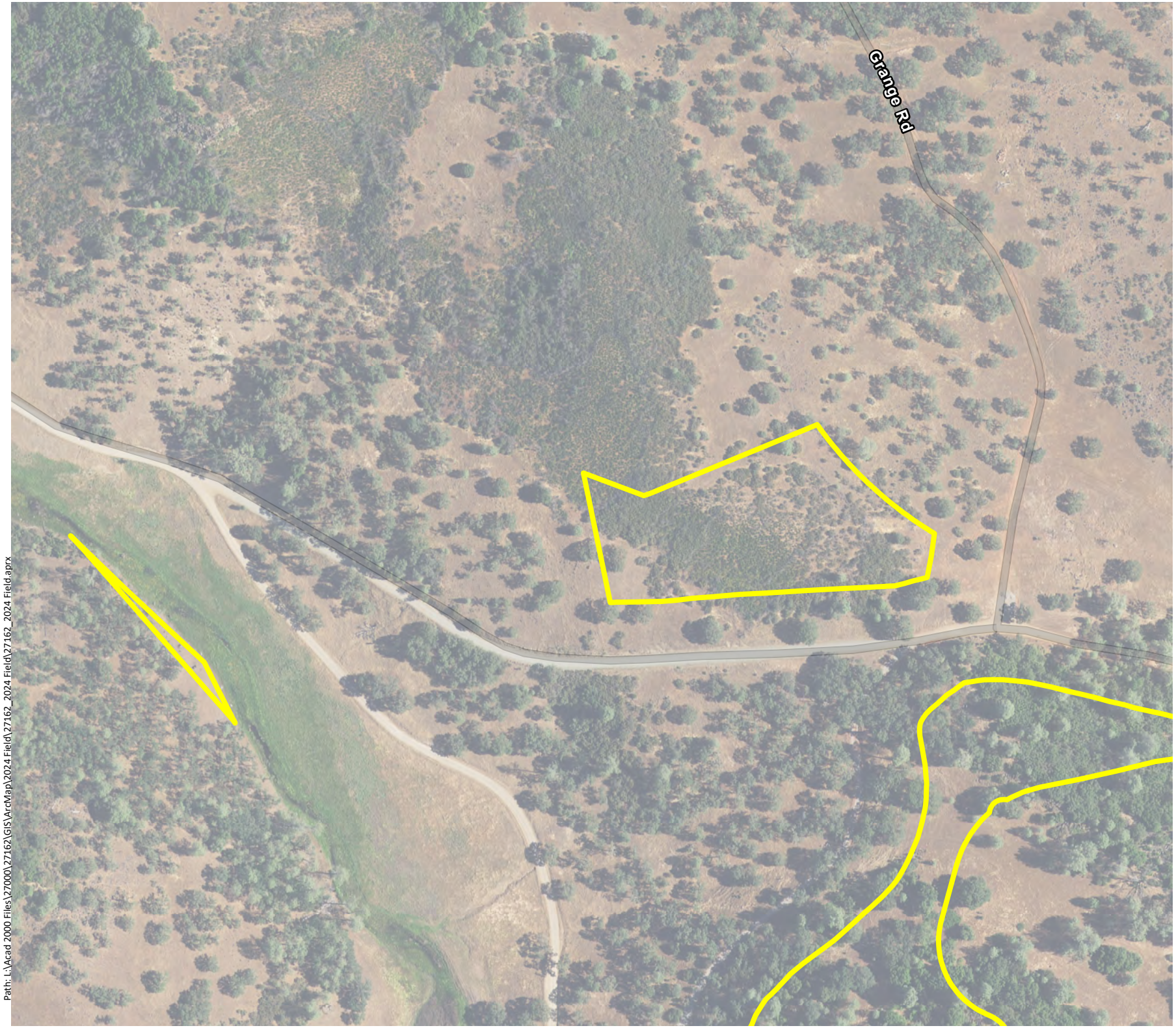


Figure 1-6. Special-Status Plants Mapped within the Study Area (Sheet 5)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

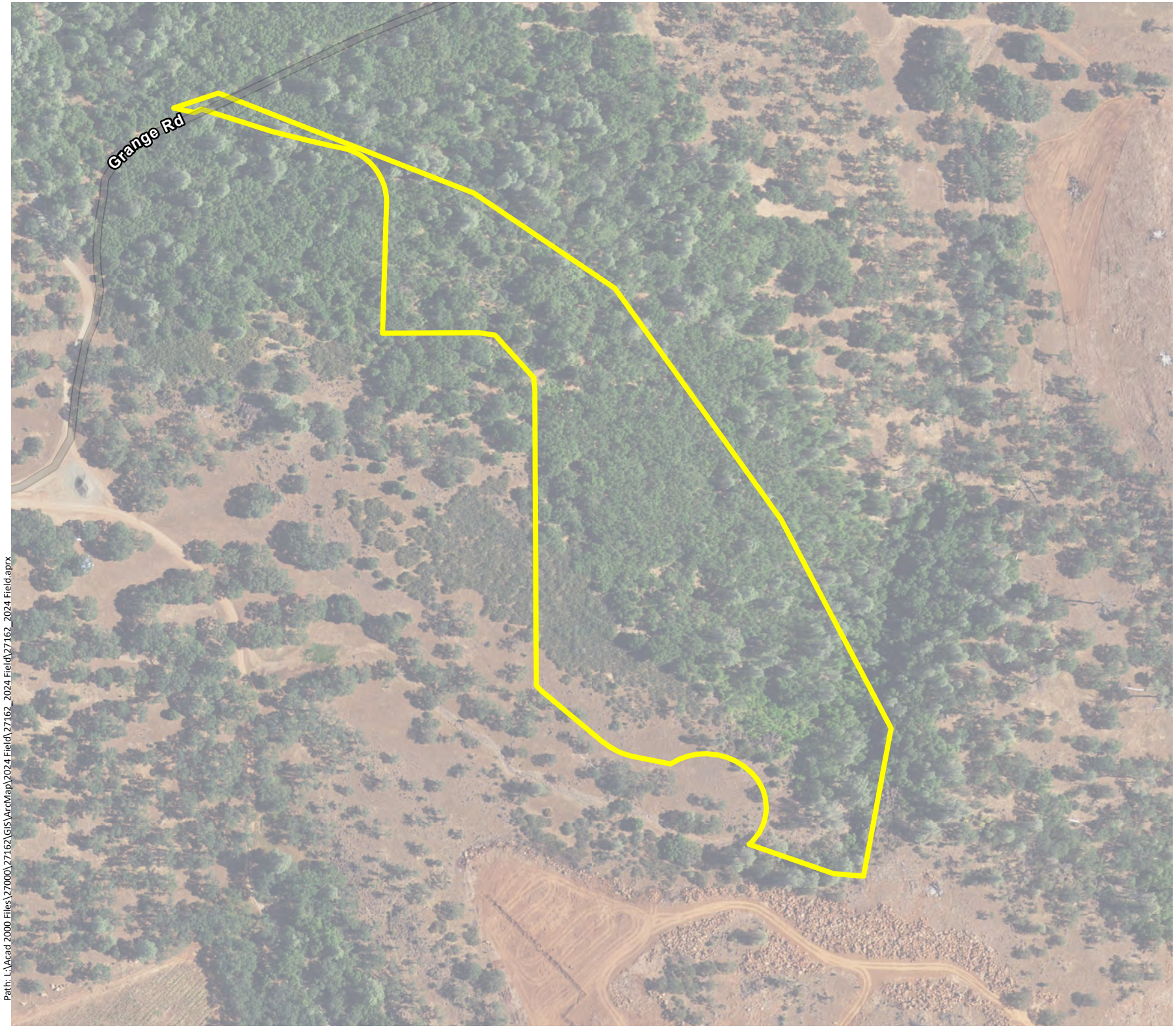


Figure 1-7. Special-Status Plants Mapped within the Study Area (Sheet 6)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

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Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

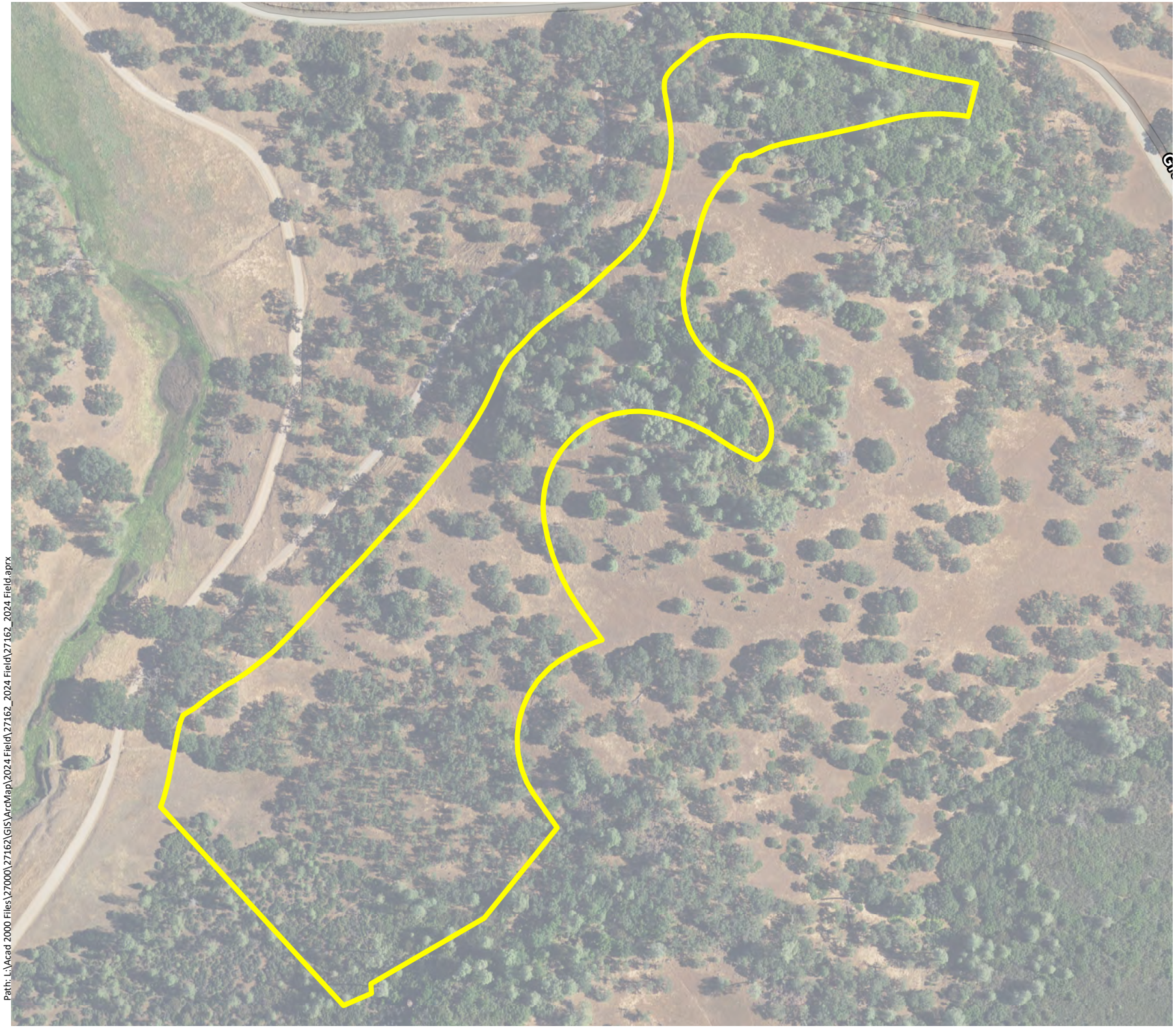


Figure 1-8. Special-Status Plants Mapped within the Study Area (Sheet 7)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

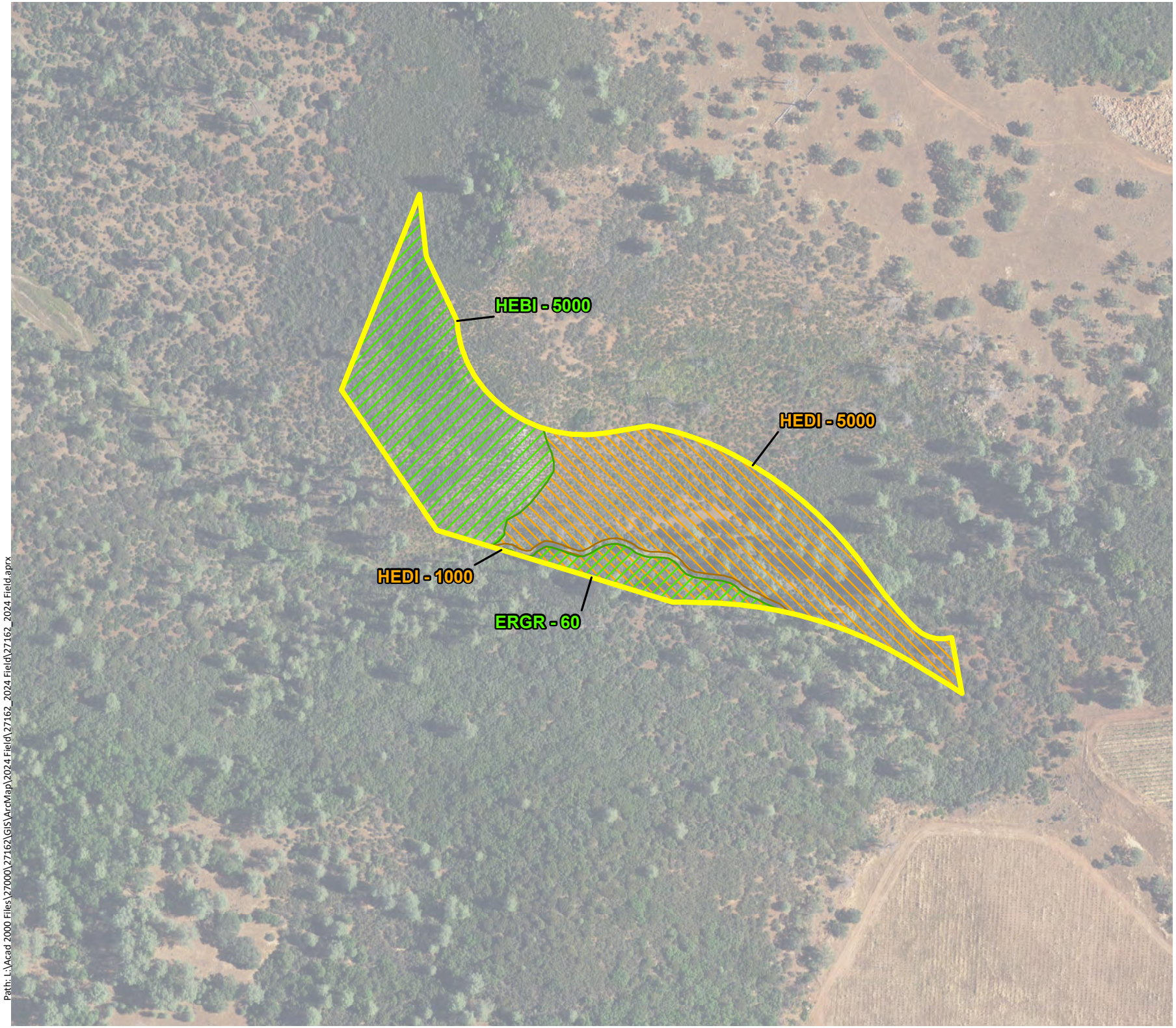


Figure 1-9. Special-Status Plants Mapped within the Study Area (Sheet 8)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024



Figure 1-10. Special-Status Plants Mapped within the Study Area (Sheet 9)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024



Figure 1-11. Special-Status Plants Mapped within the Study Area (Sheet 10)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

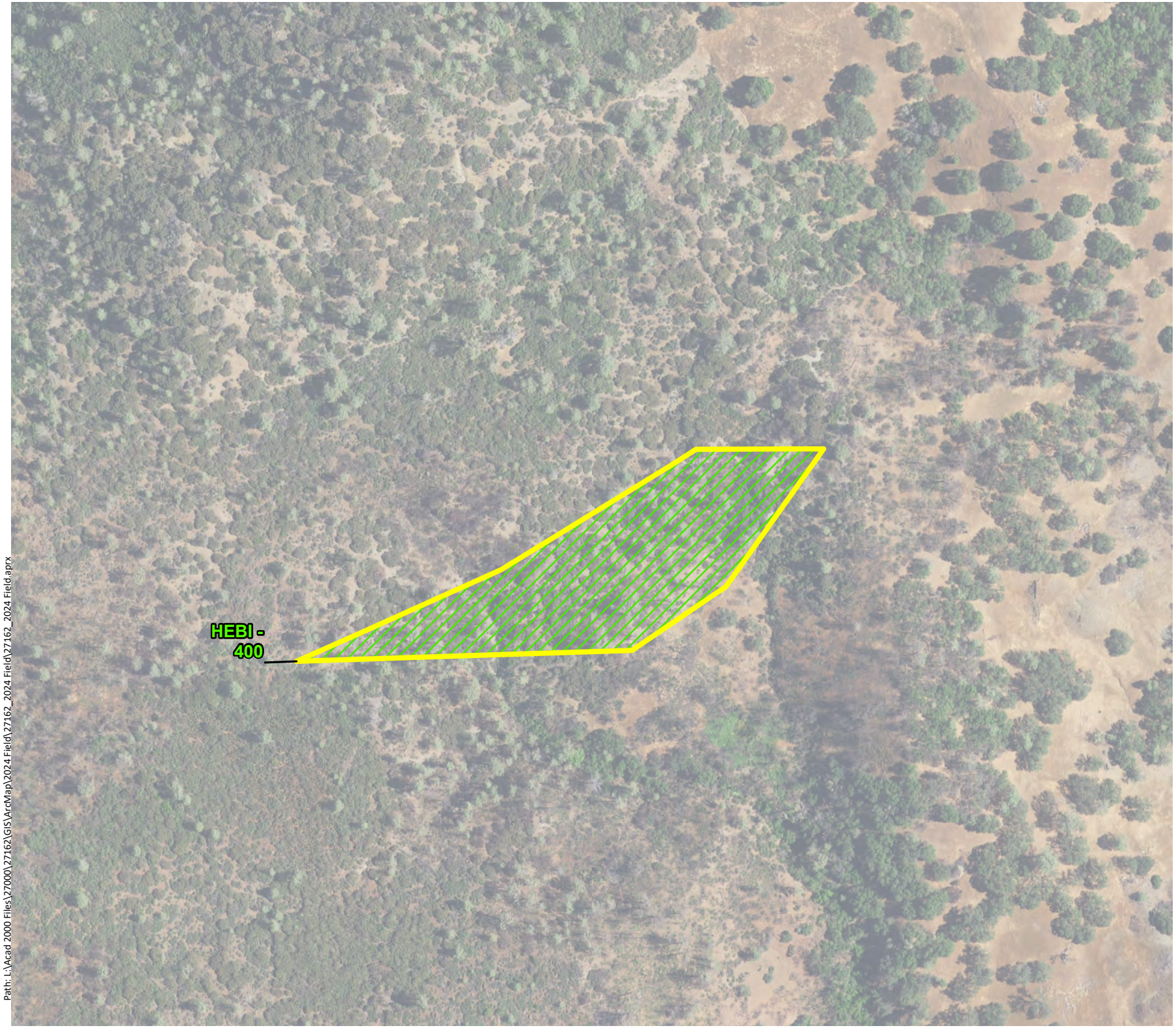


Figure 1-12. Special-Status Plants Mapped within the Study Area (Sheet 11)

2024 Rare Plant Surveys
Guenoc Valley Mixed Use Planned Development Project
Lake County, California

Study Area - 69.76 ac.

Property Boundary

Special-Status Plants

CNPS Rank 1 Plants

State-Endangered Plants

CNPS Rank 1 Plants:

ERGR: Greene's narrow-leaved daisy - 0.45 ac. & 60x

HEBI: Two carpellate western flax - 6.17 ac. & 5,620x

STHE: Green jewel-flower - 0.49 ac. & 135x

State-Endangered Plants

HEDI: Lake County western flax - 3.62 ac. & 6,000x

N

0 250 500

Feet

wra Environmental Consultants

Path: L:\Acad 2000 Files\27000\27162\GIS\ArcMap\2024 Field\27162_2024 Field\27162_2024 Field.aprx

Sources: 2016 Hexagon Aerial, Lake County Lidar, WRA | Prepared By: rochelle, 10/4/2024

Attachment B. Plant Species Observed within the Study Area During the June 2024 Floristic Survey

SCIENTIFIC NAME	COMMON NAME	ORIGIN	FORM	RARITY STATUS[1]	CAL-IPC STATUS[2]	WETLAND STATUS[3]
Acmispon americanus var. americanus	Spanish lotus	native	annual herb	-	-	UPL
Acmispon glaber	Deerweed	native	perennial herb	-	-	-
Adenostoma fasciculatum	Chamise	native	tree, shrub	-	-	-
Antirrhinum vexillocalyculatum ssp. *vexillocalyculatum*	Wiry snapdragon	native	annual herb	-	-	-
Antirrhinum virga	Tall snapdragon	native	perennial herb	Rank 4.3	-	-
Arctostaphylos patula	Green leaf manzanita	native	shrub	-	-	-
Asclepias fascicularis	Narrow leaved milkwed	native	perennial herb	-	-	FAC
Bromus madritensis	Foxtail brome	non-native	annual grass	-	-	UPL
Calochortus amabilis	Golden fairy lantern	native	perennial herb	-	-	-
Calochortus vestae	Yellow mariposa	native	perennial herb	-	-	-
Calycadenia fremontii	Fremont's calycadenia	native	annual herb	-	-	-
Ceanothus jepsonii	Musk brush	native	shrub	-	-	-
Ceanothus oliganthus	Hairy ceanothus	native	shrub	-	-	-
Chlorogalum pomeridianum	Amole	native	perennial herb	-	-	-
Eleocharis macrostachya	Spike rush	native	perennial grasslike herb	-	-	OBL
Elymus multisetus	Big squirreltail grass	native	perennial grass	-	-	-
Epilobium campestre	Smooth boisduvalia	native	annual herb	-	-	OBL
Erigeron greenei	Greene's narrow-leaved daisy	native	perennial herb	Rank 1B.2	-	-
Eriodictyon californicum	Yerba santa	native	shrub	-	-	-
Eriogonum luteolum var. *luteolum*	Golden buckwheat	native	annual herb	-	-	-
Eriophyllum lanatum	Wooly sunflower	native	perennial herb	-	-	-
Festuca microstachys	Small fescue	native	annual grass	-	-	-
Festuca perennis	Italian rye grass	non-native (invasive)	annual, perennial grass	-	Moderate	FAC
Frangula californica ssp. *californica*	California coffeeberry	native	shrub	-	-	-
Galium californicum	California bedstraw	native	perennial herb	-	-	-
Garrya congdonii	Silk tassel	native	shrub	-	-	-
Gastridium phleoides	Nit grass	non-native	annual grass	-	-	FACU

Attachment B. Plant Species Observed within the Study Area During the June 2024 Floristic Survey

SCIENTIFIC NAME	COMMON NAME	ORIGIN	FORM	RARITY STATUS[1]	CAL-IPC STATUS[2]	WETLAND STATUS[3]
Helianthella californica	California helianthella	native	perennial herb	-	-	-
Hesperolinon bicarpellatum	Two carpellate western flax	native	annual herb	Rank 1B.2	-	-
Hesperolinon didymocarpum	Lake County western flax	native	annual herb	SE, Rank 1B.2	-	-
Hesperolinon spergulinum	Slender western flax	native	annual herb	-	-	-
Heteromeles arbutifolia	Toyon	native	shrub	-	-	-
Holocarpha virgata	Narrow tarplant	native	annual herb	-	-	-
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	non-native (invasive)	annual grass	-	Moderate	FAC
Hypericum concinnum	Gold wire	native	perennial herb	-	-	-
Lessingia ramulosa	Sonoma lessingia	native	annual herb	-	-	-
Logfia gallica	Narrowleaf cottonrose	non-native	annual herb	-	-	-
Lomatium repostum	Napa lomatium	native	perennial herb	Rank 4.2	-	-
Lonicera hispidula	Pink honeysuckle	native	vine, shrub	-	-	FACU
Madia exigua	Small tarweed	native	annual herb	-	-	-
Melica torreyana	Torrey's melica	native	perennial grass	-	-	-
Monardella viridis	Green monardella	native	perennial herb	Rank 4.3	-	-
Navarretia mellita	Skunk navarretia	native	annual herb	-	-	FAC
Navarretia pubescens	Purple navarretia	native	annual herb	-	-	-
Perideridia kelloggii	Kellogg's yampah	native	perennial herb	-	-	-
Pinus sabiniana	Foothill pine	native	tree	-	-	-
Polypogon monspeliensis	Annual beard grass	non-native (invasive)	annual grass	-	Limited	FACW
Pseudognaphalium stramineum	Cottonbatting plant	native	perennial herb	-	-	FAC
Quercus durata	Leather oak	native	shrub	-	-	-
Rhamnus crocea	Redberry	native	shrub	-	-	-
Salvia sonomensis	Sonoma sage	native	perennial herb	-	-	-
Scutellaria siphocampyloides	Gray leaved skullcap	native	perennial herb	-	-	FACU
Stipa sp.	Needlegrass	Native	Perennial grass	-	-	-
Toxicodendron diversilobum	Poison oak	native	vine, shrub	-	-	FACU

Attachment B. Plant Species Observed within the Study Area During the June 2024 Floristic Survey

SCIENTIFIC NAME	COMMON NAME	ORIGIN	FORM	RARITY STATUS[1]	CAL-IPC STATUS[2]	WETLAND STATUS[3]
Trichostema lanceolatum	Vinegarweed	native	annual herb	-	-	FACU
Triteleia hyacinthina	Wild hyacinth	native	perennial herb	-	-	FAC
Zeltnera muehlenbergii	Muehlenberg's centaury	native	annual herb	-	-	FAC

Note: All species identified using the *Jepson eFlora* [Jepson Flora Project (eds.) 2024]; nomenclature follows *Jepson eFlora* [Jepson Flora Project (eds.) 2024] or Rare Plant Inventory (CNPS 2024). Sp.: "species," intended to indicate that the observer was confident in the identity of the genus but uncertain which species.

[1] **California Native Plant Society. 2024. Rare Plant Inventory (online edition). Sacramento, California. Online at: http://rareplants.cnps.org/; most recently accessed: June 2024.**

FE:	Federal Endangered
FT:	Federal Threatened
SE:	State Endangered
ST:	State Threatened
SR:	State Rare
Rank 1A:	Plants presumed extinct in California
Rank 1B:	Plants rare, threatened, or endangered in California and elsewhere
Rank 2:	Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3:	Plants about which we need more information – a review list
Rank 4:	Plants of limited distribution – a watch list

[2] **California Invasive Plant Council. 2024. California Invasive Plant Inventory Database. California Invasive Plant Council, Berkeley, CA. Online at: http://www.cal-ipc.org/paf/; most recently accessed: October 2024.**

High:	Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.
Moderate:	Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited-moderate distribution ecologically
Limited:	Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically
Assessed:	Assessed by Cal-IPC and determined to not be an existing current threat

[3] **U.S. Army Corps of Engineers. 2022. National Wetland Plant List, version 3.6. Online at: http://wetland-plants.sec.usace.army.mil/**

OBL:	Almost always found in wetlands
FACW:	Usually found in wetlands
FAC:	Equally found in wetlands and uplands
FACU:	Usually not found in wetlands
UPL:	Almost never found in wetlands
NL:	Not listed, assumed almost never found in wetlands
NI:	No information; not factored during wetland delineation

Appendix J

Updated Oak Mitigation Plan

OAK MITIGATION PLAN

Guenoc Valley Mixed Use Planned Development Project



March 2024

acorn environmental

Table of Contents

Section 1 | Preface **1**
Section 2 | Introduction **2**
2.1 Project Location 2
2.2 Existing Uses 2
2.3 Project Description 4
Section 3 | Impacts to Oaks **5**
3.1 Impact Minimization Measures 5
3.2 Oak Impacts by Habitat Type 6
Section 4 | Proposed Oak Mitigation Plan **8**
4.1 Mitigation Goals and Objectives 8
4.2 Oak Mitigation Reccomendations by Impact Type 8
Section 5 | Oak Mitigation **11**
5.1 Oak Woodland Preservation 11
5.2 Oak Tree Planting 12
5.3 Oak Habtiat Enhancement 14
5.4 Mitigation Area Maintenance 15
Section 6 | Monitoring Plan **16**
6.1 Data Collection 16
6.2 Success Criteria 16
6.3 Reporting 16
6.4 Schedule 17
6.5 Adaptive Management 17
Section 7 | Completion of Mitigation **18**
7.1 Assurance of Mitigation Permanence 18
Section 8 | References **19**

List of Figures

Figure 1: Regional Location 3

List of Tables

Table 1: Oak Habitat Types and Potential Phase I Impacts 6
Table 2: Summary Matrix of Recommended Oak Mitigation 9
Table 3: Development Components of the Proposed Action 11

List of Attachments

Attachment A MAHA Guenoc Valley Oak Preservation Plan

Preface

This Oak Mitigation Plan (Plan) was originally prepared by Analytical Environmental Services, dated June of 2020. The Plan was originally attached as Appendix OAK in Volume III of the Final Environmental Impact Report (Final EIR) for the Guenoc Valley Mixed Use Planed Development Project (Proposed Project). As a result of project litigation, on February 25, 2022 the Lake County Superior Court entered judgment requiring the County set aside its certification of the Final EIR and the Oak Mitigation Plan was never formally adopted. Subsequently, the project Applicant voluntarily entered into a Settlement Agreement that included several project modifications that would change the precise location of project impacts.

A Partially Revised Environmental Impact Report (PREIR) has been prepared to assess the Project Modifications. Therefore, this report is being prepared by Acorn Environmental in order to capture project updates and to provide an updated inventory of oak impact and mitigation acreages. Acorn Environmental is updating this Plan only to reflect modifications to the Proposed Project, and is not making technical updates to the methodology, success criteria, or other mitigation strategy aspects. Updates to this Plan are presented in underline/~~strikeout~~.

Section 1 | Introduction

The Guenoc Valley District (GVD) is a proposed rezoning and planned development project located in southern Lake County within an approximately 16,000-acre boundary (Guenoc Valley Site), (**Figure 1** ~~and **Figure 2**~~). The first phase of planned development includes luxury resorts and a master-planned residential community to be sited in clusters (Phase 1). The GVD incorporates low impact designs that prioritize large residential parcels with low density and clustered development, preserving surrounding open space and agricultural cultivation. The plan to develop a portion of the GVD will be accompanied by this Oak Mitigation Plan.

This Oak Mitigation Plan (Plan) addresses development for both Phase 1, which is under project-level environmental review, as well development of future phases, which are under programmatic-level review in the same EIR (Proposed Project). This Plan addresses the impacts to oaks resulting from the Proposed Project as analyzed in the EIR and modified in the PREIR, defines specific impacts in the Phase One development, and outlines a system of impact identification and mitigation that can be applied consistently to all phases of development. Therefore, mitigation measures applied in Phase One as they relate to oaks will also apply to future phases.

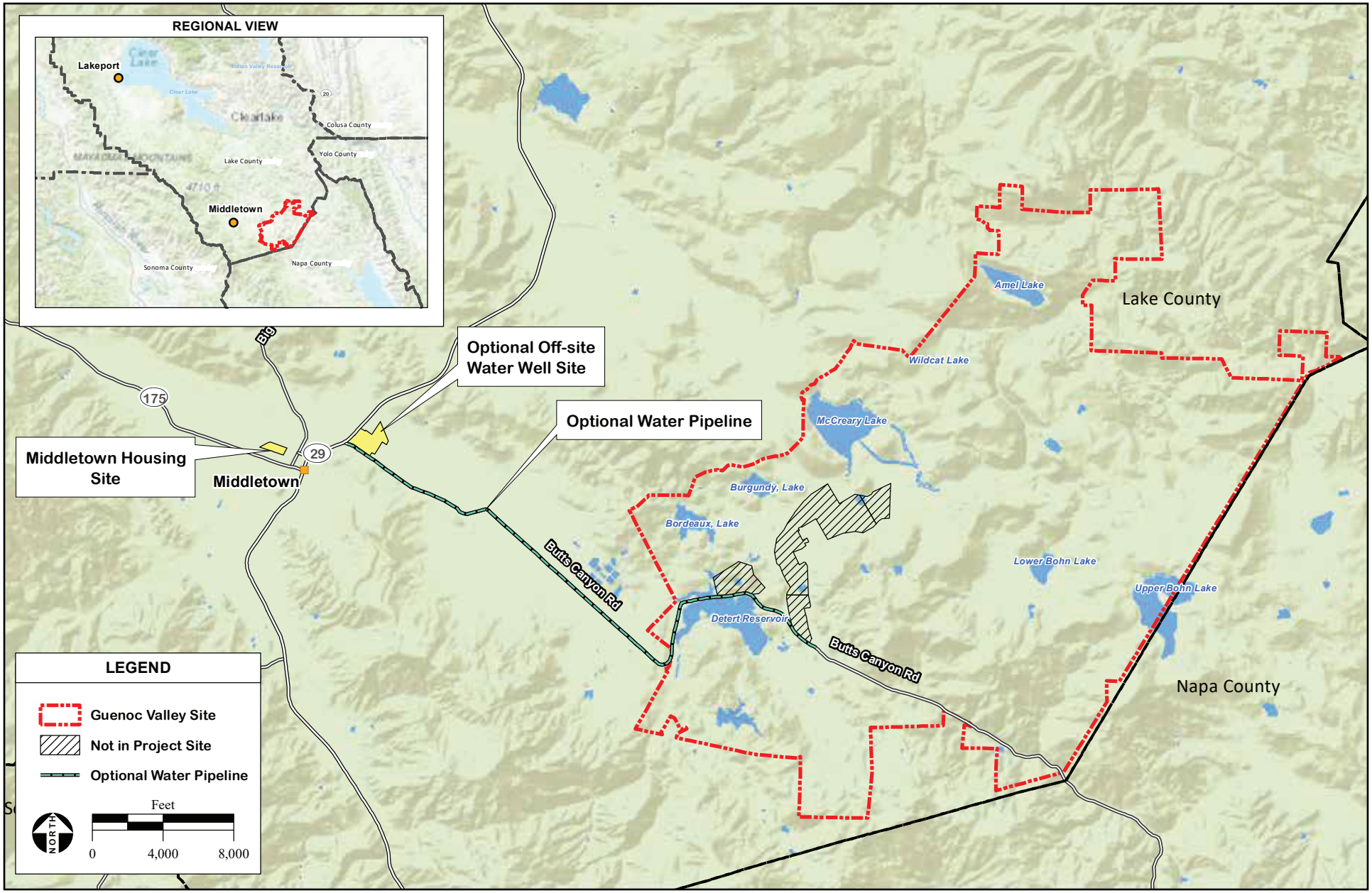
A portion of the Guenoc Valley Ranch was evaluated for environmental impacts related to planned water diversion and use of surface water for land conversion to vineyard. The appropriation and use of water and conversion of land to vineyard was approved by the State Water Board based on an EIR completed in March of 2009 (AES, 2009; FEIR). Development of these approved acreages is still in progress. An Oak Tree Replacement Plan was completed in September of 2008 to mitigate for impacts to oaks within the Places of Use (POUs), where surface water was approved for use, identified in the 2009 FEIR (AES, 2008). The previous Oak Mitigation Plan continues to apply to the development of vineyards and use of water approved under the 2009 EIR.

1.1 PROJECT LOCATION

The Guenoc Valley Site is located approximately three miles east of the town of Middletown and is accessible via Butts Canyon Road (**Figure 1** ~~and **Figure 2**~~). Long Valley and Coyote Valley occur to the west of the Ranch, and the Cedars Mountains occur to the north. Terrain varies from areas of level valley to areas of steep, rocky terrain. Several vegetative communities exist within the Ranch including; agriculture, annual grassland, oak woodland, pine-oak woodland, cypress forest, mixed conifer forest, and chaparral. Aquatic habitats include ephemeral drainages, perennial streams, seasonal wetlands, groundwater seeps, freshwater marsh, and manmade ponds and reservoirs. Climate of the area consists of hot dry summers and cool, moist winters. Annual precipitation averages approximately 44.1 inches, with zero to insignificant snowfall (WRCC, 2016).

1.2 EXISTING USES

The current land uses within the Guenoc Valley Site are a mixture of agriculture, recreation, and open space. These land uses utilize existing water rights, which allow for irrigated pastures, dry land grazing and open space, vineyards, golf courses, and water bodies (reservoirs). The main reservoirs on the Guenoc Valley Site and connected reservoirs provide approximately 10,390 acre feet of water storage. The agricultural activities include cattle and sheep grazing and vineyards.



Source: WRA Environmental, 8/2019; Lotusland Investment Holdings, Inc. 7/2019; USGS, 2019; AES, 2/12/2020

FIGURE 1

REGIONAL LOCATION

The Guenoc Valley Site is currently farmed with 1,266 ~~990~~ acres of vineyards, and an additional 694 ~~970~~ acres of vineyard is anticipated and allowed pursuant to previous entitlements. The entitlement for water appropriation for use in vineyard irrigation, and the cultivation of land to vineyard was authorized by the Division of Water Rights following the Guenoc Ranch Water Rights Final EIR (AES, 2009). No additional vineyard area is proposed with the GVD or Phase 1, and approximately 1,700 acres of previously-approved vineyard will be placed under an Agricultural Preserve Combing Zoning district. Impacts to oaks resulting from the planting of the existing and expanded vineyards were mitigated for through provisions in the 2009 Water Rights FEIR (AES, 2009).

1.3 PROJECT DESCRIPTION

Development plans for Phase 1 are comprised of multiple resort communities including residential parcels, boutique hotels, an equestrian center, golf course, and other recreational attractions and associated roadways and supporting facilities. The Phase 1 would result in the development of the following: ~~six resort communities described in the Specific Plan of Development (SPOD; MAHA, 2019):~~

1. Equestrian Center Community - This community includes a clubhouse, stables, paddocks, manmade lake, and several riding arenas and polo fields. Residential parcels will also be located within this community.
2. Maha Farm Community - This community is designed around the existing agricultural history of the Ranch by establishing residential parcels with potential for vineyard or other agricultural development. Maha Farms also includes sales centers, a hotel, wineries, barns, and other supporting infrastructure.
3. Dennison Golf Estates ~~Red Hills Estates~~ Community - This community includes ~~the Red Hill~~ a hotel, residential parcels, and an 18-hole golf course with clubhouse.
4. Bohn Ridge Resort Community - This community consists of the Bohn Ridge hotel and surrounding residential parcels.
5. Grange Road Connector: The Grange Road Connector is an emergency-only use roadway that provides emergency ingress and egress to the Guenoc Valley Site. A portion of the Grange Road Connector falls within the Guenoc Valley Site while the balance connects to Grange Road via a portion of land adjacent to but outside of the Guenoc Valley Site.
6. ~~Spa Community - This community consists of a few residential parcels, a walking path, and the main spa building.~~
7. ~~Resort at Trout Flat Community - This community includes residential parcels, resort cottages, and a hotel.~~
8. ~~Camping Area: This area includes semi-permanent tent structures to provide short-term guests with high-end "glamping" recreational opportunities that are set back from the larger resort communities.~~

These communities plus supporting infrastructure and workforce housing are included within the Proposed Project. Phase 1 of the Proposed Project will result in multiple hotels, resort residential units near hotels, residential estate villa units, short term staff hotel rooms, ~~campsites,~~ and workforce housing units (i.e. bedrooms). Future phases and the approval of the GVD anticipates ~~up~~ additional hotel units, resort residential units, residential estate units, and additional supporting workforce housing units/bedrooms. A map outlining the different resort communities shown with identified oak habitat impacts is presented in **Attachment A**. Future phases of development are anticipated to include additional hotel units, resort residential units, residential estate units, and supporting workforce housing units. All phases and all aspects of development will occur entirely within Lake County.

Section 2 | Impacts to Oaks

Oak woodland habitat is a unique component of California's natural heritage. Oak trees serve several important ecological functions including temperature moderation, reduction of soil erosion, facilitation of nutrient cycling, and maintenance of water quality. Oak woodlands also have inherent aesthetic value, are a characteristic feature of the state, and have cultural significance to Native Americans. In addition, oak woodlands provide essential habitat and/or food for many wildlife species including insects, invertebrates, amphibians, reptiles, birds, and mammals.

2.1 IMPACT MINIMIZATION MEASURES

Minimization measures are included as part of the project design where possible in order to minimize oak impacts. Minimization measures include maximum avoidance of oak woodland and individual oaks, maximum avoidance of sensitive habitat that supports oaks and oak dispersal, and incorporation of oaks into landscape design.

Following the sale of a residential lot, a development plan for that lot will follow the general outline described below:

- Residential lots larger than two acres that are entirely within oak woodland habitat will be restricted to a one-acre maximum buildable area. This buildable area is designed to provide footprint size and location guidance to avoid impacts to oaks within residential lots.
- For residential lots in which a significant impact to canopy cover is unavoidable, the impact will be analyzed for the grading, driveways, and building areas, not to exceed 1.5 acres. Mitigation for this type of impact will occur through recordation of same-species oak woodland in long term preservation prior to the issuance of building or grading permits.
- For impacts in which cover is sparse, or significant woodland impacts can be avoided, an exact tree removal and size inventory will be required prior to a building or grading permit. The mitigation will include transplanting, compensatory planting, and/or enhancement as described below.
- These methods will be applied to residential lots developed as a result of either Phase 1 or future phases of development.

In addition to the general impact minimization measures, development of commercial lots has followed the general outline below:

- The footprint of development was reduced to only that area required for the function and design of a commercial lot.
- Placement of structures maximized avoidance oak woodlands.
- Individual oaks will be preserved or transplanted through intentional landscaping or design.
- For commercial lots in which a significant impact to canopy cover is anticipated, the impact will be analyzed for as the greatest maximum potential impact and mitigated through oak woodland preservation prior to impacts.
- For impacts in which cover is sparse, or significant woodland impacts can be avoided, an exact tree count and size inventory will be required followed by mitigation through transplanting, compensatory planting, and/or enhancement as described below.

2.2 OAK IMPACTS BY HABITAT TYPE

Approximately 5,640.7 ~~5,691.8~~ acres of the Guenoc Valley Site plus the Grange Road Connector have been identified as oak woodland. A total of 1,215.2 ~~1,238.7~~ acres of oak woodland is defined as oak savanna for the purposes of this report. Oak savanna is a sub-type of oak woodland consisting of an oak canopy cover of 10 to 60 percent and was generally observed with less than 2/3 of canopies touching (WRA, 2020a; WRA 2020b; WRA, 2024). **Table 1** provides a summary breakdown of oak habitats impacted by Phase 1.

Infrastructure impacts were calculated based on linear impact features such as roadways along with a thirty-foot grading buffer on each side, with the exception of the Grange Road Connector, which may have a more narrow footprint. Acreages were calculated for illustrative purposes to show the scale of potential impacts. Because of the ability to design around specific oak trees, roadway impacts will be addressed on a tree-by-tree basis and will likely be much lower that presented in **Table 1**. Maximum potential impacts for residential lots are based on the 1.5-acre allowable development area set by the GVD for a given parcel and a 1.0-acre lot development restriction on a parcel that lies entirely within oak woodland habitat, which will be recorded with the parcel's final map. Maximum potential impacts for commercial lots are based on the maximum development footprint as proposed in the Specific Plan of Development (SPOD) for the intended use of the lot positioned to minimize potential impacts to oaks and includes the building footprint as well as the grading extent area.

Vegetative cover in oak savanna habitat is typically dominated by non-native annual grasses with interspersed individual oaks. Oak savanna impacts described in **Table 1** are based on the total acreage of oak savanna rather than representative acreage based on percent cover of oaks. Similar to roadway impacts, because of the low density of trees and the ability to avoid them, oak savanna impacts may be measured on a tree-by-tree basis for the purpose of mitigation.

Table 1: Oak Habitat and Potential Phase I Impacts

Habitat Type	Acres on Guenoc Valley Site plus Grange Road Connector*	Maximum Roadway Impacts	Maximum Residential Impacts	Maximum Commercial Impacts	Maximum Potential Impacts
Interior Live Oak Woodland	749.7 ~~756.5~~	18.0 ~~19.0~~	32.0 ~~31.0~~	26.0 ~~22.0~~	76.0 ~~72.0~~
Valley Oak Woodland	48.7 ~~49.3~~	1.0	0.0	1.0	2.0
Blue Oak Woodland	3,454.5 ~~3,472.4~~	73.0 ~~91.0~~	92.0 ~~97.0~~	61.0 ~~69.0~~	226.0 ~~257.0~~
Mixed Oak Woodland	172.6 ~~174.9~~	0.0	0.0	0.0	0.0
Blue Oak Savanna	1,215.2 ~~1,238.7~~	45.0 ~~50.0~~	57.0 ~~52.0~~	39.0 ~~44.0~~	141.0 ~~146.0~~
Total	**5,640.7 ~~5,691.8~~**	**137.0 ~~161.0~~**	**181.0 ~~180.0~~**	**127.0 ~~136.0~~**	**445.0 ~~477.0~~**

Source: WRA, 2020a; WRA 2020b; WRA, 2024b; **Attachment A**

*For the purposes of this report, acreages calculated as Guenoc Valley Site plus Grange Road Connector include the Guenoc Valley Site plus the portion of the Grange Road Connector outside of the Guenoc Valley Site in order to prevent double-counting of acreages.

2.2.1 Oak Woodland

The project site (which includes the Guenoc Valley Site plus the Grange Road Connector for purposes of this report) contains interior live oak woodland, valley oak woodland, blue oak woodland, and mixed oak woodland. This habitat type was identified in several ~~a~~ Biological Resource Analysis reports performed by WRA Inc. (BRA; WRA, ~~2019~~ 2020a, 2020b, and 2024). Oak habitat identified was overlaid on a georeferenced map of the Phase One development in order to determine potential impacts. Identification of oak woodland impacts from future development phases will be performed in a similar fashion. A maximum of approximately 212 ~~220~~ acres (**Table 1**) of oak woodland habitat has the potential to be impacted by residential and commercial development. Potential impacts from future development will be assessed in a similar fashion. Roadway impacts of approximately 92 ~~111~~ acres of oak woodland along 11 ~~7.5~~ miles of roadway will be defined through tree counts as specified in detail in **Section 3.0** as impacts to individual oaks may be avoided.

2.2.2 Blue Oak Savanna

The project site includes 1,215 acres of blue oak savanna where oak trees occur, but in lower density than in oak woodlands described above. This habitat type was identified by areas of lower-density oak presence interspersed within a grasslands-type setting that was verified through aerial imagery, biological surveys, and GIS mapping overlaid with the development footprint. Specifically, an oak savanna is identified as a subset of oak woodland with 10 to 60 percent total canopy cover and generally has less than 2/3 of the canopies touching (WRA, 2020a; WRA, 2020b; WRA, 2024). Identification of oak savanna impacts from future development phases will be performed in a similar fashion. The Proposed Project has the potential to impact up to 96 acres of oak savanna within commercial and residential development as well as approximately 50 acres of oak savanna along 11 ~~4.5~~ miles of roadway. However, the majority of this habitat type is dominated by herbaceous cover and the impacts to individual oaks may be avoided. Therefore, impacts to oak savanna may be defined through tree counts or through acreage impacted as specified in **Section 3.0**.

2.2.3 Mixed Oak Woodland

The project site includes approximately 173 ~~175~~ acres of mixed oak woodland. Mixed oak woodland is comprised of multiple co-dominate oak species and, in some cases, non-oak species. This habitat type was identified by areas with mixed oak species interspersed within a larger canopy co-dominated by other tree species. Mixed oak habitat mapping was verified through aerial imagery, biological surveys, and GIS mapping overlaid with the development footprint. There are no anticipated impacts to mixed oak woodland during Phase 1 of construction. Potential impacts from future development will be assessed in a similar fashion. Depending on the canopy cover of sensitive oaks within mixed oak woodlands, potential impacts may be measured based on acreage or on a tree-by-tree basis.

2.2.4 Oaks Occurring Outside of Mapped Oak Habitat

Because of the continuous nature of habitat types on the Ranch, it is likely that the Proposed Project will result in impacts to individual oak trees present within habitat types for which they are not a dominant species. Individual oaks, specifically blue oaks, have occasionally been observed on the project site within other habitat types such as foothill pine woodland. While an acreage cannot be assigned to oaks potentially occurring throughout the project site, these impacts are to be mitigated for on a tree-by-tree basis as defined in **Section 3.0**.

Section 3 | Proposed Oak Mitigation Plan

3.1 MITIGATION GOALS AND OBJECTIVES

Oak habitat on site will be avoided to the maximum extent possible to preserve the aesthetic, ecological, and cultural benefits provided by oaks. Acreages calculated in **Table 1** are based on the reduced impacts as a result of avoidance measures outlined in **Section 2.1**.

The goal of this Plan is to replace the function and value of impacted oak habitat as a result of the Proposed Project. The impacts from the Proposed Project will be fully mitigated in compliance with the 2009 Water Rights EIR, 2008 Oak Tree Replacement Plan, and Lake County General Plan. Success metrics will be utilized to meet mitigation criteria and ensure long-term success of the oak mitigation. Proposed mitigation is comprised of protecting existing oak woodlands as possible and creating or enhancing habitat in suitable locations. These mitigation methods are described in detail below.

3.2 OAK MITIGATION RECCOMENDATIONS BY IMPACT TYPE

As described in **Section 2.1**, the Proposed Project has the potential to impact oak woodland, oak savanna, and individual oak trees. Impacts to these habitat types can be further described by the level of impact. Therefore, mitigation is best determined through an analysis of the habitat types and the level of impact. **Table 2** provides a mitigation matrix summary following the methods described below.

3.2.1 Impacts to Oak Woodland with Significant Loss of Canopy Cover

While impact minimization measures have been incorporated as part of the Proposed Project (**Section 2.1**), the Proposed Project has the potential to impact oak woodland such that a significant loss of canopy cover may occur. In this circumstance, suitable mitigation will occur through preservation of in-kind habitat at a ratio of 3 acres preserved to 1 acre of impacts to valley oak woodland, and 2 acres preserved to 1 acre of impacts for all other oak woodland types. These methods apply to residential and commercial lot development for which a qualified biologist has determined that a significant loss of cover has occurred. This method of mitigation is suitable for Phase One and future phases of development. A qualified biologist will work with the Applicant in cases of impacts to oak savanna to determine if mitigation will occur though acreage preservation or a tree-by-tree count and replanting.

3.2.2 Impacts to Oak Woodland without Significant Loss of Canopy Cover

Due to impact minimization measures presented in **Section 2.1**, the Proposed Project will likely have impacts on individual oak trees within oak woodland habitat such that the overall character and quality of the habitat is not significantly impacted. Consistent with the Biological Resources Assessment of the Guenoc Valley Site, impacts that result in a reduction in woodland canopy cover to 60 percent or less and less than 2/3 of the canopies touching would be considered conversion of habitat from oak woodland to oak savanna. In circumstances where removal of trees does not convert oak woodland to oak savanna, the following mitigation is recommended:

- For oaks removed with a diameter at breast height (dbh) between 3 inches and 15 inches, full transplant or replanting at a 2:1 ratio as detailed in **Section 4.0**.
- For oaks removed with a diameter at breast height of 15 inches or greater, transplantation or replanting at a 5:1 ratio as detailed in **Section 4.0**.
- For oaks that are transplanted, they will be monitored for the success of transplanting as described under **Section 5.0** and replaced via replanting ratios described above should the transplanting fail.
- Locations of removed oaks will be documented such that oaks removed within a POU will result in compensatory plantings within POU consistent with the 2009 Water Rights EIR. The Phase I of the GVD proposes approximately 32 acres of potential impact to oaks within the POU, which will be mitigated in accordance with the 2009 Water Rights EIR requirement for like compensation within POU. In addition to this existing requirement, the 32 acres will also comply with this Oak Mitigation Plan as summarized in **Table 2** below.

These methods apply to oaks impacted by infrastructure and fire-protection vegetation management. These methods also apply to residential and commercial lot development for which a qualified biologist has determined that a significant loss of cover has not occurred. This method of mitigation is suitable for Phase 1 and future phases of development.

Table 2: Summary Matrix of Recommended Oak Mitigation

Habitat Type	Habitat Impact Type	Mitigation Recommended
Interior Live Oak Woodland	Significant loss of oak canopy cover	Preservation of interior live oak woodland at a 2:1 ratio
	No significant loss of canopy cover	Exact tree count followed by replanting interior live oak at the following ratios: ▪ 2:1 for dbh 3”-15” ▪ 5:1 for dbh > 15” Transplanted trees that fail are subject to these replanting ratios.
Valley Oak Woodland	Significant loss of oak canopy cover	Preservation of valley oak woodland at a 3:1 ratio
	No significant loss of canopy cover	Exact tree count followed by replanting of valley oak at the following ratios: ▪ 2:1 for dbh 3”-15” ▪ 5:1 for dbh > 15” Transplanted trees that fail are subject to these replanting ratios.
Blue Oak Woodland	Significant loss of oak canopy cover	Preservation of blue oak woodland at a 2:1 ratio
	No significant loss of canopy cover	Exact tree count followed by replanting of blue oak at the following ratios: ▪ 2:1 for dbh 3”-15” ▪ 5:1 for dbh > 15” Transplanted trees that fail are subject to these replanting ratios.
Mixed Oak Woodland	Significant loss of oak canopy cover	Preservation of mixed oak woodland at a 2:1 ratio

	No significant loss of canopy cover	Exact tree count followed by replanting mixed oak at the following ratios: ▪ 2:1 for dbh 3”-15” ▪ 5:1 for dbh > 15” Transplanted trees that fail are subject to these replanting ratios.
Blue Oak Savanna	Any impact	Exact tree count followed by replanting blue oak at the following ratios: ▪ 2:1 for dbh 3”-15” ▪ 5:1 for dbh < 15” Transplanted trees that fail are subject to these replanting ratios. OR Preservation of oak savanna at a 2:1 ratio
Individual Oak	Any impact	Exact tree count followed by replanting in-kind oak at the following ratios: ▪ 2:1 for dbh 3”-15” ▪ 5:1 for dbh < 15” Transplanted trees that fail are subject to these replanting ratios.

3.2.3 Impacts to Oak Savanna

Impacts to oak savanna may be mitigated for through in-kind preservation at a 2:1 ratio, or through an exact tree count and replacement plantings. This method of mitigation is suitable for Phase One and future phases of development.

3.2.4 Impacts to Individual Oaks

Impacts to oaks that occur outside of habitat mapped as oak woodland or oak savanna will be handled in the same manner as impacts to oak woodland without significant loss of canopy cover. This method of mitigation is suitable for Phase One and future phases of development.

Section 4 | Oak Mitigation

Detailed tree counts will be maintained as necessary in order to ensure full mitigation within the appropriate area of the Guenoc Valley Site.

4.1 OAK WOODLAND PRESERVATION

A significant portion of oak woodland within the development area is avoided through residential development restriction or project design. The area of potential oak woodland preservation was identified based on the type and quality of habitat impacted by the Proposed Project. **Attachment A** shows potential oak impacts resulting from Phase 1 and illustrates the existing and proposed preservation areas under Phase 1. Of the oak preservation presented in **Attachment A**, a total of 464 acres are preserved within Lake County and located within the POU pursuant to the 2009 Guenoc Valley Water Rights FEIR (AES, 2009). In addition to the 464 acres of oak woodlands required to be preserved within Lake County and located within the POU, 871 ~~853~~ acres of oak woodlands are in long term preservation within the Preserved Open Space Area, which will be in long-term management, for a total of 1,335 ~~1,317~~ acres of existing preserved oak woodlands. Additionally, based on a preservation ratio of 3 acres to 1 acre impacted for valley oak woodland and 2 acres to 1 acre impacted for other oak woodland, additional acres of oak woodland would be preserved through restrictions on residential lot development and avoidance of woodland within commercial lots. The total area of existing and proposed oak preservation within the Guenoc Valley Site following Phase 1 development would be 1,952 ~~1,633~~ acres. **Table 3** shows a summary of proposed oak preservation areas related to Phase 1 impacts.

Table 3: Phase I Maximum Oak Woodland Preservation Requirements Following Impact Minimization

Habitat Type	Maximum Acres of Significant Cover Loss	Maximum Acres Required for Preservation
Interior Live Oak	58 ~~53~~	116 ~~106~~
Valley Oak	1	3
Blue Oak	153 ~~166~~	306 ~~332~~
Mixed Oak	0	0
Oak Savanna	96	192
Total	**308 ~~316~~**	**617 ~~633~~**

Acres of oak woodland preservation will be protected prior to the issuance of a building or grading permit of a commercial property or the recordation of the final map prior to the sale of a residential parcel. This Oak Mitigation Plan will serve as an agreement between the property-holder of the Guenoc Valley Site and Lake County, restricting future development on the identified oak woodland preservation areas. Any future modification of such preservation areas would require additional identification of oak preservation such that acreage of preserved oak woodland by species is not lost. Since these conservation areas will be filed as a deed restriction and recorded as a development restriction on the title, a formal conservation easement filed with Lake County is not necessary.

4.2 OAK TREE PLANTING

Because exact tree counts are dependent upon final development plans, this section serves to outline a method for determining suitable oak planting locations. Suitable oak habitat replacement or preservation should be of similar quality to support successful oak establishment.

Additionally, locations for mitigation plantings should consider practicality of planting and maintenance based on the location. Oaks may be planted in suitable habitat where oaks ~~to~~ do not substantially occur, or where cover is low. These locations also considered surrounding land use and targeted those areas most likely to be preserved throughout all phases of development. Potential locations were selected for plantings based on suitable supporting habitat, continuity of the landscape, and other metrics that would increase the success and functionality of mitigation plantings. Selection also considered the accessibility of the location for the purpose of planting, maintenance, and monitoring. Habitat of similar quality and practicality for mitigation plantings may be utilized.

A qualified biologist will confirm the tree removal count and the required number of compensatory plantings for a development area. Tree counts and planting locations will be carefully documented in order to ensure compliance with this Plan. Oak plantings will be initiated no later than the suitable planting season following oak removal for which a parcel or area of development has been impacted. Oak seedlings will be planted with the intent of replacing not only the trees themselves, but restoring the functionality of the habitat impacted by the Proposed Project.

4.2.1 Source and Size of Mitigation Plantings

Oak planting required for mitigation may be obtained from a variety of sources. An on-site nursery currently produces seedlings from acorns collected on site and could be used to provide for a portion of plantings. Direct plantings of acorns and seedlings collected on site may also occur. Each individual oak planting, whether it be sourced from the nursery or planted directly, will count as one individual for the sake of tree replacement mitigation ratios, and subject to the monitoring requirements outlined in **Section 5.0**. Should needs exceed the on-site production of acorns and seedlings, locally sourced nurseries within 200 miles of the project site may be used to provide seedlings.

4.2.2 Transplanting of Oak Trees

When possible, transplanting of trees removed during development will also be used in oak woodland creation areas. Due to the value of mature trees, preferential selection for transplanting should be given to those trees with a dbh equal to or greater than 15” when possible. If the tree planned to be removed is successfully transplanted, then there is no additional required mitigation. Transplanted trees will be monitored as outlined in **Section 5.0**. Should a transplanted tree fail, replanting as outlined in **Section 2.2** will occur. The following outlines the methods used for transplanting of oaks previously performed on the Guenoc Valley Site to be used for oaks transplanted through construction of the Proposed Project:

- Select tree to be salvaged / transplanted;
- Evaluated current health of selected tree taking into consideration age, vigor, presence of sickness, fungus, pest/disease;
- Evaluate the type and conditions of the soil where the tree is growing (sandy, rocky, clay, etc.). Root pruning and transplant methods will vary based on these conditions;

- Evaluate labor and machinery available to transplant. Size of root ball, root-pruning methodology and system of containerization will vary based on these variables;
- Determine root ball dimensions based on size of tree, conditions of soil, and target final weight of root ball/tree;
- Initiate exploratory digging around root ball perimeter. This exploratory dig will reveal extent of lateral root system and soil profile;
- Once root ball perimeter is determined and marked, initial digging is initiated around all or a portion of the root ball;
- Depending on the species and its root system, often main lateral roots are left intact to a) minimize shock to the tree and b) to maintain tree stability, so it does not fall down;
- Ideally perform initial root ball digging during the dormant season;
- Once the first stage of root ball digging is complete, the ball is wrapped tightly in heavy duty black plastic, or a layer of burlap followed by then black plastic. The purpose of this is to retain humidity within the root ball while reducing direct sunlight on the exposed roots;
- Depending on the tree species, the tree will often be left for a matter of months or even up to a year following the initial root prune. The purpose of this is to allow the tree to recover from the shock of root pruning prior to cutting main lateral roots and lifting the tree;
- During this rest period the tree is regularly monitored for overall health and to ensure adequate moisture, etc.;
- The following stage involves gradual cutting of lateral roots, finalized shaping of the root ball and in many cases, construction of a box or container around the root ball. Very heavy trees will often be lifted from this box;
- Once the tree is containerized, the tree is ready to be lifted. Ideally this will occur during or just prior to a dormant season (typically fall or winter), although this is not always possible;
- Lifting / transplant methods vary from species to species and are also dependent on soil type, proximity of tree to final planting location, and the type of machinery being used to transplant. In the case of blue oaks, a large articulating forklift is used to lift the tree from the bottom of the box. The tree is then transported by the articulating forklift to its designated staging area or final planting location; and
- Following tree extraction and relocation, the tree hole is backfilled, and erosion control measures are implemented.

4.2.3 Planting Specifications

There are several methods to increase the success of direct acorn plantings. The following specifications are to be followed for the collection and direct plantings of acorns:

- Collection of acorns for planting should occur within the same year that tree planting would occur. Acorns are ready to pick from trees when the acorn cap can be easily separated from the acorn without tearing the seed coat.
- If unable to plant acorns immediately, acorn caps should be removed, and acorns will be stored under cool moist conditions until ready to be planted.
- Three to four acorns will be planted two to four inches deep on their side approximately three inches apart in order to maximize the germination success of at least one seedling.
- Organic mulch may be applied after planting, extending to a three to four-foot radius, and to a height of two to three inches over the top of the soil. Water following the planting.

The following planting specifications will be followed to increase the success rate for seedlings and transplanted trees:

- Should needs exceed the production capabilities of the on-site nursery, seedlings are to be sourced from a nursery that is growing trees from locally sourced acorns.
- Organic mulch will be applied after planting, extending to a three to four-foot radius and to a height of two to three inches over the top of the soil. Water following planting.
- Seedlings planted from starter pots are to be planted in holes dug slightly deeper than pot height and twice the width. Holes should be dug by hand when possible with smooth edges loosened to promote root growth.
- Any trees that are staked should be done so such that the straps are loose enough to allow for natural bending and movement of the tree while being tight enough to protect the tree from structurally damaging movements such as high-wind storms. Stakes should be removed following successful establishment.

Oak woodland planting areas should be planted with irregular spacing and clumps of trees to reflect the natural and aesthetic qualities of the existing oak woodlands.

4.2.4 Methods of Irrigation

Irrigation methods will vary based on the locations of the planting sites within the mitigation areas. Some planting sites may not need supplemental irrigation if there is a sufficient source of groundwater. If tree planting takes place during the rainy season, supplemental irrigation is not anticipated to be necessary during the first year. Irrigation methods for mitigation areas planted in the dry season will likely include the installation of temporary drip irrigation systems. Tree plantings will be irrigated in the absence of enough groundwater during the dry season in their first two years of growth in order to promote seedling survival. The plantings should not need to be irrigated during the wet season.

4.2.5 Planting Schedule

Acorn and seedling planting will be conducted between the months November and December, pending availability of seedlings or acorns. Planting during the fall will facilitate establishment of the planted acorns and seedlings during the rainy season. Plantings should begin no later than the first suitable planting season following oak tree removal for the Proposed Project.

4.2.6 Seedling Protection

In areas that have issues with herbivory, seedlings or acorn planting sites will be provided with adequate protection from damage to increase survival rates. These protections usually consist of tree shelters, or small wire mesh cages covering the seedling to reduce the likelihood that deer or other herbivores will consume the young trees. Mesh should be of an appropriate size to prevent entrapment of songbirds.

4.3 OAK HABTIAT ENHANCEMENT

These areas may be used for tree-by-tree mitigation or restoration activities and will follow the specific planting instructions above. Oak habitat enhancement may occur in areas of oak savanna and pine-oak woodland but may include the enhancement of other mixed-oak habitat.

4.4 MITIGATION AREA MAINTENANCE

Maintenance of the mitigation areas will consist of weed removal, removal of trash and litter, inspection of tree shelters and wire mesh, fencing (as needed), irrigation systems, tree stakes, and inspection for evidence of vandalism or other uses conflicting with the goals of this Plan.

4.4.1 Weed Control

Three primary techniques are available for weed control maintenance activities in the oak planting areas: mowing, hand weeding, and herbicide application. Mowing and/or hand weeding are the preferred methods of weed control. If herbicides are used, they will be applied only by licensed personnel in strict accordance with the manufacturer's regulations. No herbicide should contact the leaves or stems of the oak trees. Herbicide use will be as restricted as possible; spot applications are preferred, and extreme care should be taken when applying herbicides in the vicinity of open water, wetlands, existing native vegetation, and revegetation plantings. No weed control is necessary in the oak preservation areas.

4.4.2 Removal of Trash and Litter

Trash and litter, which may blow into the mitigation areas, will be removed periodically. Any trash observed within the mitigation areas during the monitoring visits will be reported and/or removed.

4.4.3 Other Inspections

Planting equipment such as tree shelters, wire mesh, fencing, irrigation systems, or tree stakes if used, will be inspected during quarterly monitoring visits by a qualified biologist described in **Section 5.0** below. Instructions to correct any defects will be included in the biological monitoring reports. Evidence of any uses conflicting with the goals of this tree mitigation plan will be included in the monitoring reports.

4.4.4 Maintenance Schedule

The oak planting mitigation sites will be visited by the Ranch staff at least twice monthly during the first six months to assess the effectiveness of the irrigation system (if applicable) and to inspect any tree shelters, wire mesh, fencing, or tree stakes used. Quarterly visits, as described in **Section 4.3**, will also ensure that plantings and irrigation are functioning as designed. These quarterly visits will be performed by a qualified biologist throughout the remainder of the seven-year monitoring period, described further in **Section 5.0** below.

Section 5 | Monitoring Plan

5.1 DATA COLLECTION

Mitigation sites will be inspected by a qualified biologist or certified arborist for seven years after planting. Monitoring site visits will involve assessing the status of the replacement plantings, determining the need for irrigation, identifying weeds for removal, and assessing the overall integrity and success of the mitigation sites.

Monitoring reports will, at a minimum, include the following metrics of successful oak establishment: survival rates, overall health, dbh of mitigation plantings, and the status of competing woody vegetation. Criteria described below will apply to both Phase 1 and future phases of development.

5.2 SUCCESS CRITERIA

5.2.1 Oak Preservation Areas

The oak preservation areas do not have success criteria. Because the oak preservation areas are ecologically functional oak woodlands, these areas need only to be protected from future development in order to offset the impacts to oak woodlands elsewhere on the property.

5.2.2 Oak Habitat Planting Areas

The oak replanting mitigation will be considered successful when, after seven years, the tree plantings have achieved an 80 percent success rate. If additional plantings are necessary to increase the total plantings to meet the 80 percent survival rate, these seedlings will be monitored for a full seven years to ensure success of those additional plantings. Transplanted trees shall be monitored for a minimum of three years. A high level of replanting success is anticipated with the use of protective measures, along with placement of the plantings in appropriate habitat.

5.2.3 Oak Habitat Enhancement Areas

Oak woodland enhancement areas are deemed successful when, after seven years, the tree plantings have achieved an 80 percent success rate. If additional plantings are necessary to increase the total plantings to meet the 80 percent survival rate, these seedlings will be monitored for a full seven years to ensure success of those additional plantings. A high level of replanting success is anticipated with the use of protective measures, along with placement of the plantings in appropriate habitat.

5.3 REPORTING

A qualified biologist or certified arborist will inspect the site during planting to ensure that it is completed in compliance with this plan and to create a baseline of the locations for future inspections. Due to the size of the property, the projected development timeline, and the associated mitigation plan, restoration areas may be broken into Mitigation Units. Each Mitigation Unit will be mapped with an approximate tree count and submitted to Lake County immediately following mitigation plantings. A total of seven annual reports will be completed for each Mitigation Unit, with additional reports as necessary until all success

criteria are met. Annual reports will include the quarterly report along with an analysis on the projected success of mitigation and any adaptive management recommendations.

The first annual inspection will occur approximately one year after installation and will include a report documenting the results of the monitoring efforts. Annual reports will be submitted to the Lake County within six months of the monitoring event for a total of seven years, starting the year following the initial planting. This reporting scheme will be followed such that all mitigation plantings on the Ranch associated with Phase 1 and future phases of development receive a full seven years of mitigation monitoring in order to reach success criteria, with additional mitigation and monitoring as needed to meet success criteria. Should adaptive management recommendations and supplemental plantings occur, the annual report will include the notice of new plantings needed to replace failed trees, along with documentation (summary data and photos) to illustrate the condition and location of plantings. The report should include the success of natural revegetation, establishment, survival, and height of replacement tree plantings, and the status of the oak improvement area's competing woody vegetation.

5.4 SCHEDULE

Oak plantings may occur during the appropriate planting season prior to the development of the Proposed Project and must be initiated no more than one planting season following tree removal. The first annual monitoring of the mitigation sites will be conducted the year following the initial planting, with a total of seven yearly monitoring reports.

5.5 ADAPTIVE MANAGEMENT

If trees planted in the mitigation areas are deemed to be performing poorly, a contingency plan may be submitted to Lake County requesting modifications to this Plan. Modifications may only be requested related to the location and management of mitigation plantings and will not result in the reduction of plantings or success criteria described herein.

Section 6 | Completion of Mitigation

Once the minimum seven-year monitoring period is completed and success criteria met for all mitigations, Lake County will be informed that the mitigation requirements have been completed. A qualified biologist will prepare the Notice of Completion of mitigation activities and will include the final annual report for each mitigation unit detailing the achievement of success criteria. Therefore, completion of mitigation activities will include the following reports and documentation:

- Mapping submitted to and approved by Lake County detailing all oak woodland preservation locations;
- Mapping submitted to and approved by Lake County detailing potential oak planting locations;
- Maps submitted to Lake County detailing Mitigation Units as they are designated;
- A minimum total of seven annual reports for each Mitigation Unit submitted to Lake County;
- The first annual report will document the specific planting details such as location of plantings, species, number of trees, and other important tracking information.
- Additional annual reports may be necessary if additional supplemental plantings occur.
- A request may be sent to Lake County to amend mitigation planting location(s) and monitoring activities based on tree performance and subject to County approval.
- A Notice of Completion of mitigation activities submitted to Lake County; and
- A final site visit with the County, if requested by the County.

Lake County may require a site visit to confirm that the success criteria have been met and that the required mitigation has been completed. The landowner will retain the oak mitigation areas and will not use them in a way that significantly degrades the ecological value of the mitigation area without notice to and approval by the County. With prior notification, the property may be periodically inspected by the County to ensure compliance with this Plan.

6.1 ASSURANCE OF MITIGATION PERMANENCE

This document will serve as an assurance that the mitigation measures will be performed as described. Any future development of this property within Lake County will be bound to this agreement. Future development on the Ranch in Lake County occupied by oak trees, specifically the areas of oak replanting and oak woodland preservation covered in this document, will require consent from Lake County. The landowner agrees to the mitigation and reporting requirements described in **Sections 3.0**, **4.0**, and **5.0**, and acknowledges that the completion of the mitigation described in **Section 6.0** does not permit the cutting or development of the oak mitigation areas.

Further development or cutting of oaks on this property beyond the Phase 1 and future phases of development plans outlined here would require consent from Lake County and consistency with this Oak Mitigation Plan. Future development plans would be contingent on the continued protection and upkeep of the oak preservation and oak replanting areas. The applicant consents to not implement any activity on the property that may result in an impact to oak woodland habitat or is inconsistent with this Plan without first consulting with the County. Therefore, modification of development plans not specifically authorized by this Plan will occur only with the understanding and required approvals by Lake County.

Section 7 | References

Analytical Environmental Services (AES). 2008. Langtry Farms Water Rights Modification Project Oak Tree Replacement Plan.

Analytical Environmental Services (AES). 2009. Guenoc Water Rights Modification Project Final Environmental Impact Report.

Lake County. 2008. Lake County General Plan. Available online at: http://www.co.lake.ca.us/Page3939.aspx. Accessed June 2019.

MAHA Developments. 2019. Specific Plan of Development for the MAHA resort at Guenoc Valley.

Western Regional Climate Center (WRCC). 2016. Middletown, CA: Period of Record Monthly Climate Summary. Available online at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca5598. Accessed June 2019.

WRA, Inc. (WRA), 2020a. Biological Resources Assessment for MAHA Resort and Guenoc Valley Development, Phase 1 Lake County, California.

WRA, Inc. (WRA), 2020b. Biological Resources Assessment for MAHA Resort and Guenoc Valley Development, Phase 2 and Open Space Lake County, California

WRA, Inc. (WRA), 2024. Project Modifications Biological Resources Assessment, Guenoc Valley Mixed Use Planned Development Project, Lake County, California.

Attachment A

MAHA Guenoc Valley Oak Preservation Plan

GUENOC VALLEY PROJECT
OAK PRESERVATION PLAN

Updated March 1, 2024

The Guenoc Valley Project Oak Preservation Plan assumes that Blue Oak Woodlands, Blue Oak Savanna, Interior Live Oak Woodlands, and Mixed Oak Woodlands will be mitigated based on a ratio of 1 acre impacted to 2 acres preserved and the Valley Oak Woodlands will be mitigated based on a ratio of 1 acre impacted to 3 acres preserved.

TABLE OF CONTENTS

PG 1 | OVERALL ESTIMATES
PG 2 | EXISTING OAK WOODLANDS COMMUNITIES
PG 3 | PROJECT IMPACTS TO OAK WOODLANDS
PG 4 | PROJECT AREA RATIO PRESERVATION OF OAK WOODLANDS

OVERALL ESTIMATES

EXISTING OAK WOODLAND COVERAGE (PG 2)

Oak Communities	Blue Oak Woodland	Blue Oak Savanna	Interior Live Oak Woodland	Mixed Oak Woodland	Valley Oak Woodland	TOTAL
Area (AC)	**3,475 AC**	**1,238 AC**	**757 AC**	**175 AC**	**49 AC**	**5,694 AC**

Total Project Site Area: **16,025 AC**

OAK WOODLANDS IMPACT & PRESERVATION (PG 3 & 4)

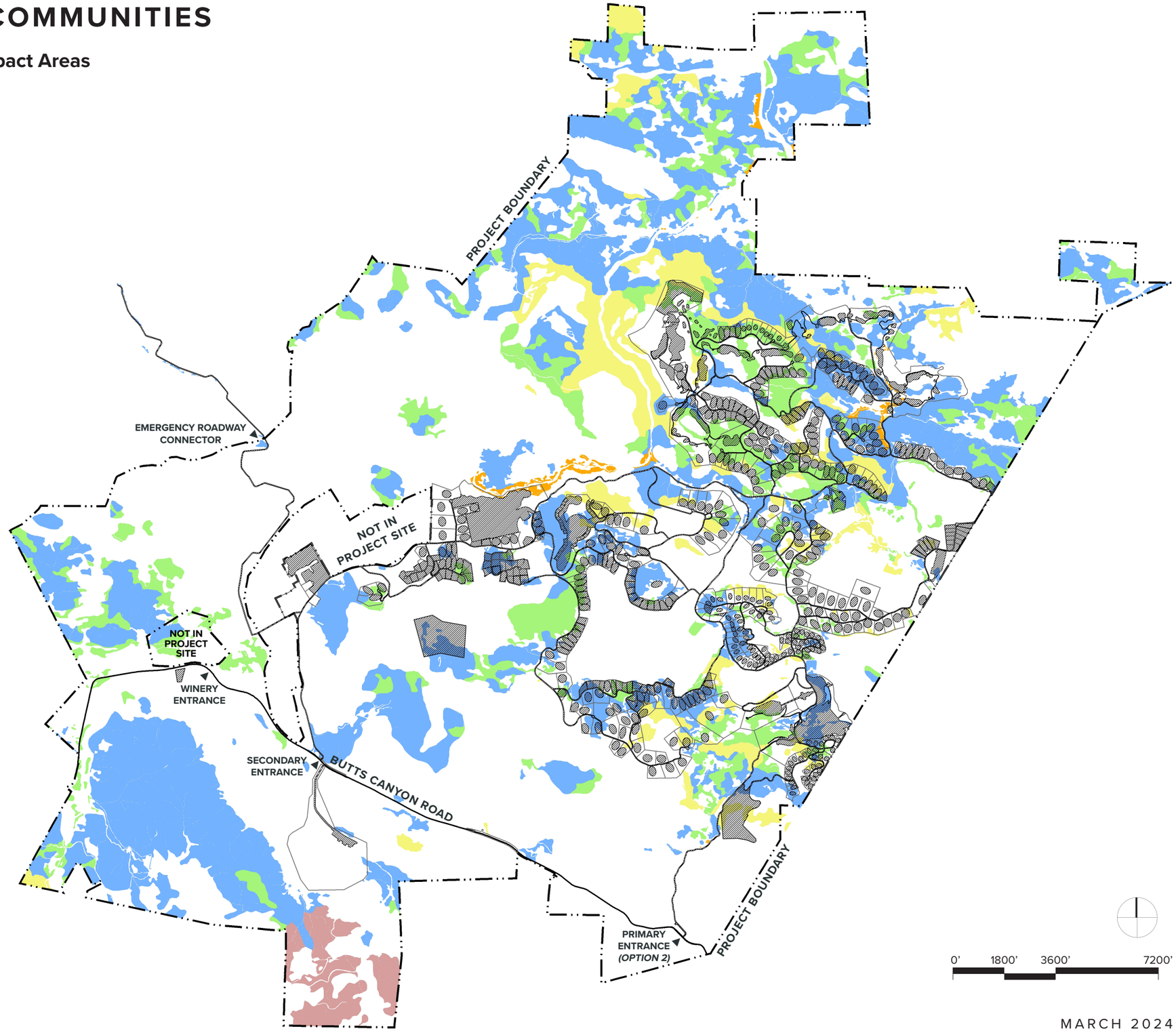
	OAK WOODLANDS GREATEST POTENTIAL IMPACT			OAK WOODLANDS AREA RATIO PRESERVATION			
	Potential Project Impact to Blue Oak Woodland, Blue Oak Savanna, and Interior Live Oak Woodland	*Potential Project Impact to* Valley Oak Woodland	**TOTAL**	*Required Deed-Restricted Preservation Ratios*	Proposed Deed-Restricted Oak Woodlands Preservation Areas	Existing Oak Woodlands Preservation Areas[2]	Total Preservation Areas
Roadways[1]	—	—	**137 AC / 11 MI**	—	—	—	—
Residential Estate and Resort Residential Parcels	181 AC	0 AC	**181 AC**	*362 AC*	308 AC	188 AC	**496 AC**
Commercial, Facility, and Golf Parcels	126 AC	1 AC	**127 AC**	*255 AC*	158 AC	93 AC	**251 AC**
Rural Landscapes	0 AC	0 AC	**0 AC**	*0 AC*	151 AC	183 AC	**334 AC**
Designated Open Space	0 AC	0 AC	**0 AC**	*0 AC*	0 AC	871 AC	**871 AC**
TOTAL	**307 AC**	**1 AC**	**308 AC**	***617 AC***	**617 AC**	**1,335 AC**	**1,952 AC**

[1] The approximately 11 miles and 137 acres of roadway development impacting oak woodlands will avoid trees with minor realignments and therefore are proposed to be mitigated with tree-by-tree replacement ratios as described in the Oak Mitigation Plan (OMP). Tree-by-tree replacement areas will happen pursuant to the OMP. Therefore, these impacts are not reflected in the TOTAL impact area in this table nor on the "Project Preservation of Oak Woodlands" plan on page 4.

[2] Along with the demonstrated Guenoc Valley Project oak impact areas, preservation ratios, and preservation areas, this plan demonstrates existing entitlement oak preservation obligations. Please see the OMP for further information.

EXISTING OAK WOODLANDS COMMUNITIES

- **Greatest Potential Project Development Impact Areas**
- **Blue Oak Woodland** (3,475 AC)
- **Blue Oak Savanna** (1,238 AC)
- **Interior Live Oak Woodland** (757 AC)
- **Valley Oak Woodland** (49 AC)
- **Mixed Oak Woodland** (175 AC)



PROJECT IMPACTS TO OAK WOODLANDS

	Greatest Potential Impact to Oak Woodlands				Total Impact Areas
	Blue Oak Woodland	Blue Oak Savanna	Interior Live Oak Woodland	Valley Oak Woodland	
Roadways *(see note)*	—	—	—	—	**137 AC / 11 MI**
Resort Residential & Residential Estate Parcels	92 AC	57 AC	32 AC	0 AC	**181 AC**
Commercial, Facility, and Golf Parcels	61 AC	39 AC	26 AC	1 AC	**127 AC**
Rural Landscapes	0 AC	0 AC	0 AC	0 AC	**0 AC**
Designated Open Space	0 AC	0 AC	0 AC	0 AC	**0 AC**
TOTAL	**153 AC**	**96 AC**	**58 AC**	**1 AC**	**308 AC**

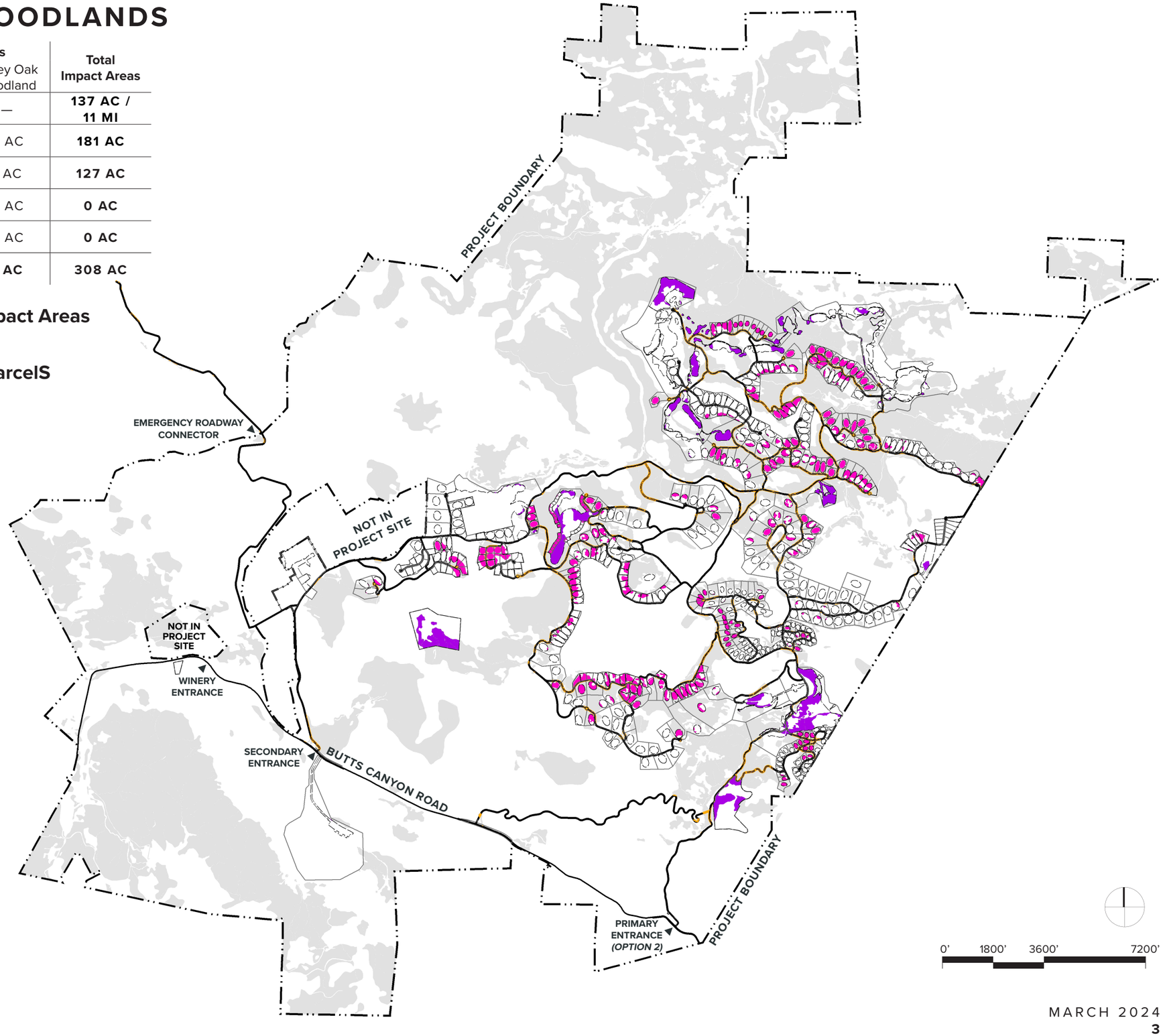
Greatest Potential Project Development Impact Areas

Oak Wooodlands Potentially Impacted in **in Residential Estate & Resort Residential ParcelS**

Oak Wooodlands Potentially Impacted in **in Commercial, Facility, and Golf Parcels**

Oak Wooodlands Potentially Impacted by **by Roadway Development**

Oak Woodlands



NOTE: This graphic identifies impacts to all types of oak woodlands. Oak woodlands impacted within parcels will be mitigated with an acreage replacement ratio; please see page 4 (“Potential Project Preservation of Oak Woodlands”), which demonstrates areas for oak woodlands preservation to mitigate for these impacts and to also fulfill previous EIR preservation obligations. Oak woodlands impacted by roadways will be mitigated with tree-by-tree replacement ratios; tree-by-tree replacement areas will be identified on an ongoing and as-needed basis (see additional notes on roadway impact estimates on the cover page). Please see the Oak Mitigation Plan for further information.

PROJECT AREA PRESERVATION OF OAK WOODLANDS

	Proposed Deed-Restricted Oak Woodlands Preservation Areas					Existing Oak Woodlands Preservation Areas	Total Preservation Areas
	Blue Oak Woodland	Blue Oak Savanna	Interior Live Oak Woodland	Valley Oak Woodland	Total		
Resort Residential & Residential Estate Parcels	161 AC	77 AC	68 AC	2 AC	308 AC	188 AC	**496 AC**
Commercial, Facility, and Golf Parcels	88 AC	43 AC	26 AC	1 AC	158 AC	93 AC	**251 AC**
Rural Landscapes	57 AC	72 AC	22 AC	0 AC	151 AC	183 AC	**334 AC**
Designated Open Space	0 AC	0 AC	0 AC	0 AC	0 AC	871 AC	**871 AC**
TOTAL	**306 AC**	**192 AC**	**116 AC**	**3 AC**	**617 AC**	**1,335 AC**	**1,952 AC**

Greatest Potential Project Development Impact Areas

Oak Woodlands

Designated Open Space

Proposed Deed-Restricted Oak Woodlands Preservation

In Resort Residential & Residential Estate Parcels

In Commercial, Facility, and Golf Parcels

In Rural Landscapes

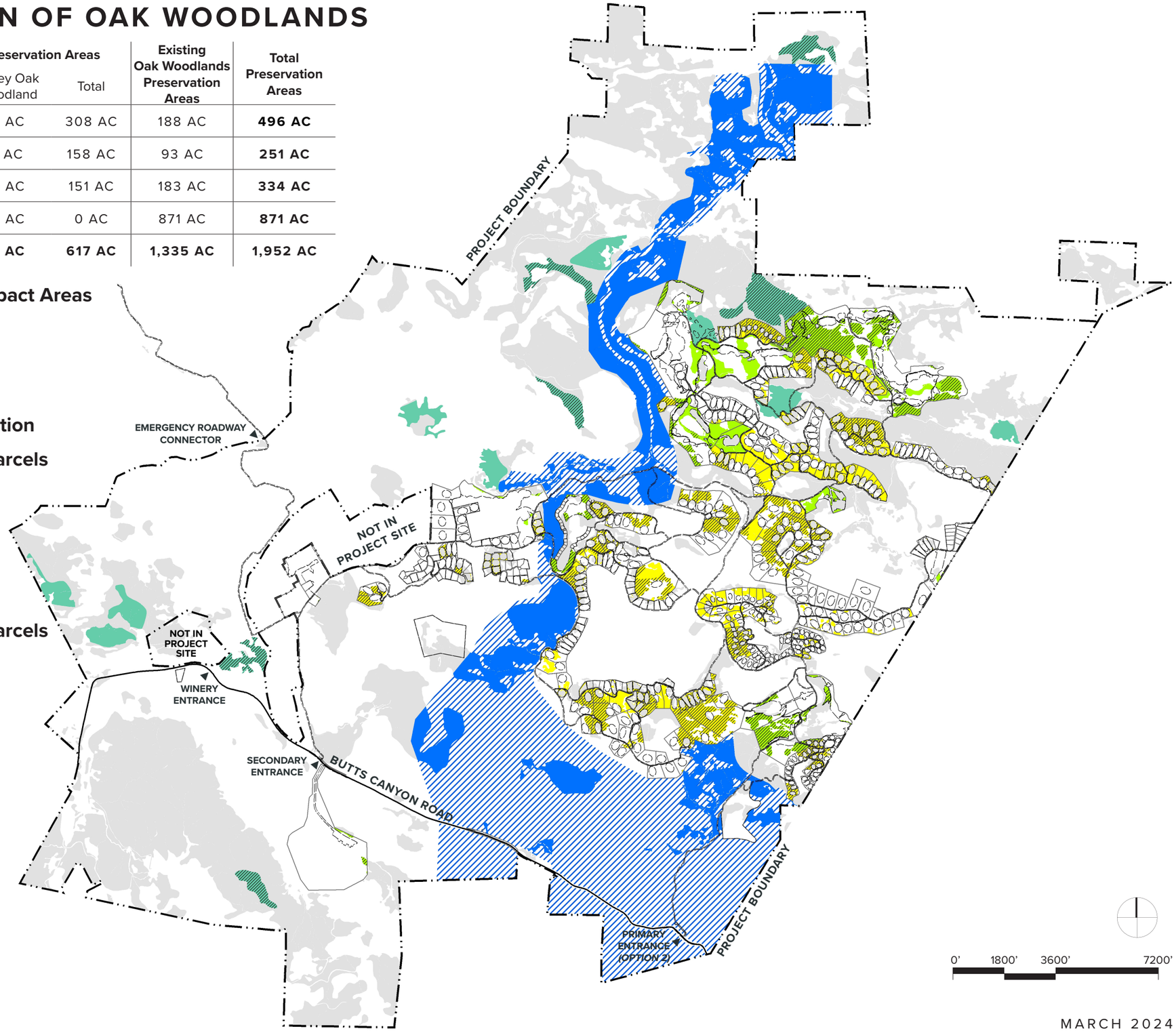
Existing Oak Woodlands Preservation

In Resort Residential & Residential Estate Parcels

In Commercial, Facility, and Golf Parcels

In Rural Landscapes

In Designated Open Space



NOTE: Along with the demonstrated Guenoc Valley Project oak preservation areas, this plan demonstrates existing entitlement oak preservation obligations. Please see the OMP for further information.

Appendix K

Cultural Reports

Appendix K-1

Grange Road Connector Cultural Investigation

(Confidential/Bound Separately)

Appendix K-2

Modified APE Cultural Resources Investigation

(Confidential/Bound Separately)

Appendix L

Stormwater Technical Memorandum

SHERWOOD
DESIGN ENGINEERS

2548 MISSION STREET, SAN FRANCISCO, CA 94110
(415) 677-7300 | WWW.SHERWOODENGINEERS.COM

Memorandum

May 22, 2024

To: Laura Hall (Lake County)
Cc: Kevin Case (Mahaman Development), Ryan Sawyer (Acorn Environmental)
From: Cody Anderson, P.E.
Project Number and Name: 18-016.1 Maha Guenoc Valley

RE: Additional 10-Foot Roadway Hardscape

Laura,

1.0 EXECUTIVE SUMMARY

This memorandum confirms that the Draft Partially Revised Environmental Impact Report (PREIR) accounts for the additional 10 feet of hardscape on each of the project roads required by the Settlement Agreement in terms of surface water runoff, groundwater recharge, and potential water quality impacts. The additional 10 feet of hardscape on each side of the roads is offset by decreases in impervious surfaces elsewhere on the property, such that the overall impervious area will be 213 acres less than the Original Project. The 10 feet of hardscape will not increase potential impacts above what was analyzed in the 2020 EIR but will increase impervious surfaces beyond what exists on the property today; these increases will continue to be mitigated through stormwater management strategies which will be fully addressed during the ministerial Building Permit approvals process. These strategies, which are consistent with State Water Resources Control Board requirements for post-construction stormwater management, provide water quality treatment prior to release into the natural drainage pattern, allowing for infiltration and recharge of groundwater and existing drainages.

2.0 DETAILS

Project Modifications analyzed in the PREIR include adding approximately 10 feet of hardscape (decomposed granite) on each side of the proposed roadways to increase wildfire protection. The overall grading area associated with the Modified Project will be reduced due to the reconfiguration of parcels, including elimination of the camping area and overall reduction in the linear miles of roadways and utilities previously required for connection to relatively remote parcels. The PREIR uses the term ‘development area’ to describe the built components proposed for resort, residential, and roadway uses. The 1,202-acre development area encompasses and slightly overstates the proposed impervious surfaces, as in addition to paved roadways, buildings, and other impervious materials it also includes landscaping around buildings which is typically considered permeable. The additional 10 feet of hardscape is included in the measured 1,202-acre development area. Because the overall development area associated with the Modified Project decreased by 213 acres compared to the Original Project, the total impervious area associated with the project will be less than what was analyzed in the 2020 EIR even with inclusion of the 10 feet of hardscape along roadways.

While the overall impervious area is decreasing across the property, localized increases in partially impervious area along these roadways will generate additional stormwater runoff. Consistent with the design strategies already in place for area roadways, the stormwater runoff will be mitigated through Best Management Practices (BMPs) in accordance with the stormwater management strategies included in the Development Agreement. These BMPs will be fully designed, engineered, and documented in accordance with Post-Construction Stormwater Management requirements during each relevant Building Permit application.

The stormwater BMPs selected will collect runoff immediately adjacent to the roadway hardscape and routed to BMPs sized to treat the contributing run-on area, or the equivalent native ground area, allowing for infiltration through soils and landscaping to remove contaminants prior to reaching the groundwater table below or flowing to downstream receiving waters. Each BMP is designed to be context specific for the roadway, adjacent topography, and soil conditions.

3.0 CONCLUSIONS

No adverse impacts to surface water runoff, groundwater recharge, or water quality are anticipated as a result of the 10-foot hardscape additions adjacent to roadways.

Regards,



Cody Anderson, PE
Managing Principal

Appendix M

Wildfire Risk Analysis

MAHA RESORT AT GUENOC VALLEY

Wildfire Risk Analysis

Prepared For
Lotusland Investment Holdings, Inc.
468 Jackson Street
San Francisco, CA. 94133

January 2025

Berkeley Disaster Lab
COLLEGE OF ENGINEERING

WILLOW

Wildland Res Mgt

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Table of Contents

Glossary: Wildfire Risk and Hazard Terminology **3**
1. Introduction **6**
1.1. Court Decisions Summary 6
1.2. Project Description 7
2. Regulatory Background **11**
2.1. State and County Building Code and Wildland Urban Interface Regulations 11
2.2. Adopted Regional and Local Emergency Plans 13
2.3. Established Best Practices 14
2.4. Wildfire Preparation Plan Elements Above and Beyond Existing Code and Established Best Practices 16
3. Existing Setting **18**
3.1. Lake County Fire History 18
4. Methodology **21**
4.1. Ignition Frequency Analysis Methods 23
4.2. Fire Behavior and Growth Modeling Methods 24
4.3. Community Susceptibility Methods 28
5. Wildfire Risk Assessment Results **30**
5.1. Wildfire Likelihood 30
5.2. Wildfire Intensity 47
5.3. Community Susceptibility to Wildfire 59
5.4. Comprehensive Wildfire Risk Analysis Results 67
6. Conclusion **72**
6.1. CEQA Impact Analysis 72
7. Qualifications of Preparers **76**
Appendix W.1: Wildfire Behavior Analysis and Wildfire Behavior Risk Reduction Assessment **79**
Appendix W.1.A: Map Book **130**
Appendix W.1.B: Fuel Model Descriptions **180**
Appendix W.1.C: Fuel Model Conversion Logic **184**
Appendix W.1.D: Canopy Cover Conversion Logic **186**
Appendix W.1.E: Treatment Activity Descriptions **187**
Appendix W.2: Fire Station Service Time Estimates **189**

Glossary: Wildfire Risk and Hazard Terminology

Arson: The deliberate act of setting fire to property with malicious intent.

Backfire: A fire intentionally set to reduce fuel ahead of an advancing wildfire.

Burnout: The controlled burning of fuel inside a fire control line to strengthen the line.

Canopy: The upper layer of trees in a forest, consisting of branches and leaves, which can burn during high-severity wildfires.

CC&Rs: Covenants, Conditions, and Restrictions are legal guidelines and rules established for a property or community, typically set by a homeowners' association (HOA), developers, or property owners. CC&Rs are designed to protect property values, maintain community standards, and outline the rights and obligations of homeowners within a development or neighborhood.

Crown Fire: A fire that burns in the tops of trees or shrubs, often driven by wind; indicator of active or extreme fire behavior.

Defensible Space: A buffer zone around structures where vegetation and other flammable materials are reduced or eliminated to reduce fire risk.

Direct Fireline Construction: A method of creating a fireline close to the fire's edge, aiming to halt its spread by removing fuel in its immediate path.

Embers: Small, burning particles that can travel through the air and ignite new fires ahead of the main fire front.

Fire Behavior: The characteristics exhibited by a fire in response to available fuel, weather, and topography.

Fire Intensity: The energy output of a fire in an area in a given time period.

Flame Length: The linear height of flames from the base to tip; key indicator of fire intensity.

Foehn Wind: A dry, warm, and often strong downslope wind caused by adiabatic heating of air as it descends, and often associated with increased wildfire risk due to its drying effect on vegetation.

Fuel Model: Idealized quantification of a fuel complex for which all fuel descriptors required for the solution of a mathematical rate of spread model have been specified.

Fuel Type: An identifiable association of fuel elements of distinctive species, form, size, arrangement, or other characteristics that will cause a predictable rate of spread or resistance to control under specified weather conditions.

Hazard: An event or physical condition (fire) that has the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, damage to the environment, interruption of business, or other types of harm or loss.

Hardscaping: The use of non-flammable materials like stone, concrete, or gravel in landscaping or along roadways to reduce fire ignition risk.

Home Hardening: Measures taken to make a structure more resistant to ignition, such as using fire-resistant materials, reducing the ability for members to penetrate the structure, or using advanced design practices such as sprinkler systems.

Ignition: The initiation of combustion, leading to the start of a fire.

Indirect Fireline Construction: A suppression tactic that involves creating a control line some distance away from the fire's edge, often in combination with backfires or burnouts to reduce the fire's intensity before it reaches the line.

Ladder Fuels: Vegetation that allows a fire to climb from the ground to the canopy, increasing its intensity.

Radiant Heat: Heat energy emitted from flames that can ignite objects without direct contact.

Rate of Spread: The speed at which the head of the fire advances over a given period of time when in optimal alignment with wind and slope.

Reduced-Fuel Zone: An area where vegetation is thinned or removed to slow the spread of fire, reduce fire intensity, or improve conditions for firefighters.

Risk: Risk is the potential of adverse consequences relative to resources or assets; defined as the probability of an event multiplied by the expected damage from that event.

Spotting: The process of embers being carried by wind to ignite new fires ahead of the main fire front.

Surface Fuel: Combustible material on or near the ground, including grass, litter, and shrubs.

Suppression: Actions taken to extinguish a fire or limit its growth.

Torching: The burning of the foliage of a single tree or a small group of trees.

Vegetation Management: The strategic removal, reduction, or alteration of vegetation to mitigate wildfire risk.

Wildland: Areas which are not developed or farmed.

Wildland-Urban Interface (WUI): Areas where human development meets or intermingles with wildland vegetation.

1. Introduction

1.1. Court Decisions Summary

After the original version of the Maha at Guenoc Valley (MGV) project was approved by Lake County (County) in 2020, the Center for Biological Diversity (CBD) and California Native Plant Society (CNPS) filed petitions for writs of mandate in the Superior Court for the County of Lake challenging the County's approval, including the County's certification of the 2020 Final Environmental Impact Report (EIR), asserting that the 2020 Final EIR was inadequate under the California Environmental Quality Act (CEQA) on various grounds. The petitions were consolidated for purposes of briefing and hearing under Lake County Superior Court Case Number CV 421152. The State Attorney General intervened in the pending CBD action and filed its own petition for writ of mandate[1]. On January 4, 2022, the Lake County Superior Court issued a Ruling and Order on Petitions for Writ of Mandate and issued a writ of mandate on February 25, 2022. The Superior Court found that the EIR adequately complied with CEQA in all areas except for its analysis of impacts relating to community evacuations.

CBD and CNPS appealed the trial court's judgments upholding portions of the 2020 Final EIR other than the analysis of community wildfire evacuation impacts. On October 23, 2024, the First Appellate Court issued a decision ruling that the 2020 Final EIR complied with CEQA in all areas remaining at issue on appeal (the Superior Court's conclusion regarding inadequacy of the community evacuation analysis was not appealed and therefore not before the First Appellate Court), except for its analysis of impacts relating to wildfire risk resulting from the proposed Project. With respect to the wildfire risk analysis, the First Appellate Court found two issues. First, the First Appellate Court found that the additional wildfire risk analysis presented in the Errata to the 2020 Final EIR and the letter submitted by the Applicant's attorney was presented too late and effectively precluded public review. Second, the Court found that the wildfire risk analysis failed to meaningfully assess the wildfire risk created by the Project's potential to increase human-caused wildfire ignitions. The First Appellate Court remanded the case to the Superior Court, and directed it to issue an order and writ of mandate consistent with the First Appellate Court's decision.

This wildfire risk analysis has been prepared in order to address the October 2024 First Appellate Court's decision and to comply with the order and writ of mandate anticipated to be issued by the Superior Court. This analysis builds on and supplements the January 2024 Wildfire Risk and Evacuation Assessment initially prepared by Fehr & Peers (F&P) and the Community Wildfire Planning Center (CWPC) to address the January 2022 Lake County Superior Court Ruling and Write of Mandate.

[1] Case Number CV 421193

1.2. Project Description

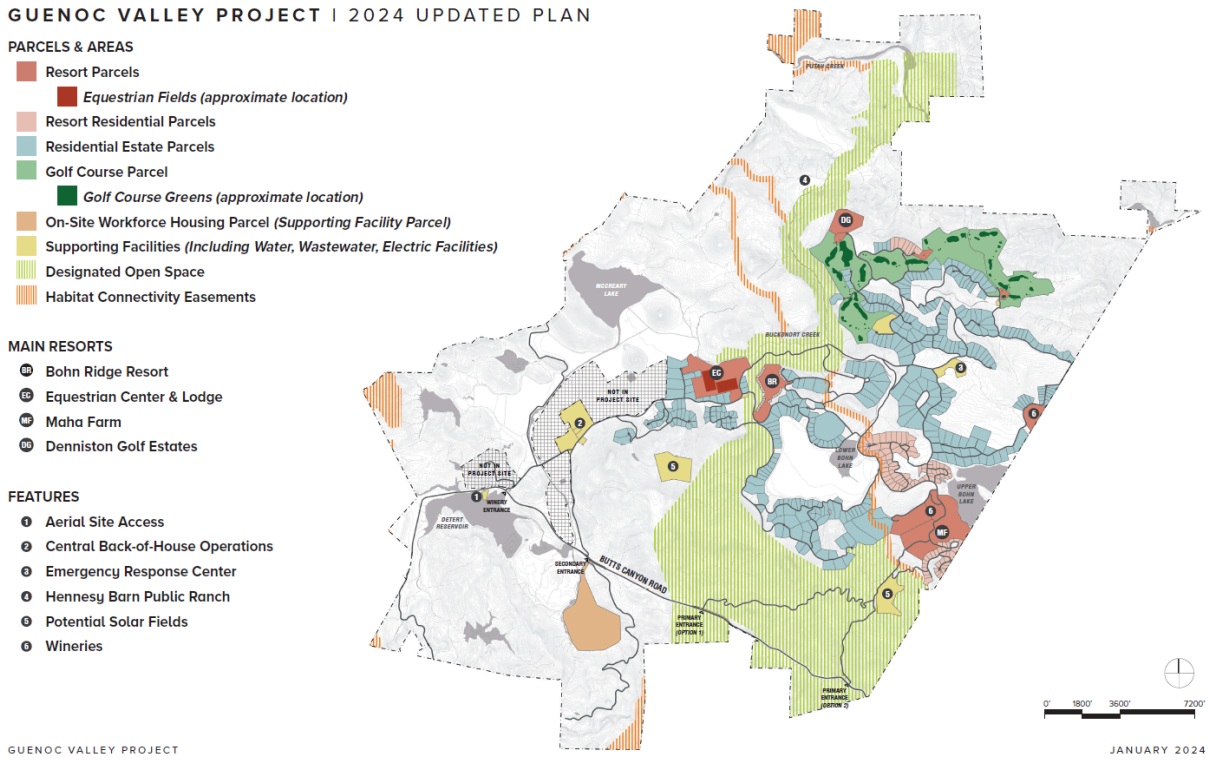
1.2.1. Phase 1 Project Components

The Maha at Guenoc Valley Project (MGV; Project) consists of the development of a master planned mixed-use resort and residential community within a portion of the 16,000-acre Guenoc Valley Ranch property (Guenoc Valley Site) in southeast Lake County. This wildfire risk analysis quantitatively and qualitatively evaluates the wildfire risk of the first phase of the project, and provides a qualitative programmatic assessment of future phases.

The first phase of the project would include development of four separate subdivisions throughout the Guenoc Valley Site. Phase 1 will include:

- 385 residential estate units
- 141 resort residential units
- 147 hotel units
- 100 Workforce Co-Housing Bedroom Units (equivalent to 35 housing units)
- 1 Golf course
- 1 Polo Field

Figure 1.1: MGV Project Plan (2024)



The Maha Resort at Guenoc Valley is located approximately 100 miles north of the Bay Area in the agricultural and viticultural region of North–central California. The proposed resort would be

located in the southeastern corner of the County, approximately three miles southeast of Middletown and on Napa County's northern border. Guenoc Valley experiences greater seasonal temperature extremes than neighboring areas, and elevation ranges from 620 to 1,916 feet. Vineyards cover much of the lower areas and valleys, while oak woodlands, grasslands, and chaparral dominate the hills.

Table 1.1 lists the design features and mitigation measures for Phase 1[1] of the MGV project. For the purposes of this analysis, we have determined that design features are those components

Table 1.1: Design Features and Mitigation Measures from the Mahá Guenoc Valley Wildfire Prevention Plan.

Feature/Measure to Reduce Wildfire Risk Impacts from WPP	DF or MM
Wildfire safety structure design standards and suppression systems for all buildings.	DF
Irrigated landscape defensible space around buildings (30 ft or greater)	DF
No open fires	DF
Golf course – irrigated landscape	DF
Vineyards – irrigated landscape	DF
Polo Field	DF
Fire suppression surface water sources and dedicated nighttime water source for aerial firefighting	DF
Existing interconnected water pumping system and fire hydrants.	DF
Power – existing generators for water system.	DF
Underground power lines	DF
Additional emergency access route along Grange Road to SR 29.	DF
On-site Emergency Response Center (ERC) staffed by South Lake County Fire Protection District	DF
Two emergency helipads	DF
Roadside hardscape shoulder (10 ft on either side of road)	DF
Revised road network and surfacing – paved two-way roads, added connector roads, no dead-end roads greater than 1 mile in length.	DF
Designated safety zones for firefighters	DF
Temporary refuge areas for residents	DF
Early detection system and emergency notification siren system.	DF
Fire-resistant landscaping, including planting design and species selection	DF
Home Hardening: Building exterior wildfire prevention strategies following California Building and WUI Codes	DF
Residential structures no closer than 30 ft from each other	DF

[1] While these will be implemented for phase 1 of the project, they will also impact the buildout of future phases of the project.

Feature/Measure to Reduce Wildfire Risk Impacts from WPP	DF or MM
Defensible space for all buildings (minimum 100 ft for residential, and 300 ft for non-residential)	MM
Vegetation management for fire risk reduction	MM
Restrictions on Debris Burning	MM
Strategically placed fire breaks and resort edge defensible space	MM
Roadside reduced fuel zone (40 ft on either side of road beyond 10ft hardscape shoulder)	MM
Parking restricted on primary access roads.	MM
Added firefighter staff during construction.	MM
Fire safety oversight and procedures during construction.	MM
On-site construction and maintenance equipment equipped with spark arrestors	MM
HOA funding for annual vegetation and defensible space management.	MM
HOA contract with a wildfire expert for Project duration to support homeowner education and response planning.	MM
Opt-out alert and communication system.	MM

which are part of the core project design to such an extent that the project would not move forward without them. Mitigation measures are elements which have been added to the project in order to further reduce fire risk above and beyond any existing reductions from the design features alone. It should be noted that many of the mitigation presented below are components of the proposed WPP and thus were considered project design features / commitments in the original 2020 EIR; however, the Court decision appeared to question whether or not the assumed implementation of ongoing management measures precluded a thorough disclosure of potential impacts, so we have split these features apart into design features and mitigation measures.

1.2.2. Buildout of Future Phases of the Project

The proposed zoning amendment of the Guenoc Valley Site to Guenoc Valley Zoning District (GVD) would allow for more development than what is proposed for Phase 1. Although no specific plans for additional phases are proposed at this time, it is anticipated that the future development according to the zoning designation could occur within the Guenoc Valley Site. It is assumed that future phases would include development up to the amount allowed in the zoning ordinance, which may include up to roughly an additional 500 hotel and resort residential units, 1,000 residential estate villas, and 400 workforce co-housing bedroom units. Additional sports and recreation facilities could be developed under future phases, including outdoor recreation such as sport fields, tennis courts, and indoor space for organized classes and rock climbing. The complete description of future phases of the Project remains unchanged from the 2020 Final EIR; refer to the 2020 Final EIR, Volume II Section 2.5.3 for additional details.

Future phases of the Project were analyzed at a programmatic level in the 2020 EIR and are assessed qualitatively here.

2. Regulatory Background

2.1. State and County Building Code and Wildland Urban Interface Regulations

2.1.1. Chapter 7, Subchapter 2 of the California Code of Regulations: California State Minimum Fire Safe Regulations

Chapter 7 of the California Code of Regulations (14 CCR, Division 1.5, Chapter 7 Subchapter 2, Articles 1-5) establishes minimum wildfire protection standards applicable to building within the State Responsibility Area (SRA) and Very High Fire Hazard Severity Zones. See Table 2.1 below for detailed requirements.

2.1.2. Chapter 6.8 of the California Government Code: Fire Hazard Severity Zone (FHSZ) Regulations [Sections 51175 - 51189]

Chapter 6.8 of the California Government Code (CGC), defines FHSZs and requirements for defensible space around occupied structures built within FHSZs. See Table 2.1 below for specific requirements.

2.1.3. Chapter 2 of the California Public Resource Code: Hazardous Fire Areas [Sections 4251 - 4290.5]

Chapter 2 of the California PRC defines restricted activities for “hazardous fire areas”, as defined by the State Board of Forestry and Fire Protection. See Table 2.1 below for specific requirements.

Table 2.1: California State Code Requirements for Building in Very High Fire Hazard Severity Zones

Code Requirement	Category	Code	Project Adheres?
Structures' building features optimize efficacy of fire suppression effort	Home Hardening	CA Govt. Code 51189 (a)	yes
Preserves and restore native plant species that are fire resistant and/or drought tolerant	Defensible Space	CA Govt. Code 51189 (c)(2)	yes
Active defensible space program	Defensible Space	CA Govt. Code 51189 (d)(1)	yes
Roads meet standard for fire apparatus access	Other site-wide features	CA PRC 4290 (a)(1)	yes
Visibility standards for signs identifying streets, roads, and buildings	Other site-wide features	CA PRC 4290 (a)(2)	yes

Guenoc Valley Wildfire Risk Analysis

Code Requirement	Category	Code	Project Adheres?
Private water supply reserves for emergency fire use	Other site-wide features	CA PRC 4290 (a)(3)	yes
Fuel breaks and greenbelts as buffer zones within/adjacent to development	Large-scale vegetation management	CA PRC 4290 (a)(4) & 4290 (b)	yes
Strategically placed shaded fuel breaks	Large-scale vegetation management	CA PRC 4290 (a)(4) & 4290 (b)	yes
Separation from wildfire source: use nonflammable amenities in design, employ safe setback on slopes	Other site-wide features	CA PRC 4291(a)(1)	yes
Maintain defensible space of 100' from structures	Defensible Space	CA PRC 4291(a)(1)	yes
Defensible space greater than 100' may be necessary for structures	Defensible Space	CA PRC 4291(a)(2)	yes
No tree limbs w/i 10' of chimney	Defensible Space	CA PRC 4291(a)(4)	yes
Remove dead/dying vegetation adjacent/overhanging structure	Defensible Space	CA PRC 4291(a)(5)	yes
Roof free of leaves, needles, debris	Defensible Space	CA PRC 4291(a)(6)	yes
Certification that structures meet building codes	Defensible Space	CA PRC 4291(a)(7)	yes
Non-flammable construction exempts no vegetation next to structure	Defensible Space	CA PRC 4291(c)(1)	yes
Measures in place to ensure long term adherence to defensible space/ home hardening standards	Defensible Space	CA PRC 4291(d)	yes
Procedures for authorization of removal of fire hazardous vegetation	Defensible Space	CA PRC 4291(d)	yes
Roofing: flame and ember resistant	Home Hardening	Chapter 7A CA building code Sec 705A	yes
Vents: ember resistant	Home Hardening	Chapter 7A CA building code Sec 706A	yes
Siding: noncombustible material or ignition-resistant	Home Hardening	Chapter 7A CA building code Sec 707A	yes
Exterior doors: non-combustible/ignition resistant, fitted with weather stripping	Home Hardening	Chapter 7A CA building code Sec 708A	yes
Exterior windows: multipane with one tempered layer	Home Hardening	Chapter 7A CA building code Sec 708A	yes
Decking: built of ignition-resistant material or noncombustible material.	Home Hardening	Chapter 7A CA building code Sec 709A	yes

Code Requirement	Category	Code	Project Adheres?
Eaves-open/closed : noncombustible or ignition resistant material	Home Hardening	Chapter 7A CA building code Sec 707A	yes
Rain gutters fitted with non-combustible gutter guards	Home Hardening	Chapter 7A CA building code Sec 705A	yes
Class A fire rated roof	Home Hardening	Chapter 7A CA building code Sec 703A. 5.2.2	yes

2.2. Adopted Regional and Local Emergency Plans

2.2.1. Lake County Emergency Operations Plan (2020)

The Lake County 2020 Emergency Operations Plan (EOP) provides a structure for coordinating interagency support for a local response to an incident through hazard-specific annexes, such as the Wildland Urban Interface (WUI) Annex, which was updated in 2021. The WUI Annex establishes priorities, responsibilities, and assigns tasks to the various response agencies who respond during wildfires. Wildland fire suppression, structure protection, and incident management are provided by CAL FIRE on State Responsibility Areas, Lake County Fire Districts within Local Responsibility Areas, and the U.S. Forest Service and Bureau of Land Management within federal lands. Because wildfires do not follow jurisdictional boundaries, the WUI Annex provides a clear framework for how the agencies will interact and establish coordinators for firefighting efforts, in addition to strategies and guiding principles for firefighters on the ground.

2.2.2. Lake County Community Wildfire Protection Plan (CWPP, 2023)

Lake County had an adopted 2009 CWPP that was in place at the time of the 2020 EIR. In 2023, an updated CWPP (‘2023 CWPP’) was released and adopted. The 2023 CWPP updates and streamlines the 2009 version, provides fire safety information to residents and homeowners, and identifies fuel reduction projects and fire safety resources throughout the County.

2.2.3. South Lake County Wildland Fire Preparation and Emergency Plan (2016)

The South Lake County Wildland Fire Preparation and Emergency Plan (2016) compiles information for the public on how to best prepare for emergencies and what to do during an evacuation. The plan was written by the South Lake County Fire Protection District and South Lake Fire Safe Council and identifies primary evacuation routes for the South Lake County communities, which include SR 29 and SR 175, and secondary evacuation routes, Butts Canyon Road, Big Canyon Road, Spruce Grove Road, Loch Lomond Road, Bottle Rock Road,

and Seigler Canyon Road. The plan establishes temporary assembly zones on the emergency evacuation map (South Lake Fire Safe Council, 2016). Middletown High School (20932 Big Canyon Road) and Coyote Valley Elementary School (18950 Coyote Valley Road) are the two assembly zones closest to the Project site.

2.3. Established Best Practices

2.3.1. Attorney General's Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects

The Office of the Attorney General (OAG) published Best Practices for Analyzing and Mitigating Wildfire Impacts of Development Projects Under the California Environmental Quality Act.[2] The AG Guidance is designed to help lead agencies comply with CEQA when considering whether to approve projects in wildfire-prone areas. Table 2.2 below lists the OAG recommendations that go above and beyond existing California building code requirements.

2.3.2. Insurance Institute for Business & Home Safety (IBHS) Wildfire Prepared Home Recommendations

IBHS has published a voluntary certification with established best practice recommendations to prepare homes for wildfires. Table 2.2 below lists those components of this certification that go above and beyond existing California building code requirements.

2.3.3. National Fire Protection Association (NFPA) 1140 Standard for Wildland Fire Protection

The National Fire Protection Association is an international nonprofit organization that has established the NFPA 1140 Standard for Wildland Fire Protection as well as codes, training, and education for eliminating death, injury, and other damages related to fire, electric, and associated hazards. In Table 2.2 below we list NFPA standards for wildland fire protection that go above and beyond existing California building code requirements.

[2] https://oag.ca.gov/system/files/attachments/press-docs/2022.10.10%20-%20Wildfire%20Guidance.pdf

Table 2.2: Commonly followed best practices established by reputable organizations[3]

Best Practice Above and Beyond Code Requirements	Category	Best Practice Established By	Project Adheres?
Limiting development along steep slopes and amidst rugged terrain	other site-wide features	OAG[4]	To the extent possible
Siting projects to maximize the role of low-flammability landscape features	other site-wide features	OAG	To the extent possible
Underground power lines	other site-wide features	OAG	yes
Placement of development close to existing or planned ingress/egress and designated evacuation routes	other site-wide features	OAG	yes
Placement of projects close to adequate emergency services	other site-wide features	OAG	yes
Construction of additional points of ingress and egress and modification of evacuation routes to minimize or avoid increasing evacuation times or emergency access response times	other site-wide features	OAG	yes
Fire hardening structures and homes—upgrading the building materials and installation techniques to increase the structure's resistance to heat, flames, and embers—beyond what is required in applicable building codes, both for new structures and existing structures in proximity to the new development	other site-wide features	OAG	To the extent possible
Requiring fire-hardened communication to the project site including high-speed internet service	other site-wide features	OAG	To the extent possible
Enhanced communication to the project population about emergency evacuation plans and evacuation zones	other site-wide features	OAG	yes
Parking limitations to ensure access roads are not clogged with parked vehicles	other site-wide features	OAG	yes
Increasing housing density and consolidated design, relying on higher density infill developments as much as possible	other site-wide features	OAG	To the extent possible given the resort residential character

[3] This table only lists those suggested best practices that are above and beyond the existing code requirements listed in Table 2.1 above.
[4] Many of the OAG best practice recommendations here are too vague to allow concrete commitments by a project such as this, so to reflect this pragmatically, the commitment will be "to the extent possible".

Best Practice Above and Beyond Code Requirements	Category	Best Practice Established By	Project Adheres?
Avoidance and minimization of low-density exurban development patterns or leapfrog-type developments	other site-wide features	OAG	To the extent possible given the resort residential character
Decreasing the extent and amount of “edge,” or interface area, where development is adjacent to undeveloped wildlands	other site-wide features	OAG	To the extent possible[5]
On-site water supply/storage to augment ordinary supplies that may be lost during a wildfire	other site-wide features	OAG	yes
No more than three structures greater than 15 sq ft within 30' of home, and each of those is at least 10' from home and each other	Defensible Space	IBHS WPH	yes
Metal gutters, drainpipes	Home Hardening	IBHS WPH	yes
No combustibles within 5' of any structure	Defensible Space	IBHS WPH	yes
No combustible fencing within 5' of structure	Defensible Space	IBHS WPH	yes
Enclose underside of non-combustible eaves	Home Hardening	NFPA 1140	yes
Noncombustible solid exterior doors or dual paned tempered glass	Home Hardening	NFPA 1140	yes
6 vertical inches of non-combustible siding at the base of exterior walls	Home Hardening	NFPA 1140, IBHS WPH	yes
Community organization providing framework and resources for communities' wildfire prevention activities	other site-wide features	NFPA Firewise USA	yes

2.4. Wildfire Preparation Plan Elements Above and Beyond Existing Code and Established Best Practices

There are some additional MGV project components aimed at reducing wildfire risk that are above and beyond any existing code requirements or established best practices listed above. Table 2.3 below lists those elements.

[5] The amount of "edge" was decreased as a part of recent project modifications..

Table 2.3: Project components aimed at reducing wildfire risk that are above and beyond established code or best practices.

Project Component Above and Beyond Code and Established Best Practices	Category
Construction of new Emergency Response Center staffed with full-time firefighters	Other site-wide features
Rotating livestock grazing	Large-scale vegetation management
Ember, flame, and fire resistant vents	Home Hardening
Early detection system	Other site-wide features
Rooftop fire suppression systems	Home Hardening
Non-combustible dryer vents	Home Hardening
No back-to-back fencing	Defensible Space

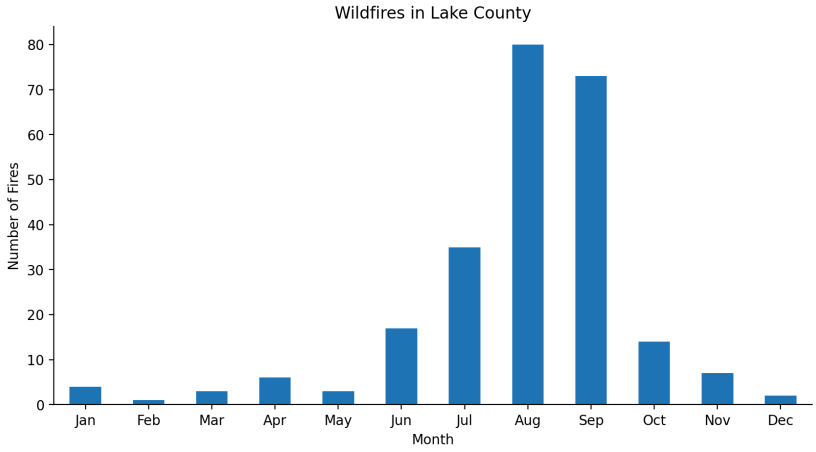
3. Existing Setting

The MGV site is located in the southern portion of Lake County, California. Lake County is characterized by a Mediterranean climate regime with warm, dry summers and cooler, wetter winters. The area experiences a pronounced seasonal variation in precipitation, with the vast majority of precipitation coming between December and March. Daytime summer temperatures typically range from 85–95°F, with relative humidity commonly below 35%. The fire risk is generally greatest in the late summer and early fall when temperatures are high, relative humidity is low, and fuels are cured at the end of the growing season[6]. The fall months (September and October) also support Konocti and Diablo wind events, when strong foehn[7] winds move warm, dry air masses from the north and east into the region, exacerbating fire risk.

3.1. Lake County Fire History

Lake County frequently experiences wildfires. According to the California Department of Forestry and Fire Protection (CalFIRE), there have been at least 1,068 wildfires in Lake County since 2008. These fires include several very large incidents, including the 1,032,700-acre August Complex (2020), the 410,202-acre Ranch Fire (2018, a member of the Mendocino

Figure 3.1: Number of reported wildfires by month in Lake County since 2008.

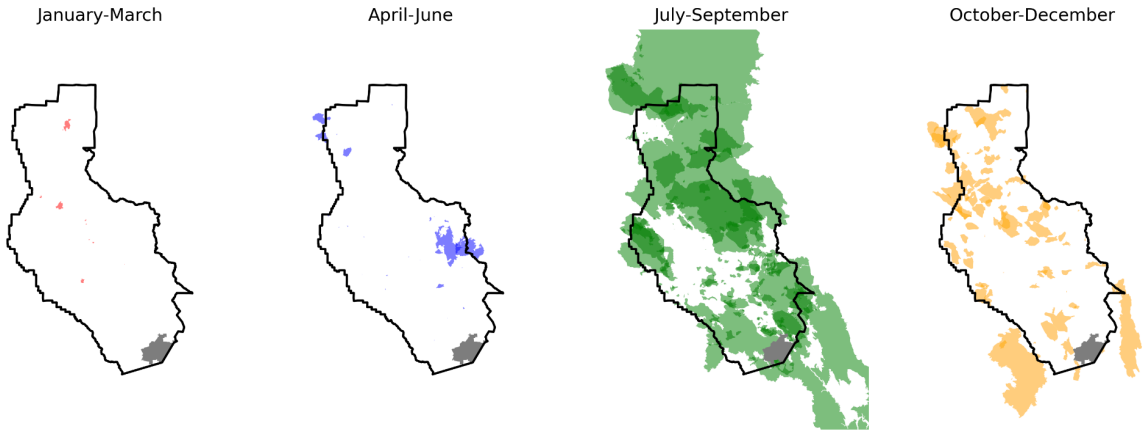


[6] Cured fuels are herbaceous vegetation, such as grasses, that have dried out and lost their moisture content, making them highly flammable and prone to combustion during a wildfire.

[7] Foehn winds are dry, warm, and strong downslope winds caused by air descending from mountain ranges, which can significantly increase wildfire risk by drying out vegetation and driving rapid fire spread.

Complex), and the 305,351-acre Hennessey Fire (2020, a member of the LNU Lightning Complex)[8]. In recorded history, there have been at least 26 fires greater than 10,000 acres and 119 fires greater than 1,000 acres, countywide[9]. As shown in Figures 3.1 and 3.2, these fires can occur throughout the year but are most frequent in the late summer and early fall.

Figure 3.2: Fire footprints in Lake County at different times of the year. MGV project site is highlighted in gray at the bottom right of each figure. Fire history extends to at least 1950.[10]



The MGV site has itself experienced numerous wildfires in recent years. At least 14 wildfires have burned on the site since 1950. The Valley fire burned over 87% of the MGV site (14,453 acres). The Hennessey Fire (LNU Complex) burned 5,118 acres, or about 31%, of the MGV site. As shown in Table 3.1, earlier fires in recent history have burned less than about 5% of the MGV project site.

Recent fires in Lake County have been not just large but have resulted in large-scale losses to structures. Over 3,000 structures have been damaged or destroyed by fires since 2015, when rigorous statewide recordkeeping of structures destroyed by wildfire began in California. Although no structural damage was reported on the site, the 2015 Valley Fire destroyed nearly 2,000 structures in the communities of Middletown and Hidden Valley Lake near the MGV project site[11]. Other recent Lake County fires with significant losses include the Ranch Fire (239 structures destroyed), the Clayton Fire (300 structures destroyed), and the Sulphur Fire (162 structures destroyed). Additionally, although the Kincade Fire burned only two structures in Lake County, it destroyed over 370 in adjacent Sonoma County.

It should be noted that because of the grazing land, lakes, irrigated vinyards, and numerous roads on the site that have the potential to slow the spread of fires, for three of the wildfires in Table 3.1 that affected the MGV site itself, including the two largest fires that affected the site, Hennessey (LNU Complex), Valley Fire, and Butts Fire, CalFire used the MGV site itself to stop the fires.

[8] Acreage figures are total for each fire, not acreage within the Lake County boundary.
[9] https://www.fire.ca.gov/what-we-do/fire-resource-assessment-program/fire-perimeters
[10] https://www.fire.ca.gov/what-we-do/fire-resource-assessment-program/fire-perimeters
[11] Although no structure losses were reported on the MGV project site, it was a sparsely developed rural ranch property in 2015, with few buildings.

Table 3.1: Recent wildfire activity on the MGV project site.

Fire Year	Fire Name	Total Acres Burned	MGV Acres Burned	Percent of Project Site Burned
2020	Hennessey (LNU Complex)	305,352	5,118	31.0%
2020	Oat	6	9	0.1%
2015	Valley	76,085	14,453	87.5%
2015	Jerusalem	25,118	221	1.3%
2014	Butts	4,297	590	3.6%
2006	Homestake 2	124	205	1.2%
2000	Hidden	3,960	72	0.4%
1996	Guenoc	649	320	1.9%
1976	Yankee Valley	1,588	143	0.9%
1966	Jericho	2,677	496	3.0%
1963	Foley Farm	383	64	0.4%
1953	Homestake 2	2,920	420	2.5%
1952	Oat Hill Mine	2,667	9	0.1%
1951	Snyder	629	430	2.6%

4. Methodology

Wildfire risk is complex and multidimensional. On any given day, a community's wildfire risk depends on the weather (including wind speed, direction, atmospheric moisture, and long-term climatic trends such as drought), the presence and location of ignition sources (including both anthropogenic and natural ignitions), the vegetative conditions of the fuels (including volume, arrangement, size, moisture content, and continuity of the fuels), the design, materials, and topology of the built environment, the capability for a sufficient number of firefighters to arrive quickly and suppress the fire, and the road and traffic conditions needed to facilitate a safe and orderly evacuation.

Careful planning, community design, fire safe building practices and materials, managing vegetation to reduce fire risk, and ongoing maintenance can significantly reduce the likelihood of ignition from common activities and land uses, keep potential fires from moving quickly and intensely across a landscape, mitigate the threat of conflagration and structure-to-structure fire spread, and improve the capacity for firefighters to effectively engage the fire.

As shown in Figure 4.1, the likelihood of ignition is only one factor contributing to a community's wildfire risk. Equally, if not more, important are the community's susceptibility to fire and the behavior of the fire as it spreads across the landscape. Wildfire risk can be assessed and mitigated systematically through the following framework:

- **Ignition Likelihood:** How likely are wildfires to occur? What land uses (e.g., camping and recreation, construction), human activities (e.g., debris burning, smoking, fireworks), and natural events (e.g., lightning, volcanoes) are likely to cause fires? Can policies, practices, and programs be implemented to reduce the likelihood of ignition?
- **Fire Behavior (Intensity):** What are the potential characteristics of a fire, given an ignition source? How quickly will the fire grow and how much intensity will be produced? How feasible will it be for firefighters to quickly, safely, and effectively engage in fire suppression?
- **Community Susceptibility:** How resilient are structures and neighborhoods to a potential fire exposure? How close together are the structures located and what is the potential for structure-to-structure spread (i.e., urban conflagration)? How do building materials, design practices, and landscaping features increase or decrease the likelihood of structure ignition? What is the capacity of emergency response agencies to reduce or eliminate the threat of an active fire to the community? What educational programs or local ordinances are present to develop and maintain fire-smart design practices?

When approached holistically, wildfire risk can remain unchanged or even decrease during an increase in population, if it comes with corresponding changes in fire behavior and community susceptibility.

Figure 4.1: Components of wildfire risk to a community.[12]



To holistically evaluate wildfire risk for the MGV site, this study adopts a comprehensive fire risk assessment that includes:

- A statistical analysis of fire ignition frequency in Lake County and the Hidden Valley Lake subdivision;
- A projection of fire behavior characteristics on the MGV project site;
- An analysis of fire growth trajectories under common weather conditions;
- A network analysis of firefighting response time; and
- An expert assessment of the relevant building codes and approaches to structure ignition prevention for structures on the MGV site.

To define project parameters for model inputs, as well as to facilitate qualitative discussion of the potential for project components to reduce wildfire risk, we break the project components into “design features” (DF), and “mitigation measures” (MM). Table 1.1 in Section 1 above lays out the design feature and mitigation measure components of the project estimated to reduce fire risk.

[12] See: Scott, Joe H. "An analytical framework for quantifying wildland fire risk and fuel treatment benefit." In *Andrews, PL, Butler, BW (Comps), Fuels Management-How to Measure Success: Conference Proceedings, March*, pp. 28-30. 2006; Thompson, Matthew P., and Dave E. Calkin. "Uncertainty and risk in wildland fire management: a review." *Journal of environmental management* 92, no. 8 (2011): 1895-1909; and Miller, Carol, and Alan A. Ager. "A review of recent advances in risk analysis for wildfire management." *International journal of wildland fire* 22, no. 1 (2012): 1-14.

4.1. Ignition Frequency Analysis Methods

Under standard CEQA analysis, we are required to assess the probability of ignitions from Case I (the base project only including design features) against baseline ignition probability for the site, and Case II (base project design features + mitigation measures) against baseline ignition probability. To do this, we treat average ignition probabilities in Lake County as a decent proxy for baseline ignition probability on the site. This errs on the side of caution, as the existing site has lower population densities than the average county density, and therefore less traffic and other ignition sources. We also evaluate the last decade of ignitions and fire history for Hidden Valley Lake, as a very close community (within ~3 miles) with a population in range of the potential future buildout for MGV. We then combine quantitative and qualitative methods to determine the potential change to ignition probability on site due to Case I.

Quantitatively, we conduct a statistical analysis of wildfire ignition frequency for two jurisdictions:

1. Lake County: data compiled from CalFIRE Annual Reports ("Redbooks"); and
2. Hidden Valley Lake Subdivision: data compiled from Hidden Valley Lake Security Reports that included forensic assessments of causes for 200 calls reporting a fire between 2015 and 2024.

We then run basic descriptive and inferential statistics on the compiled data to determine the most common causes, and any trends in ignition causes over time. Due to data quality, we focused inferential statistics on the Lake County fire cause dataset, but we include descriptive statistics for the Hidden Valley Lake fire cause dataset. Statistics included deriving annual averages for each fire cause, outlier analysis and evaluation, and assessment of linear temporal trends using linear regression. In addition, we built a statistical model from the Lake County fire cause dataset to evaluate the number of wildfire ignitions as a function of road miles, buildings, and population in the County and used this to assess how ignition frequency could change due to the MGV development. To estimate maximum population on site consistently at any given time, we retain consistency and use the 2020 EIR's methodology of multiplying residential structures by 2.39 people/household from the U.S. Census American Community Survey 5-year estimated for 2017. For hotel units and workforce co-housing units, we assume occupancy of all rooms at 1 person per room. It is important to note here, that while we share the results of this simple, linear regression analysis of potential ignition probability impacts correlated with increases in population on site, road miles on site, and structures on site, these data outputs in Section 5.1.3. below do not yet include qualitative assessment of ignition probability impacts from design features, and thus cannot be considered an analysis of Case I ignition impacts without Section 5.1.4. We share the raw regression outputs for the sake of transparency and to address the interest shared by the First Appellate District Court of Appeal.

To accurately assess potential increases in ignitions from Case I and then Case II, we then qualitatively assess the impact on ignition likelihood broken down by ignition sources and design features or mitigation measures, respectively, that target each of those ignition sources. There are not yet industry standard ignition modeling tools that can account for all of the interventions that can reduce ignition probability, particularly as many of these relate to human behavior. We

therefore rely on expert qualitative assessment of design feature or mitigation measure impacts on ignition probability. The final determination of ignition likelihood impacts from Case I is therefore equal to the quantitative determination of added fires due to added population, road miles, or buildings (the highest of the three), minus the ignition likelihood reductions from design features, which vary by cause, or for Case II, minus the ignition likelihood reductions from both design features and mitigation measures.

4.2. Fire Behavior and Growth Modeling Methods[13]

4.2.1. Project design features and mitigation measures defining modeling scenarios for fire behavior models

This wildfire risk assessment compiles information from the 2020 Final EIR, Community Evacuation Assessment (Fehr & Peers, California Wildfire Planning Center, 2024), the 2024 Updated Wildfire Prevention Plan for the Project, as well as revised and more robust mitigation measures that will be incorporated into the 2025 Updated Wildfire Prevention Plan for the Project. Future project phases would include similar wildfire risk reduction elements; however, specific information regarding the location of such elements within the project site is not yet known, as those phases have not been designed yet. The 2024 Updated Wildfire Prevention Plan for the Project, and revised mitigation measures for the 2025 Updated Wildfire Prevention Plan for the Project, in particular, were used to define the design features and mitigation measures and thus the two modified scenarios for fire behavior modeling beyond the baseline scenario. As noted above in Tables 2.1, 2.2, and 2.3, the project includes design features and mitigation measures that are intended to not only address California and Lake County building code requirements for the wildland urban interface in CalFIRE-determined high fire hazard severity zones (FHSZ), but established best practice recommendations from respected organizations like the IBHS and the NFPA, and some design features and mitigation measures that are just emerging as innovations for wildfire resilience, like early ignition detection systems and rooftop suppression systems. While all of these design features and mitigation measures (Table 1.1 above) have the potential to reduce wildfire risk, due to the constraints of available existing models, it is not possible for modeling to account for all of them Below is a table laying out the design features and mitigation measures that were feasible to include in the modeling.

[13] See Appendix W.1

Table 4.1: Wildfire modeling cases, indicating the elements feasible to include as model inputs under Case I (design features) and Case II (mitigation measures).

Feature/Measure to Reduce Wildfire Risk	Case I: Design Features	Case II: Design Features + Mitigation Measures
Additional Paved Roads	Yes	Yes
10 ft Hardscaping on each side of Roadways	Yes	Yes
40 ft of vegetation clearance beyond 10 ft of hardscaping on each side of roadways	No	Yes
Grazing around structures	No	Yes
Active Landscape Vegetation Management	No	Yes
Vineyards	Yes	Yes
Irrigated Areas around Non-residential Buildings (40 ft)	Yes	Yes
Irrigated Areas around Residential Buildings (30 ft)	Yes	Yes
Golf and Polo Fields	Yes	Yes
Irrigated Areas near Roadways	Yes	Yes
Defensible Space Adjacent to Buildings (100 ft for residential; 300 ft for non-residential)	No	Yes
Perimeter Shaded Fuel Breaks	No	Yes
Water Features	Yes	Yes

4.2.2. Fire Behavior Modeling Scenarios

Potential fire behavior and fire growth modeling used a structured approach to compare the fire behavior benefits of the design features and mitigation measures compared to the existing site conditions. Three modeling cases were designed to reflect the proposed risk reduction activities:

Baseline: Represents the unmodified site conditions. In this scenario, the landscape represents its pre-development state, with all existing residential and vineyard/winery structures located in their existing locations without modifications to their placement or surrounding conditions. Buildings do not have defensible space, and there are minimal fire management practices in place. This unmodified scenario serves as a reference point for comparing the effectiveness of design features and mitigation measures in the other modeling cases.

Case I - Design Features (DF): Represents a post-phase 1 development scenario where fire risk is potentially reduced through planned landscape elements. Key features

include the strategic use of golf courses, a polo field, and vineyards as fire buffers, the placement of paved roadways throughout the project site, and the introduction of irrigation around the proposed buildings and roadways.

Case II - Design Features + Mitigation Measures (DF+MM): Integrates active land management practices into the design features of Case II in order to further potential mitigation of wildfire risk. This case includes vegetation management activity throughout the property, such as grazing, mastication, and the removal of dead, dying, or invasive vegetation, as well as the addition of roadside hardscaping and vegetation clearance, the creation of perimeter fuel breaks, and the establishment of defensible space around proposed residential and non-residential structures.

4.2.3. Fire Behavior Modeling Tools

Several tools are available to assess potential wildfire behavior and growth. This study leverages two leading tools for wildfire risk assessment:

FlamMap: FlamMap is a fire modeling software produced by the United States Forest Service's Missoula Fire Lab[14] that simulates potential fire behavior on heterogeneous landscapes under user-provided environmental conditions. FlamMap provides spatially varying outputs of key fire behavior metrics such as flame length, rate of spread, and crown fire activity. FlamMap does not model temporal patterns in fire growth; instead, it provides detailed estimates of the characteristics of the fire at each pixel on the landscape, such as intensity and speed. FlamMap has been extensively used in land use planning and fire risk assessments at the landscape scale. This modeling performs well in comparing predicted fire behavior to observed activity and is often used to evaluate the effectiveness of landscape scale fuel treatments.

Fire Pathways: Fire Pathways[15] is a computational model of fire spread, developed by XyloPlan[16] and Toyon Labs, that identifies where topography, fuel, and wind align to produce the fastest routes fire could take to spread across a landscape. Fire spread trajectories are calculated using Finney's 2002 Minimum Travel Time algorithm[17] to estimate travel time between cells on a regular grid. Fire Pathways are useful for understanding how fire is likely to advance across a landscape, locating hazardous combinations of fuel and topography where the fire is expected to make runs, and identifying the portions of the community at greatest risk from rapidly spreading fire.

These and other fire behavior models require several important data inputs that describe the physical landscape and the fire weather conditions on the area being modeled.

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[14] https://www.firelab.org/project/flammap
[15] Fire Pathways is a registered trademark of Xylo Risk, Inc. Fire Pathways technology was licensed from Xylo Risk and Toyon Labs for use in this project.
[16] https://www.xyloplan.com/
[17] Finney, Mark A. "Fire growth using minimum travel time methods." *Canadian Journal of Forest Research* 32.8 (2002): 1420-1424.

Surface Fuel Data: Spatially explicit data representing the type, load, and arrangement of combustible fuels in the surface stratum, including both the live (grasses and shrubs) and dead (accumulated vegetative debris) components of the fuelbed. This study uses data from the California Forest Observatory's Surface Fuels dataset at 10m resolution to provide a fine-scale assessment of surface fuel type, arrangement, and loading on and around the site. For the impact analysis, the surface fuels were modified to reflect the changes in fuel derived from the proposed wildfire mitigation measures and design features[18].

Canopy Fuel Data: Spatially explicit data representing the canopy height, density, and thickness. This analysis uses 10m LIDAR-derived data from the California Forest Observatory. For the impact analysis, canopy layers are modified to reflect potential management activities to remove ladder fuels and, in some cases, change canopy cover.

Topography: Spatially-explicit data indicating the elevation, slope, and aspect of the land surface. This analysis uses a 10m digital elevation model (DEM) from the United States Geological Survey. Slope and aspect were calculated using the QGIS and the GDAL geospatial analysis toolkit.

Weather: Perhaps most importantly, fire behavior models require inputs that detail the wind direction, wind speed, and relative humidity during months of the year with the lowest average fuel moistures. This study found August, September, October, and November to have the lowest average fuel moistures for Lake County, and thus set those months as the "fire season" for weather analysis. This study used a statistical approach to derive two fire weather scenarios from the nearby Konocti Remote Automated Weather Station (RAWS) station, representative of local high-severity fire weather conditions.

Because fire pathways modeling focuses on the most likely pathways under the probable high-severity fire weather conditions, these pathways may not reflect the fire pathways observed on historical fires. Not all historical fires occurred during worst-case scenario weather conditions, and thus may follow other routes. However, the intent of this modeling is not the accurate representation of historical fire behavior, but, rather, to understand and evaluate potential fire growth trajectories representative of the highest risk weather events.

[18] The MGV site has a recent fine-scale vegetation survey; however, this is not applicable for fire behavior modeling. Fire behavior modeling requires specialized geospatial datasets that describe fuel size, loading, arrangement, and continuity to determine likely fire characteristics. These "fuel models" are not generally correlated with vegetation type or species. A single fuel model can represent multiple vegetation types (e.g., The "Oak woodland" and "Bay-Laurel woodland" vegetation types may both be represented with the "moderate load broadleaf litter" fuel model), and, conversely, a single vegetation type may be represented by multiple fuel models (e.g., some portions of "Oak woodland" may be classified as "very heavy load broadleaf timber litter" while other areas are categorized as "light load broadleaf timber litter" depending on ecological disturbance and other ecosystem characteristics).

Table 4.3: Fire Weather Planning Scenario for the East Wind Scenario

Characteristic	East Wind Scenario	West Wind Scenario
Wind Speed	14 mph	17mph
Wind Direction	100 degrees (East)	270 (West)
Relative Humidity	9%	8%
Representative Date	October 30, 2019	September 28, 2009
Representative Time	Early Morning	Late Afternoon

4.3. Community Susceptibility Methods

Community susceptibility is a combination of the resilience of the built environment to ignitions and fire spread, the capacity for rapid and effective response to an active wildfire, and the awareness and preparedness of residents themselves to safely respond and evacuate during an incident. Some of these elements can be modelled, while others cannot, or do not yet have industry standard approaches to do so.

To assess the wildfire risk impacts from the project's changes to the built environment, we qualitatively evaluate the likely result of the proposed design features under Case I, and mitigation measures + design features under Case II. However, these design features and mitigation measures are for the built environment on-site, not the built environment of surrounding communities off-site, and thus impacts to community susceptibility from these interventions would primarily accrue on-site. Impacts to the susceptibility of off-site built communities from Case I and Case II would therefore be indirect, and are discussed qualitatively in Section 5.3.

We assess capacity for rapid response primarily quantitatively. In Section 4.3.1, we discuss the fire response time modeling approach. It is not possible to quantitatively assess "effectiveness" of response with current data, and thus we qualitatively evaluate project features likely to impact effectiveness.

4.3.1. Fire Response Times Modeling Methods

We conducted a network analysis in ArcGIS Pro Network Analyst to determine the probable time it would take a fire engine or ambulance to reach various locations in the project site and surrounding communities. We modeled two scenarios for this analysis:

1. Arrival time for two existing fully staffed stations, Hidden Valley Lake Station #63, Middletown Station #31, and one volunteer Napa County Fire Department Station #220, which is not always staffed, and only using existing roads and road cover data;

2. Arrival time for all three existing stations and new planned ERC to be located on the project site, and using existing and planned roads and road cover modifications as one of the project's design features.

The analysis incorporated the proposed roads (DF) and the new ERC Station, to show how fire response time is projected to change when the new development is built. The estimates were computed by measuring the driving time from the originating station to various points along the road network. Each road segment has an assigned speed limit. Speeds range from 15 miles per hour to 50 miles per hour. We applied four arrival time bins: Less than 5 minutes; Between 5 and 10 minutes; Between 10 and 15 minutes; and Between 15 and 30 minutes.

Caveats to this analysis include:

- There is a small percentage of roads that may be incongruent between maps and emergency service use: a small percentage of roads that the fire service uses are not available from public records, while another small percentage that public records list may no longer be usable by the fire service. As a result, for this small fraction of roads, results may be uncertain, but these are not expected to affect the results of the analysis in a statistically significant manner.
- This modeling only applies to driving time, not the time it takes for a station to be notified of a fire, or for firefighters in the stations to leave the station after receiving the notification.

5. Wildfire Risk Assessment Results

As discussed above, a holistic approach to assessing wildfire risk requires an analysis of *likelihood (ignition), intensity (fire behavior), and susceptibility (structure vulnerability and response capabilities).* To accomplish this, this study conducted:

- A statistical analysis of fire ignition frequency in Lake County;
- A projection of fire behavior characteristics on the MGV project site;
- An analysis of fire growth trajectories under common weather conditions;
- A network analysis of firefighting response time; and
- An expert assessment of the relevant building codes and approaches to structure ignition prevention for structures on the MGV site.

Together, these varied approaches align to provide strong evidence that MGV design features (Case I) reduce holistic wildfire risk (*likelihood + intensity + susceptibility).* However, despite this finding, due to the high uncertainty driven by the stochastic nature of catastrophic wildfires, this study also evaluated Case II, including mitigation measures, as necessary additional risk mitigation measures to address this uncertainty. This analysis found substantial evidence that design features and mitigation measures combined under Case II are highly effective at reducing wildfire risk across the MGV site, and to a smaller degree in adjacent communities.

Findings from several lines of analysis project that overall fire risk is substantially reduced on and adjacent to the site, due to (a) ignition-reduction design features and mitigation measures projected to offset any increases in ignition frequency attributable to increased people on site, (b) widespread decreases in fire behavior, both across the site as a whole, and adjacent to structures and other key infrastructure, (c) improved fire response time and firefighting capabilities on the site, and (d) robust home hardening, defensible space, and community design features that are projected to reduce the ignitability of structures and minimize the potential structure to structure fire spread.

5.1. Wildfire Likelihood

5.1.1. Analysis of Fire Cause History for Lake County and Hidden Valley Lake

There have been over 1,000 reported wildfire ignitions in Lake County between 2008 and 2023. These fires have burned over 240,000 acres and cost upwards of $2.25 billion, although one fire alone, the 2015 Valley Fire, accounted for 76,067 acres and $2.016 billion of that total.[19] For Lake County, the Valley Fire represents an extreme outlier in the data since 2008. According to Lake County statistics from CalFIRE, fires caused by human activity (in particular, debris burning, arson, and equipment failure) have become increasingly common in the past decade.

[19] https://www.fire.ca.gov/our-impact/statistics

Since 2008, the most common fire causes in the county were debris burning (117 fires), equipment use (113 fires), arson (107 fires), power generation, transmission, and distribution (105 fires), and vehicles (90 fires).

While this study presents an analysis of the number of ignitions and causes of those ignitions below, there is little statistical evidence indicating that the number of fire ignitions (likelihood) correlates with the dollar losses in a given year (susceptibility), or that there is a simple linear correlation between number of ignitions and acres burned (severity). As shown in Table 5.1, nearly 90% of the wildfire losses in this 15-year period occurred in 2015, and, indeed, 88.7% of all losses in Lake County were attributable to a single fire, the 2015 Valley Fire, which destroyed over 2,000 structures in Middletown and Hidden Valley Lake and caused over $2 billion in damage, a statistical outlier even when compared to other substantial wildfires affecting the site. Most fires in the area are small and do not cause significant damage to the built environment or other human land uses.

Table 5.1: Wildfire ignition statistics for Lake County from CalFIRE annual reports ("redbooks")[20]

Year	Number of Fires	Acres Burned	Dollar Damage
2008	50	15,115	$280,504
2009	54	1,560	$163,650
2010	45	504	$1,000
2011	57	82	$534,840
2012	74	8,335	$3,274,740
2013	82	870	$404,321
2014	62	343	$69,255
2015	75	171,849[21]	$2,017,984,089[22]
2016	74	4,041	$105,579,028
2017	75	2,517	$35,412,565
2018	83	15,740	$7,182,249
2019	54	250	$212,965
2020	80	18,595	$82,183,550
2021	58	109	$1,389,704
2022	92	132	$288,003
2023	52	105	$239,026
Total	**1067**	**240,147**	**$2,255,199,489**
Annual Average	**66.7**	**15,009**	**$140,949,968**
Standard Deviation	**14.2**	**1,653**	**$501,571,503**
Average per fire	**n.a.**	**225**	**$2,113,589**

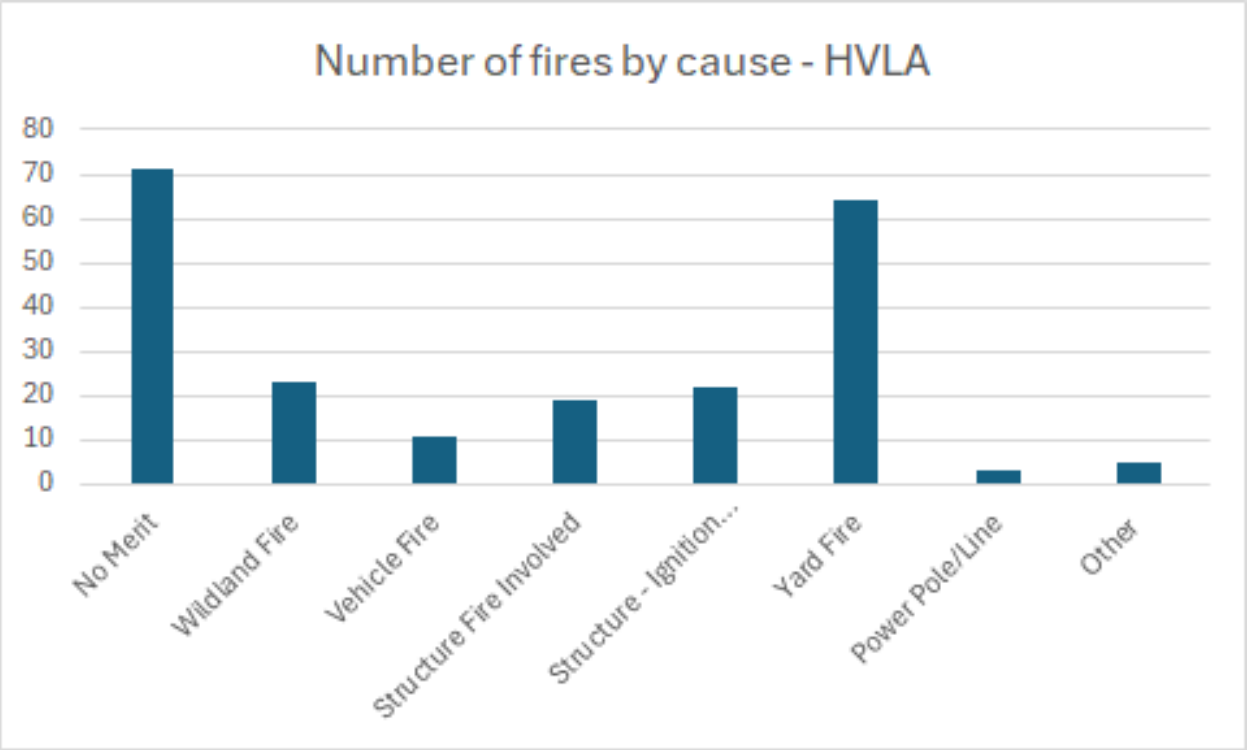
[20] Available from CalFIRE at https://www.fire.ca.gov/our-impact/statistics
[21] 76,067 acres of this total was from the Valley Fire alone.
[22] $2.016 billion of this total was from the Valley Fire alone.

Since 2008, there has been no statistically significant increase in the number of fires in Lake County. On average, less than 20,000 acres burn annually in Lake County, with no statistically significant trends indicating increased annual acreage.

5.1.2. Analysis of Hidden Valley Lake Ignitions

Hidden Valley Lake serves as a useful proxy to the MGV project site, and a comparison of ignition activity with that development may be more meaningful than linear extrapolation of countywide trends. The subdivision has approximately 5,852 residents according to the 2022 American Community Survey estimate.[23] The development is near enough to MGV, approximately 2 miles away, to experience similar weather conditions, and has fairly similar terrain features. The fuels have changed incrementally since 1979 when the development was established, as empty lots have become filled with houses and yards. Adjacent fuels are comprised of grasslands, oak savannas and some brush slopes, not significantly different from the MGV project.

Figure 5.1: Number of wildfires by cause in the Hidden Valley Lake Association, 2015-2024



[23] Census Reporter. 2022. Census profile: Hidden Valley Lake, CA. https://censusreporter.org/profiles/16000US0633549-hidden-valley-lake-ca/

For Figure 5.1, the categories of fire cause are:

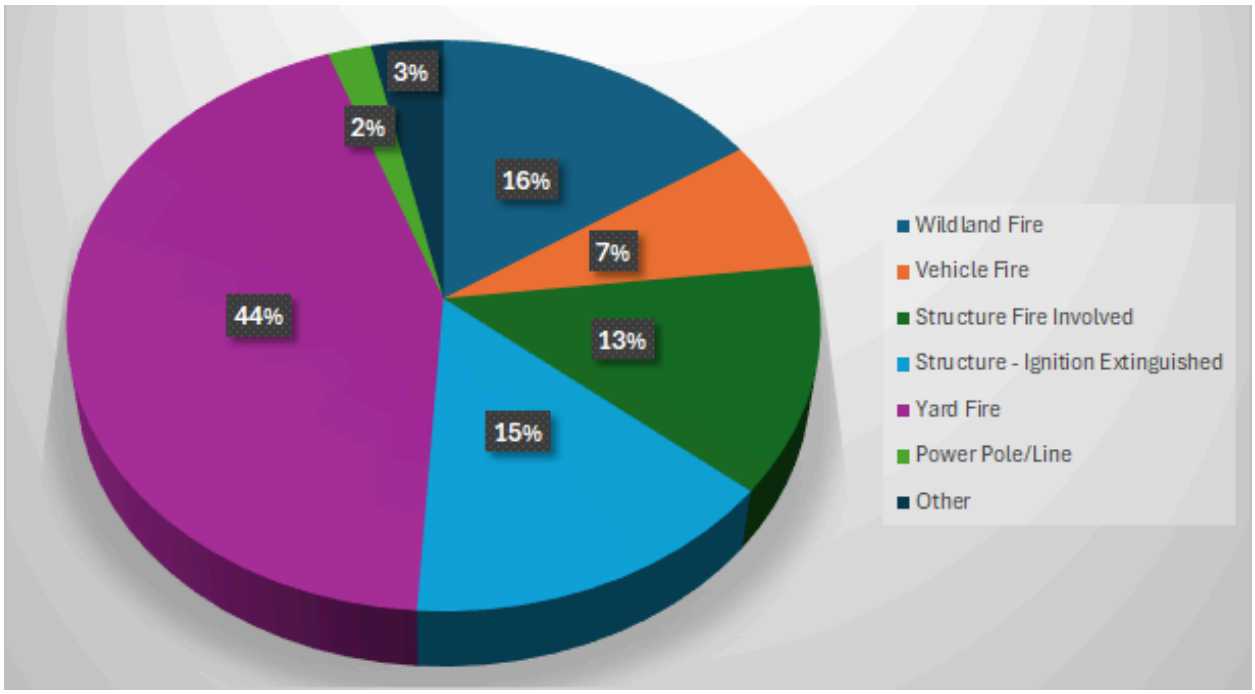
- No Merit: False alarm, chimney smoke, dust, smoke drift, burnt food, BBQ
- Wildland Fire: Wildfires local or full response all <5 acres most 20'x50'[24]
- Vehicle: Vehicle fires
- Structure Fire Involved: Fully or partially involved structure
- Structure - Ignition Extinguished: Electrical ignition, appliance fires, deck fire, oven fires
- Yard Fire: Burn pile (Legal/non-permit), Warming fire, debris fire, lumber pile.
- Power Pole/Line: Electrical hazard
- Other: Fireworks reported, CO or CO2 alarm

Since 2015, data shows there have been a total of 22 wildfires resulting from ignitions in Hidden Valley Lake with none that exceeded 4.9 acres. There have been 11 vehicle fires that did not become wildfires along with 19 full structure fires that did not convert to wildfires, along with 22 interior structure ignitions that did not become full structure fires or wildfires. Moreover, in proximity to the wildland there were 64 burn and landscaping fires that did not become major wildfires. Three powerline or power pole incidents similarly did not become vegetation fires. Put more simply, of approximately 217 fire calls, 71 were false alarms/no merit calls, 124 were other types of ignitions that never reached the wildland, and 22 were wildland fire events that never exceeded 4.9 acres. The data from Hidden Valley suggests while increased residential density should increase ignitions due to increased human activity and development, most of the fires started in and around the built environment do not progress into large wildland fires that pose a threat to the surrounding ecology or populations.

Although the adjacent Hidden Valley Lake community is a useful analog to assess potential ignition sources, MGV may experience even fewer ignitions than its neighbor. Phase 1 of MGV will have a maximum of 526 residential buildings, 159 non-residential buildings, and an estimated maximum of 1,625 people consistently on site at any given time (residents + hotel guests + employees), only about one-fifth of the size of Hidden Valley Lake. Buildout of future phases of the project may add up to 500 additional hotel and residential units, 1,000 residential estate villas, and 400 workforce co-housing bedroom units, which would potentially add up to another 3,290 people to the site, which would bring the combined total to a maximum estimated 4,915 people consistently on site at any given time. Additionally, the majority of the structures in Hidden Valley Lake were built before strict WUI building codes, which can decrease building susceptibility to both wildland and structure fire ignition. In contrast, all MGV structures will be built to the California Building Code Chapter 7A or better, meet or exceed all contemporary fire codes, include robust defensible space, and incorporate automatic interior and exterior sprinkler systems. Furthermore, the building separation in the Hidden Valley Lake area is sometimes less than 30-ft apart, which is conducive to structure-to-structure fire spread. The proposed residential structures on the MGV site will be a minimum of 30 ft apart to reduce the role of radiant heating and direct flame contact in sustaining urban fire spread.

[24] Wildland Fire as a cause identified in the Hidden Valley Lake fire data implies a wildfire entering Hidden Valley from outside.

Figure 5.2: Percentage of wildfires by cause in the Hidden Valley Lake Association, 2015-2024



5.1.3. Projected Impact of the MGV Development on Fire Frequency

Indicators of human activity and development, such as the number of people, roads, and buildings, can help determine if the new development proposed at MGV will change the number of fires per year in Lake County. Because people, buildings, and roads are usually found together, it is difficult to separate out the marginal effects of one indicator compared to another; however, separate analysis of the number of buildings, number of road miles, and the number of people in Lake County and projected to occur at the MGV site can suggest whether development at the MGV site will exceed the average annual fluctuation in the number of fires in the county.

As of 2022, there were approximately 4,771 miles of road[25], 35,930 buildings[26] and 67,900 people[27,28] in Lake County. Assuming simple relationships between each of these features,

[25] U.S. Census Bureau. (2022). TIGER/Line Shapefile, 2022, county, Lake County, CA, all roads. Data.gov. https://catalog.data.gov/dataset/tiger-line-shapefile-2022-county-lake-county-ca-all-roads
[26] Microsoft. Global ML Building Footprints. GitHub. Retrieved December 17, 2024, from https://github.com/microsoft/GlobalMLBuildingFootprints
[27] https://censusreporter.org/profiles/05000US06033-lake-county-ca/
[28] We use non-surge population numbers for Lake County (i.e. resident population not including transient visitors), to align with our estimates for the MGV site. If we had estimated surge visitor population for Lake County to calculate these ignitions/person, we would have a much lower ignition probability per person than we used. We err on the side of over-estimating ignition/person probability here.

which reflect human presence on the landscape, and fire frequency, suggests an average of approximately 0.014 fires per road mile, 0.0019 fires per structure, and 1.03 fires per 1,000 people.[29]

The MGV phase 1 project includes approximately 46 miles of proposed road and a current conceptual estimate of 686 proposed new buildings (526 residential buildings and 159 non-residential buildings). In addition, Phase I is projected to host a maximum of 1,625 people (residents, hotel guests, employees).

Leveraging the simple linear relationships for Lake County as a whole, the additional Phase 1 MGV development could result in between 0.6 and 1.7 additional ignitions per year[30] (Table 5.3). The potential for up to 1.7 additional ignitions under Phase 1 represents less than 3% of the average annual fires across the County.

Table 5.2: Projected additional fires per year due to the increased number of buildings and roads located on the MGV project site

	Rate	Proposed Additional Features	Projected Additional Fires	Statistical Significance
Road	0.014 / mile	46 miles	0.6 fires	Not Significant p>0.1
Buildings	0.002 / structure	686 structures	1.3 fires	Not Significant p>0.1
Phase 1 MGV Population	1.026 / 1,000 people	1,625 people	1.7 fires	Not Significant p>0.1
Population of Future potential buildout at MGV[31]	1.026 / 1,000 people	4,915 people	5 fires	Not Significant p>0.1

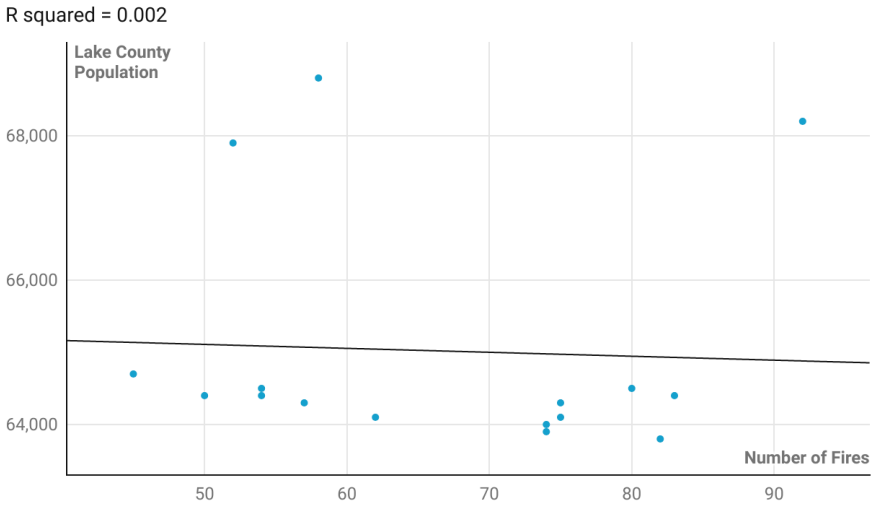
There is substantial natural variability in the number of fires that occur in the county from year to year. The expected increase in fire activity of about 1.7 fires per year for Phase 1 of the project is small compared to the natural year-to-year variation, which fluctuates by about 15 fires annually, or about 21%. Since the projected increase (1.7 fires) is substantially smaller than this natural variation, the projected increase due to additional roads, buildings, and population on the site is not possible to confidently distinguish from the natural variability in annual fire starts within the county. When we roughly estimate population values for the full buildout, up to five

[29] This measurement is very simply dividing the number of people (or buildings or road miles) by the total fires over the 16 years between 2008 and 2023, and thus does not evaluate correlation strength or statistical significance as we do further below.
[30] These projections are not additive. The role of buildings, roads, and people cannot be separately determined, so it is most conservative to use the maximum number from this analysis, rather than a sum of the three.
[31] As the linear population-fire trend resulted in the highest number of predicted additional annual fires, we only calculated the population figure for the full buildout scenario

additional fires could be expected. However, as with Phase 1, the projected increase is below the observed annual variability in fires.

Although the addition of roads, buildings, and people may slightly increase the number of fire starts in Lake County (~1.7/year for Phase 1 and ~5/year for future buildout), these increases are statistically *insignificant*: they cannot be distinguished from natural variability in the annual number of ignitions (assuming that there are no changes in the relationship between human development and fire frequency from that observed between 2008 and 2023). This finding is further supported by Figure 5.3, which indicates a lack of trend between population in Lake County and the annual number of wildfires.

Figure 5.3: Relationship between Lake County population and number of fires. Data from the US Census Bureau and Cal FIRE.



These analyses, which use simple linear relationships, suggest that the additional development and a corresponding increase in population are unlikely to create a statistically significant increase in the number of new fires occurring in Lake County[32] because the projected changes are smaller than the average annual variations experienced from 2008 to 2023.

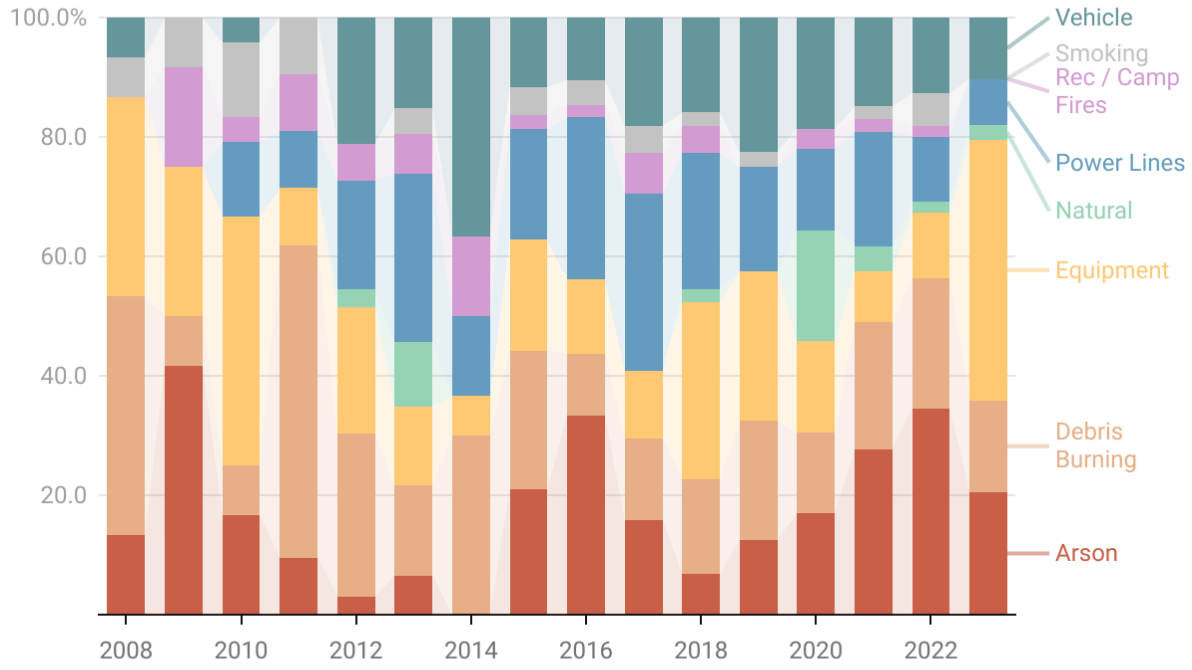
5.1.4. Analysis by Cause

Overall, considering the simple linear regression model of potential ignitions from phase 1 of the project, and estimations about the buildout of future phases of the project, it is determined that Case I (design features alone), will not increase ignitions in a statistically significant manner. However, considering the highly stochastic nature of severe wildfire events, such as the 2015 Valley Fire, and the 2020 Lightning Complex Fire, this analysis retains a determination, despite

[32] Several factors, such as more complex relationships between fire frequency and different types of road or building, and the interactions between fuel type, development location, and ignition probability, are not considered here, due to lack of available data on the precise location and timing of each fire ignition.

lack of statistically significant evidence in fire history statistics, that a project of this magnitude should implement the full suite of mitigation measures laid out in Table 1.1 in Section 1 above. In this section, each ignition source is analyzed independently, and proposed design features and mitigation measures are discussed in relation to potential for impacts on ignition likelihood.

Figure 5.4: Relative frequency of wildfire ignition events in Lake County between 2008 and 2023.



With CalFire's annual reports, it is possible to further analyze historical ignitions by cause in order to determine basic trends and qualitatively discuss how proposed design features and mitigation measures may impact the probability of each type of ignition.

Debris Burning: In many areas, household refuse, residual vegetation after harvests, or vegetation from vegetation management programs is collected in piles and burned. This practice is commonly performed in rural areas to dispose of vegetation and other debris[33]. In Lake County, a weak but statistically significant linear trend is present in the number of fires ignited annually due to debris burning (+0.26 fires/year, $p<0.1$)[34]. Debris and open burning caused little damage in the years between 2008 and 2023, with the exception of 2012, when wildfires caused by debris and open burning caused about $70,000 in damage.

MGV design features are not projected to directly alter the likelihood of fires ignited by debris or open burning.

[33] Fire started by burning refuse, slash, trash, rights-of-way, or rangeland.
[34] While the noted trends are statistically significant, they coincide with a decrease in the number of fires whose cause could not be determined. Additionally, no trend in the overall number of annual fire starts in Lake County has been observed since 2008. Therefore, some of this trend may be attributable to better fire investigation and more successful classification of ignition sources.

MGV mitigation measures are projected to moderately decrease the risk of ignition from open burning on the MGV site. As a mitigation measure, debris burning will be limited at MGV to agricultural and vegetation residue pile burns fully permitted by CalFire during low fire risk days. Residents will be prohibited from burning debris at any time. Groundskeepers will also prioritize alternative practices for debris disposal, including the use of county facilities for composting.

Table 5.4: Causes of wildland fires in Lake County[35]

	Total Fires	Arson	Debris Burning	Equip-ment	Natural	Power Lines	Rec / Camp Fires	Smoking	Unkn.	Vehicle	Other Causes
2023	52	8	6	17	1	3	0	0	1	4	12
2022	92	19	12	6	1	6	1	3	14	7	23
2021	58	13	10	4	2	9	1	1	4	7	7
2020	80	10	8	9	11	8	2		11	11	10
2019	54	5	8	10	0	7	0	1	10	9	4
2018	83	3	7	13	1	10	2	1	14	7	25
2017	75	7	6	5	0	13	3	2	16	8	15
2016	74	16	5	6	0	13	1	2	20	5	6
2015	75	9	10	8	0	8	1	2	24	5	8
2014	62	0	9	2	0	4	4	0	15	11	17
2013	82	3	7	6	5	13	3	2	26	7	10
2012	74	1	9	7	1	6	2	0	33	7	8
2011	57	2	11	2	0	2	2	2	20	0	16
2010	45	4	2	10	0	3	1	3	12	1	9
2009	54	5	1	3	0	0	2	1	21	0	21
2008	50	2	6	5	0	0	0	1	22	1	13
Sum	**1067**	**107**	**117**	**113**	**22**	**105**	**25**	**21**	**263**	**90**	**204**
Annual Average	**66.7**	**6.7**	**7.3**	**7.1**	**1.4**	**6.6**	**1.6**	**1.4**	**16.4**	**5.6**	**12.8**
Standard Deviation	**14.2**	**5.5**	**3.0**	**4.0**	**2.9**	**4.4**	**1.2**	**1.0**	**8.2**	**3.6**	**6.3**

Equipment: Fires caused by mechanical and construction equipment are a common source of wildfire ignition throughout California[36,37]. It was determined that sparks caused by construction equipment were responsible for the ignition of the 2024 Airport Fire that destroyed at least 160

[35] Data from CalFIRE annual reports. Other causes include playing with fire, railroad-caused fires, and other miscellaneous causes. Unknown (Unkn) include fires where a single cause could not be determined by fire investigators.
[36] https://smokeybear.com/en/prevention-how-tos/equipment-use-and-maintenance
[37] Fire started by the use of mechanical or electrical equipment.

structures in Orange County, CA.[38] In Lake County, there is a moderate statistically significant linear trend in fires ignited annually due to faulty equipment (+0.41 fires/year, $p<0.05$), suggesting that these fires are becoming more common. The largest number of fires caused by equipment since 2008 occurred In 2023, 17 fires. Due to the construction, maintenance, and agricultural equipment needed to construct and maintain the MGV development and integrated vineyards, this is an important cause of ignition that may be exacerbated by additional activity on the site.

Table 5.5: Number of acres burned in wildland fires in Lake County[39]

	Total Acres	Arson	Debris Burning	Equip-ment	Natural	Power Lines	Rec / Camp Fires	Smoking	Unkn.	Vehicle	Other Causes
2008	15,115	6	8	14	0	0	0	1	15,077	1	8
2009	1,560	3	1	2	0	0	1,501	1	27	0	25
2010	504	0	1	10	0	13	1	0	462	0	17
2011	82	1	14	2	0	3	0	2	45	0	15
2012	8,335	0	16	9	10	317	0	0	7,979	15	8
2013	870	33	340	38	3	85	1	0	130	137	103
2014	343	0	34	4	0	4	15	0	183	91	12
2015	171,849	1	4	70,611	0	76,069	0	0	25,151	2	11
2016	4,041	3,979	2	29	0	18	9	0	3	8	2
2017	2,517	3	1	1	0	2,213	4	1	230	1	63
2018	15,740	0	21	132	0	111	0	0	219	32	15,225
2019	250	66	7	77	0	1	0	33	52	10	4
2020	18,595	8	2	10	18,480	4	0	0	39	47	5
2021	109	21	72	2	2	1	0	0	1	2	8
2022	132	50	3	3	0	4	3	0	66	1	2
2023	105	14	4	15	0	0	0	0	28	24	20
Sum	**240,147**	**4,185**	**530**	**70,959**	**18,495**	**78,843**	**1,534**	**38**	**49,692**	**371**	**15,528**
Annual Average	**15,009**	**262**	**33**	**4,435**	**1,156**	**4,928**	**96**	**2**	**3,106**	**23**	**971**
Average Acreage per Fire	**225.07**	**3.92**	**0.50**	**66.50**	**17.33**	**73.89**	**1.44**	**0.04**	**46.57**	**0.35**	**14.55**

[38] https://www.fire.ca.gov/incidents/2024/9/9/airport-fire/updates/6b526420-965b-4ae3-b104-6c2441551bc9

[39] Includes only acres in the state responsibility area (SRA), which accounts for approximately 89.9% of all land area in Lake County. Data from CalFIRE annual reports. Other causes include playing with fire, railroad-caused fires, and other miscellaneous causes. Unknown (Unkn) include fires where a single cause could not be determined by fire investigators.

The MGV design features are not projected to substantially alter the likelihood of fire ignition due to equipment use or failure.

The MGV mitigation measures are expected, however, to greatly decrease the likelihood of ignition due to equipment use by ensuring construction and maintenance crews adhere to best practices and by enhancing the fire suppression capabilities around active construction sites. During MGV development, construction equipment will be required to have spark arrestors on equipment. Crews will also undergo safety training and be educated on the risks of equipment failure and misuse in causing fires. Additionally, fire extinguishers will be kept on all work trucks and worksites; vegetation within the work area will be mowed by noon during wildfire season or whenever wildfire conditions are present; welding, cutting, brazing, or similar fire or spark producing operations will include establishing a wildfire watch for the duration of work and for 30 minutes after, and certified firefighters will be available on-site during construction to quickly contain any residual ignitions.

Arson[40]**:** Arson is a cause of many large and damaging fires in California, including the devastating Park Fire, which burned over 20 km^2 per hour in the summer of 2024 after a burning vehicle was pushed into a vegetation-covered gully.[41] In Lake County, very few fires were caused by arson prior to 2014. A very strong and statistically significant linear trend is observed in the number of fires ignited annually due to arson (+0.73 fires/year, $p<0.01$) since the beginning of the last decade.

The MGV design features are projected to result in a slight decrease in ignition frequency due to arson. The MGV site will host an early detection system that will notify ERC personnel early in the event of an ignition on the site, preventing arson-caused ignitions from becoming established fires.

The MGV mitigation measures are projected to further reduce arson ignition frequency, and combined with design feature interventions, result in a moderate decrease in ignitions of this type. Mitigation measures will include an on-site security team to mitigate criminal arson behavior. Additionally, landscape-scale active vegetation management and roadside clearance will reduce the likelihood of arson-caused ignitions from spreading rapidly to become established fires.

Power Distribution and Generation: The number of fires caused by power generation[42] peaked in 2013 and 2016, but has fallen dramatically since, to a near nadir in 2023, with 3 fires caused by power generation. A weak but statistically significant linear trend is present in the number of fires ignited annually due to power distribution and generation (+0.4 fires/year, $p<0.1$). Wildfires in 2015 were especially damaging, with approximately $2 billion in damage

[40] A fire started willfully and maliciously to burn or attempt to burn structures, forest land, or property.
[41] Baker, B. L. a. G. (2024, July 28). Park fire: California wildfire tears through 5,000 acres an hour. https://www.bbc.com/news/articles/cd1dlzy04l8o
[42] Fire started by electric distribution or transmission, powerline – hardware, pole or tower, and conductors, to the user's meter.

caused by power generation, transmission, distribution, due primarily to the exceptionally destructive Valley Fire.

Power lines are among the most frequent and most costly sources of anthropogenic wildfire ignitions. One recent study indicates that at least one-fifth of all wildfires were caused by power lines or other power distribution infrastructure.[43] In California, faulty power lines have caused several of the most destructive wildfires in state history.[44,45]

The MGV design features are projected to result in a large decrease in ignitions caused by this source. MGV will underground all existing and proposed transmission and distribution lines (DF). To the maximum extent feasible, the proposed electric network will be undergrounded in a joint trench system to ensure a safer distribution of power and reduce the risk of overhead power lines causing wildfires during windy conditions. This will eliminate not only the potential for induced risk from proposed power lines, but also existing baseline ignition risk presented by the current power lines that extend throughout the site. Additionally, the creation of a microgrid further reduces the need for additional transmission lines offsite.

Vehicles: Vehicles can spark ignitions in four ways:

1. vehicle fires,
2. parking on the sides of roads while leaving the car running,
3. dragging a tow chain,
4. and throwing a lit cigarette out the window.

In Lake County, vehicles[46] caused few wildfires prior to 2011, but since then have averaged around 6 wildfires per year. A strong and statistically significant linear trend is present in the number of fires caused annually by vehicles (+0.45 fires/year, $p<0.01$). Recent years have seen an increase in vehicle-caused fire damage, reaching a high of almost $160,000 in 2020.

The MGV design features are projected to moderately reduce the likelihood of vehicle-caused fires through the use of hardscaping on the edges of roadways. All proposed roads on the MGV project site will be paved and, if no immediate slope interferes, will be bordered by hardscape shoulders to prevent vehicles, vehicle components, and discarded cigarettes from coming into contact with flammable vegetation. The new ERC will host firefighters trained to extinguish vehicle fires prior to the fire spreading to the vegetation. Battery fires of electric vehicles are known to be hard to extinguish, and for this reason the on-site fire station will have water additives and foam to suppress this growing source of fires. As outlined in “Standard on Water Additives for Fire Control and Vapor Mitigation” (NFPA 18A Annex 4.3), encapsulator agents are water additives based on spherical micelle technology, designed to encapsulate fuels and

[43] Sayarshad, Hamid R. "Pre-ignition risk mitigation model for analysis of wildfires caused by electrical power conductors." *International Journal of Electrical Power & Energy Systems* 153 (2023): 109353.
[44] https://www.cpuc.ca.gov/industries-and-topics/wildfires
[45] https://wfca.com/wildfire-articles/power-lines-and-wildfires/
[46] Fire started by a motorized transportation vehicle.

effectively suppress fires. On-site firefighters will be equipped and trained to apply encapsulator agents rapidly to prevent battery fires from spreading to the wildland.

The MGV mitigation measures are projected to further reduce the likelihood of ignition from vehicles, together resulting in a large decrease in ignitions of this type. In combination with the roadside hardscaping, all roads will have a 50 feet wide reduced-fuel zone on either side of the roadway to significantly decrease the chance of rapid fire growth if an ignition were to occur. Moreover, while MGV is not expected to be a destination for recreational vehicle (RV) or boat trailer users, reducing the chance of an uninformed member of the public unwittingly dragging a chain, the dedicated wildfire mitigation specialist will educate residents on these practices if necessary.[47]

Camping, Recreation, and Ceremony: Recreational fires, and campfires in particular, can cause wildfires when used recklessly or when not properly extinguished. On average, in Lake County, there were about 1.5 wildfires caused by recreational or ceremonial use of fire per year since 2008; however, no statistically significant trends were observed in the number of this type of fire.

MGV design features are expected to substantially decrease the likelihood of recreational or ceremonial wildfire ignitions. Open fires will not be allowed on the MGV site, limiting the likelihood of ignitions from these sources. Additionally, the early detection system will ensure that illegal recreational fires are identified early, before they can spread to wildland vegetation.

The mitigation measures are projected to result in an additional slight decrease in the likelihood of recreational/ceremonial fire ignitions. The on-site ERC and full-time security teams will prevent recreational fire use on the site and can properly extinguish illegal fires, if started.

Smoking: Careless disposal of cigarettes is a common cause of wildfires[48]. Along roadways, dry and encroaching vegetation can create a highly receptive fuelbed that is exposed to the draft of passing vehicles, creating conditions conducive to rapid growth.[49] In Lake County, smoking caused a maximum of three fires in 2010 and 2022 and an average of 1.4 fires per year since 2008. No statistically significant trends are observed in the number of fires caused by smoking.

The MGV design features are projected to substantially decrease the number of fires caused by smoking within the site. To the extent that the topography feasibly permits, existing and proposed roads in the MGV site will have at least 10 feet of hardscaping on each shoulder to minimize the potential for discarded cigarettes from coming into contact with receptive fuels.

[47] https://www.nifc.gov/fire-information/fire-prevention-education-mitigation/wildfire-investigation
[48] Fire started from smoking tobacco or other material; includes matches and other heat sources used in smoking.
[49] Fire and Rescue NSW. "Can Cigarette Butts Start Bushfires?" Fire and Rescue NSW, www.fire.nsw.gov.au/page.php?id=327. Accessed 18 Dec. 2024.

Early detection systems, along with the staffed ERC will ensure that cigarette-caused fires along roadways are rapidly identified and suppressed.

The MGV mitigation measures are projected to result in a further substantial reduction in ignitions of this type. 50 feet of roadside clearance and vegetation management along each side of roadways will reduce the likelihood of residual ignitions growing rapidly and exceeding the capacity for rapid suppression. The dedicated HOA wildfire mitigation specialist will educate residents about proper cigarette disposal.

Accidents/Playing with Fire/Fireworks: Although fireworks are illegal in many parts of California[50] and portions of Lake County, they are a common cause of fires, particularly around the Fourth of July holiday. Other careless use of fire, including children playing with matches, can cause many more fires each year[51].

The MGV design features are projected to moderately decrease the likelihood of fires caused by fireworks or other careless acts. The early detection system and staffed ERC will ensure that fires of this type are responded to rapidly. Additionally, restrictions on open fires will decrease the frequency that residents (and their children) will need to use matches or fire starters outdoors.

The MGV mitigation measures are projected to produce an additional moderate reduction in fires caused by the careless use of fire and fireworks. The on-site security team will discourage the use of fireworks and enforce a full-ban on their use within the MGV boundaries. Additionally, providing parents with age-appropriate early education on fire safety and matches is instrumental in preventing ignitions due to misuse of fire by a minor.[52] Materials will be made available by the on-site Wildfire Mitigation Specialist to educate adults on appropriate match storage and match safety.

Additional Ignition Risk Reduction: Awareness of wildfire threats has significantly increased across California in recent years (Figure 5.5).[53] With this very real fear and awareness comes media attention and an increase in insurance non-renewals. Residents seek to educate themselves and are generally receptive to messages from fire officials.

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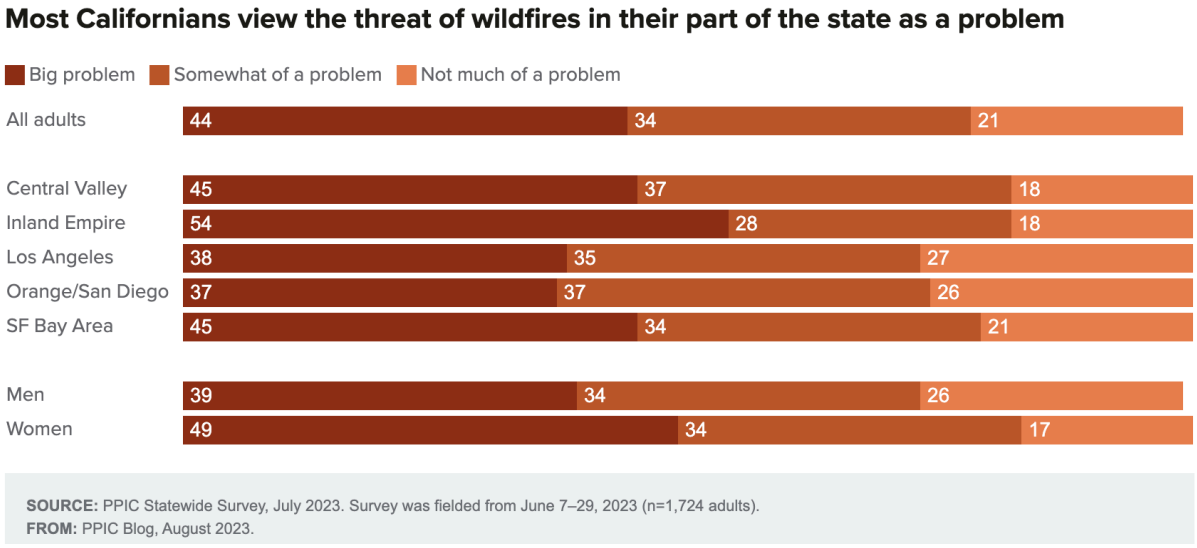
[50] https://readyforwildfire.org/prevent-wildfire/fireworks-safety/

[51] – Fire started without malicious intent by adults or children playing or experimenting with fire or fire-causing agents. Includes fires started unintentionally while playing with fireworks, toys, models and other fire-causing devices.

[52] Jeffrey P. Prestemon, David T. Butry, Karen L. Abt, Ronda Sutphen, Net Benefits of Wildfire Prevention Education Efforts, Forest Science, Volume 56, Issue 2, April 2010, Pages 181–192, https://doi.org/10.1093/forestscience/56.2.181

[53] https://www.ppic.org/blog/californians-are-worried-about-wildfires/#:~:text=Californians%20are%20rightly%20very%20concerned,the%20July%20PPIC%20Statewide%20Survey.

Figure 5.5: Californians' concern about wildfires from a statewide survey conducted by the Public Policy Institute of California.



Fire Safe Marin (FSM), a non-profit organization based in Marin County, promotes fire safety awareness and helps residents prepare for wildfires through their website, newsletters, social media posts, in-person engagements, and YouTube videos. In their initial year (fiscal year 2020-2021) there were 400,000 digital touchpoints. In contrast, in fiscal year 2023-2024 there were over five million. FSM's website saw 4,000 users in 2016 and over 120,000 users in 2024. Engagement peaks with wildfire activity; in 2020, an active wildfire year in California, FSM experienced a spike of up to approximately 160,000 unique website users. Evidence from Marin suggests that greater awareness changes behavior; there is less cigarette throwing, a greater willingness to follow guidelines when it comes to yard maintenance, and decreased use of spark-causing equipment such as chainsaws and weed wackers on high fire risk days.[54]

Table 5.6: Digital engagement measures indicating increased engagement in a nearby Bay Area community. [55]

year	website users	social media followers	newsletter subscribers	Youtube
2020	160,000	2,000	5,000	240 subscibers, 13,500 views
2024	120,000	>8,000	13,000	1,500 subscribers, +78,000

MGV has committed to become a National Fire Protection Association (NFPA) Firewise USA Community, which requires ongoing investments in the form of active community involvement and diligent maintenance of defensible space, fire prevention outreach and education, signage, and evacuation planning and practice. This NFPA sponsored organization is designed to provide a framework for neighbors to work together towards fuels reduction and voluntary mitigation

[54] Marin Wildfire Prevention Authority. 2022-2023 MWPA Annual Report. 2023.
[55] Per conversation 12/18/2024 with Jen Guana, Fire Safe Marin, Executive Director, Operations, San Rafael, CA

measures on their property and in their neighborhood. They also are required to provide wildfire education annually.

The MGV HOA has committed funding to ongoing maintenance of defensible space and landscape management and will provide a dedicated wildfire mitigation specialist to facilitate ongoing education of residents and guests. These fire professionals specialize in wildfire hazard mitigation measures, planning and preparedness strategies, public education practices, and wildland fire science[56] so they can more effectively perform public outreach and administer the MGV's defensible space requirements. Improved engagement and education activities promote fire-safe human behavior that reduces the risk of ignition and damage on an individual and community-wide scale and can facilitate safer evacuation[57].

5.1.5. Combined Results of Ignition Likelihood Analysis

Table 5.7 aggregates the results of the qualitative discussion of ignition causes in section 5.1.4. To determine the final impact on ignition likelihood from the project from the simple quantitative analysis of Lake County fires and population in section 5.1.3, and the qualitative discussion of the impacts on ignition likelihood from design features and mitigation features in section 5.1.4, we apply the reductions in Table 5.7 to the potential increase of 1.7 fires/year (for Phase 1) or 5 fires/year (for potential future buildout) to qualitatively determine an estimated final ignition likelihood from the project. We do this despite not finding statistical significance in the population-derived additional fires, as the ignition likelihood oriented design features and mitigation measures for the project only impact on-site ignitions, and thus must be evaluated against any potential increase, even statistically insignificant, from the project.

If we consider the most significant cause of fires from 2008 to 2023 in Lake County, the top known causes are, by number of fires: debris burning, equipment, arson, and power lines. By acreage burned, these are: Power lines, equipment, natural causes, and arson. Debris burning does not make even the top five acreage burned in Lake County, most likely as many of them are caught quickly due to the oversight for the planned burn operations. From the table below, and from the qualitative discussion of cause reductions in section 5.1.4, we determine that the MGV design features, Case I, moderately reduce the likelihood of the 1.7 additional fires predicted by the linear model (and 5 from the full project buildout). Considering these design features reduce the ignition likelihood below even the statistically insignificant prediction of an additional 1.7 annual fires (5 for full buildout), this assessment determines that ignition risk from project activities would be less than significant under Case I.

[56] https://www.nfpa.org/for-professionals/certification/cwms

[57] Headwaters Economics (2014). Do Fuel Treatments Reduce Fire Severity? Firewise Communities in Practice. Retrieved from https://headwaterseconomics.org/wp-content/uploads/Firewise_Manuscript_2014.pdf.

Table 5.7: Methods for reducing the likelihood of human-caused ignitions in the MGV site. Common causes as listed by CalFire data for Lake County.

Human Cause of Ignition	MGV Design Feature	MGV Mitigation Measure	Projected Impact on Predicted Increases in Likelihood
Debris Burning		Debris burning restricted	Large Decrease
Equipment Use		On-site construction and maintenance equipment equipped with spark arrestors	Moderate Decrease
		Required crew education	Small Decrease
		Bans on certain equipment during periods of high wildfire danger	Moderate Decrease
Arson	Early detection system		Moderate Decrease
		24/7 On-site security	Moderate Decrease
Power Lines	Transmission lines undergrounded		Large Decrease
Smoking	10 ft of Roadside hardscaping where feasible		Large Decrease
		Managed vegetation buffers from 10 ft to 50 ft on both sides of roads	Moderate Decrease
Campfires and Recreational Fires	No open fires on the property		Large Decrease
	Early detection system		Small Decrease
		24/7 on-site security	Small Decrease
Other Causes (incl. playing with fire, railroad-caused fires, and other miscellaneous causes)	Early detection system		Small Decrease
		24/7 on-site security	Small Decrease
		Educational programs facilitated by dedicated wildfire mitigation specialist	Moderate Decrease
Vehicles	Roadside hardscaping where feasible		Large Decrease
		Managed vegetation buffers on 50' on both sides of roads	Moderate Decrease

Considering the highly stochastic nature of the most catastrophic wildfire events, however, this assessment determines that despite the lack of statistically significant evidence for increased ignition likelihood as a result of the project, it would be wise to err on the side of caution, and retain a determination of significant impact and thus require the implementation of mitigation measures to further reduce the ignition likelihood. With that in mind, referencing the qualitative discussion in section 5.1.4 regarding the impacts of mitigation measures on ignition causes,

summarized in Table 5.7, this assessment determines that under Case II (design features + mitigation measures), the statistically insignificant additional 1.7 phase 1 project predicted annual fires (and 5 additional full buildout predicted fires) will be largely reduced for all CalFire identified human ignition causes that can be influenced. This assessment determines that for Case II, residual ignition risk due to phase 1 or the full buildout of the project would be less than significant.

5.2. Wildfire Intensity

5.2.1. Analysis of Potential Fire Behavior

Northern California is a fire-dependent landscape, and both natural and anthropogenic fire starts are almost guaranteed, regardless of ignition reduction programs that focus on reducing human carelessness and equipment failures. Potential fire behavior modeling is an analytical approach to a fire risk assessment at the landscape scale that characterizes the likely fire behavior, given a fire ignition occuring on a high-severity fire weather day. A full technical appendix describing the complete findings of this analysis can be found attached as Appendix W.1. The technical appendix includes full-sized images illustrating spatial fire behavior and projected changes across the MGV site.

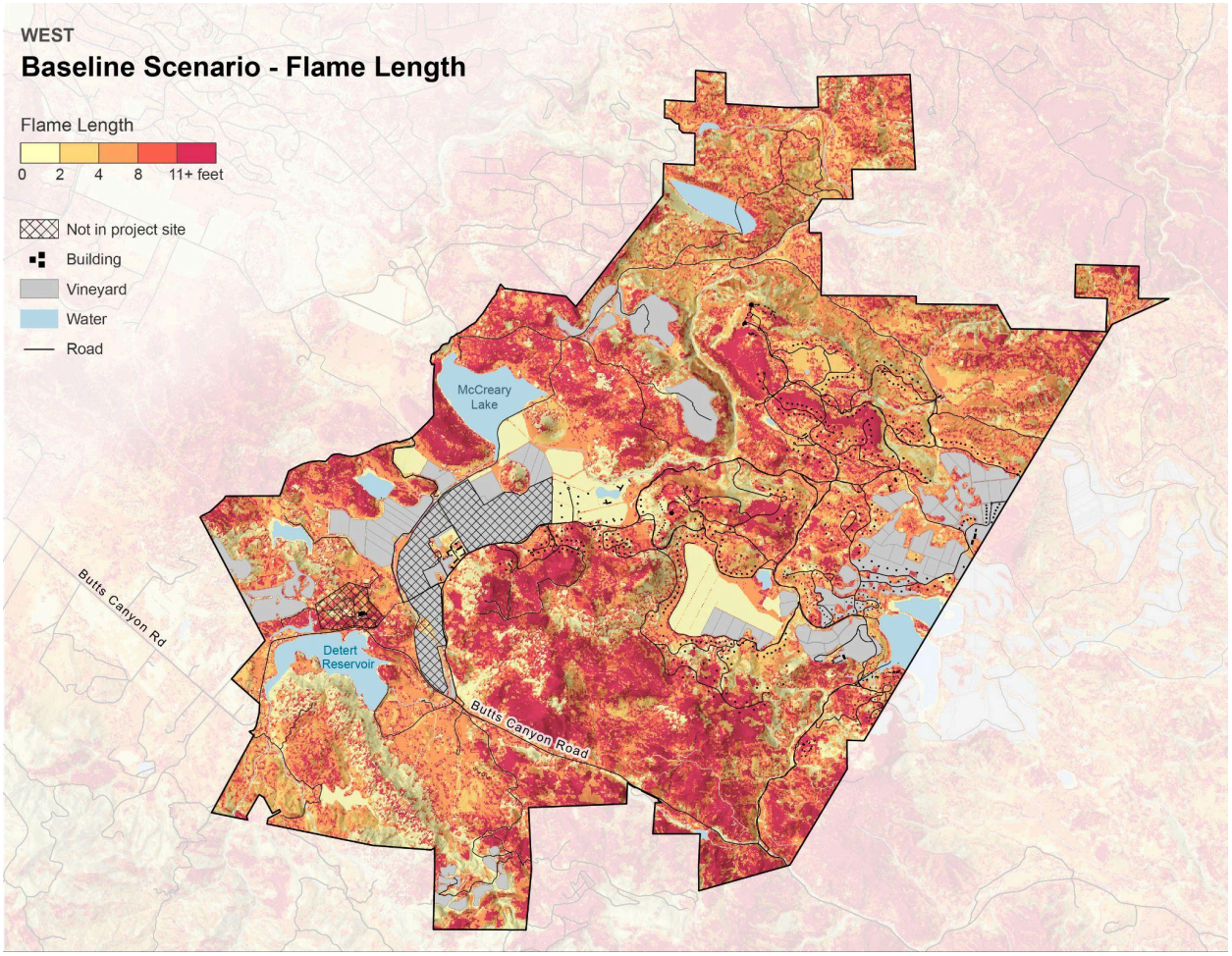
Potential fire behavior analysis indicates a high potential for fast-moving and intense wildfire behavior throughout the MGV project area. In the baseline scenario, the average flame length on the MGV site is approximately 8 feet, and, further, approximately 60% of the MGV area is projected to support fire intensity that is resistant to control by ground-based firefighting personnel using direct attack tactics[58]. On average, wildfires are likely to spread very rapidly across the site, with the average site-wide spread rate exceeding 0.5 miles per hour and exceeding 10 miles per hour in some locations. The arrangement of surface and canopy fuels across the site suggests that nearly 50% of the MGV project area is likely to experience isolated or group torching, increasing intensity and further limiting the capacity for firefighters to engage the fire safely.

For more detailed explanations of the fire behavior statistics and interpretations presented in this section, see Appendix W.1.

[58] Direct attack involves ground-based firefighters directly working along the fire's edge to extinguish flames, cool hotspots, and halt forward spread, typically by using water and/or hand tools.

5.2.1.1. Baseline: existing conditions without the project

Figure 5.6: Modeled flame length under the existing baseline conditions



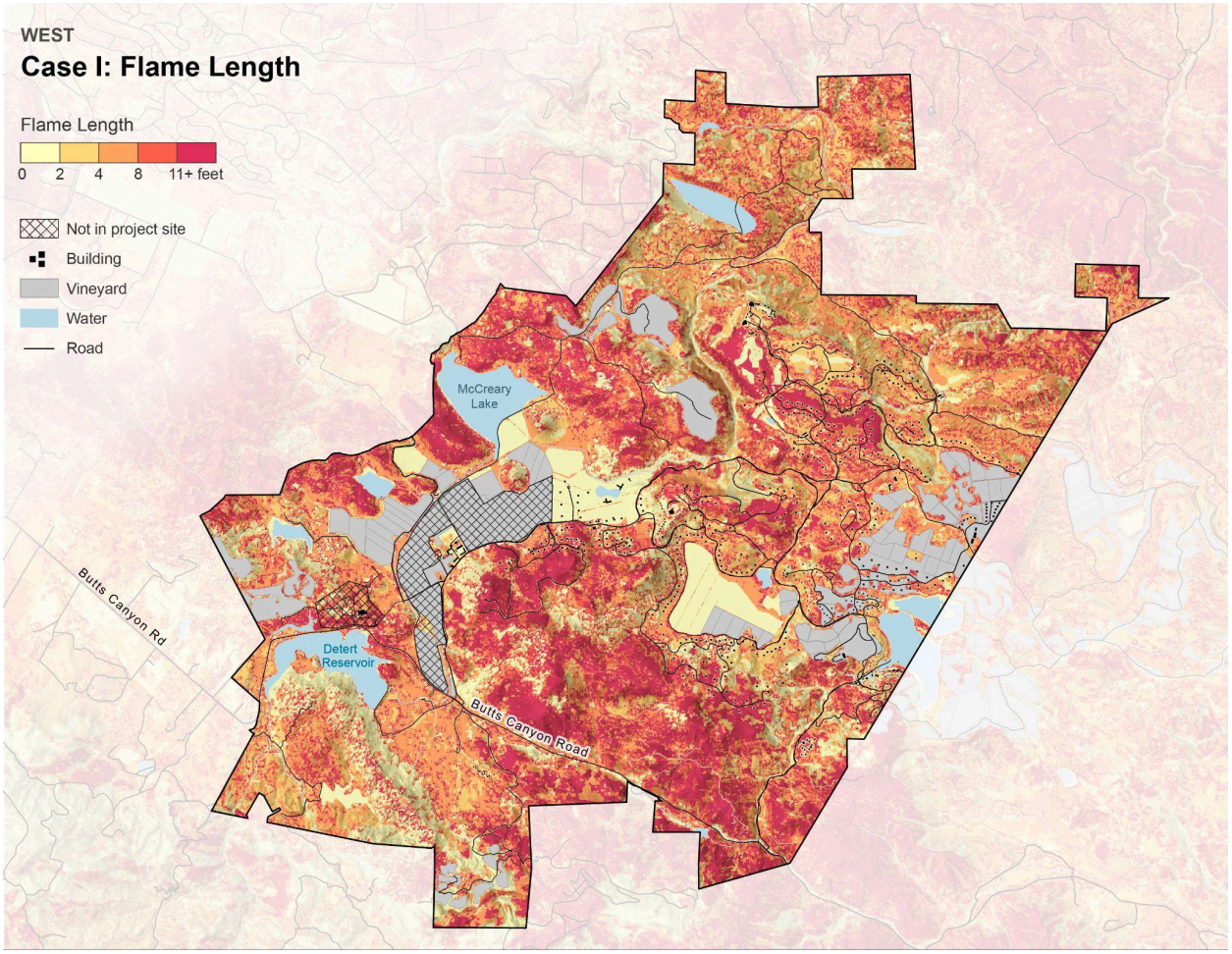
These modeling results reflect the active fire behavior conditions faced by firefighters during the LNU Lightning Complex / Hennessey Fire that burned the MGV site in 2020[59].

5.2.1.2. Case I: Phase 1 of MGV with Design Features (no mitigation measures)

Case I (Design Features alone) is projected to have a moderate impact on the fire behavior and spread trajectories. The Design Features introduce non-burnable surfaces (e.g., golf and sports fields, roads) and irrigated landscaping into the MGV site, producing localized impacts on flame length at key locations adjacent to the built environment. In Case I, the site-wide average flame length is projected to decrease by approximately 2.8%, the average rate of spread is projected to decrease by 3%, and the fraction of the site capable of supporting canopy fire activity is

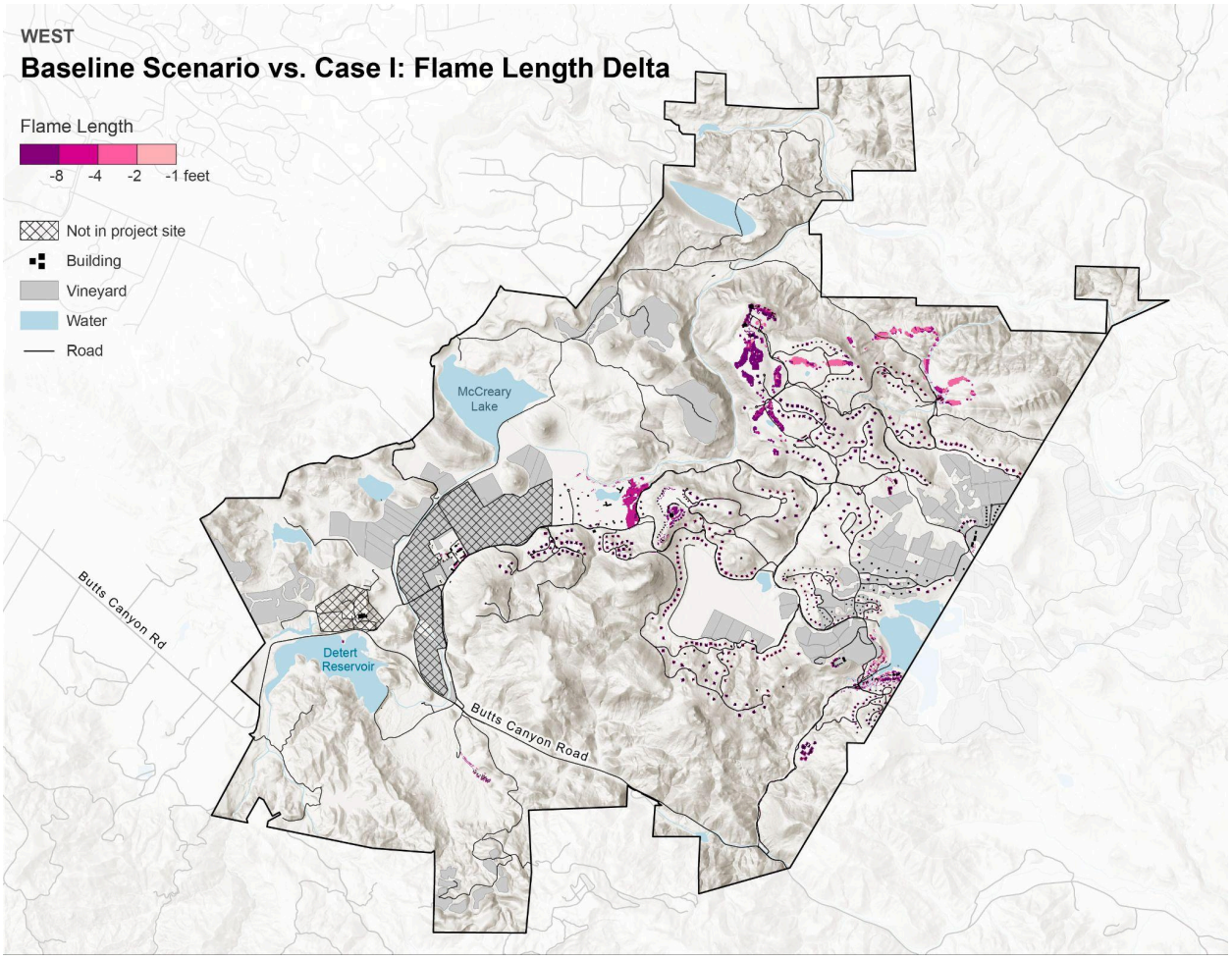
[59] Daily incident action plan (IAP) available from https://ftp.wildfire.gov/public/incident_specific_data/calif_n/!CALFIRE/2020_Incidents/CA-LNU-013407_LNU_Lightning_Complex/IAP/8-28-20/CORRECTED%20IAP%208.28.2020.pdf

Figure 5.7: Projected flame length under Case I



projected to be reduced by 2.8%. The most significant decrease in fire behavior attributed to the DF case is a result of the irrigated areas around residential, commercial, and facility buildings, which are projected to result in a 20-22% decrease in flame length within 100 feet of buildings. Similar reductions in other key fire behavior indicators are also projected adjacent to buildings.

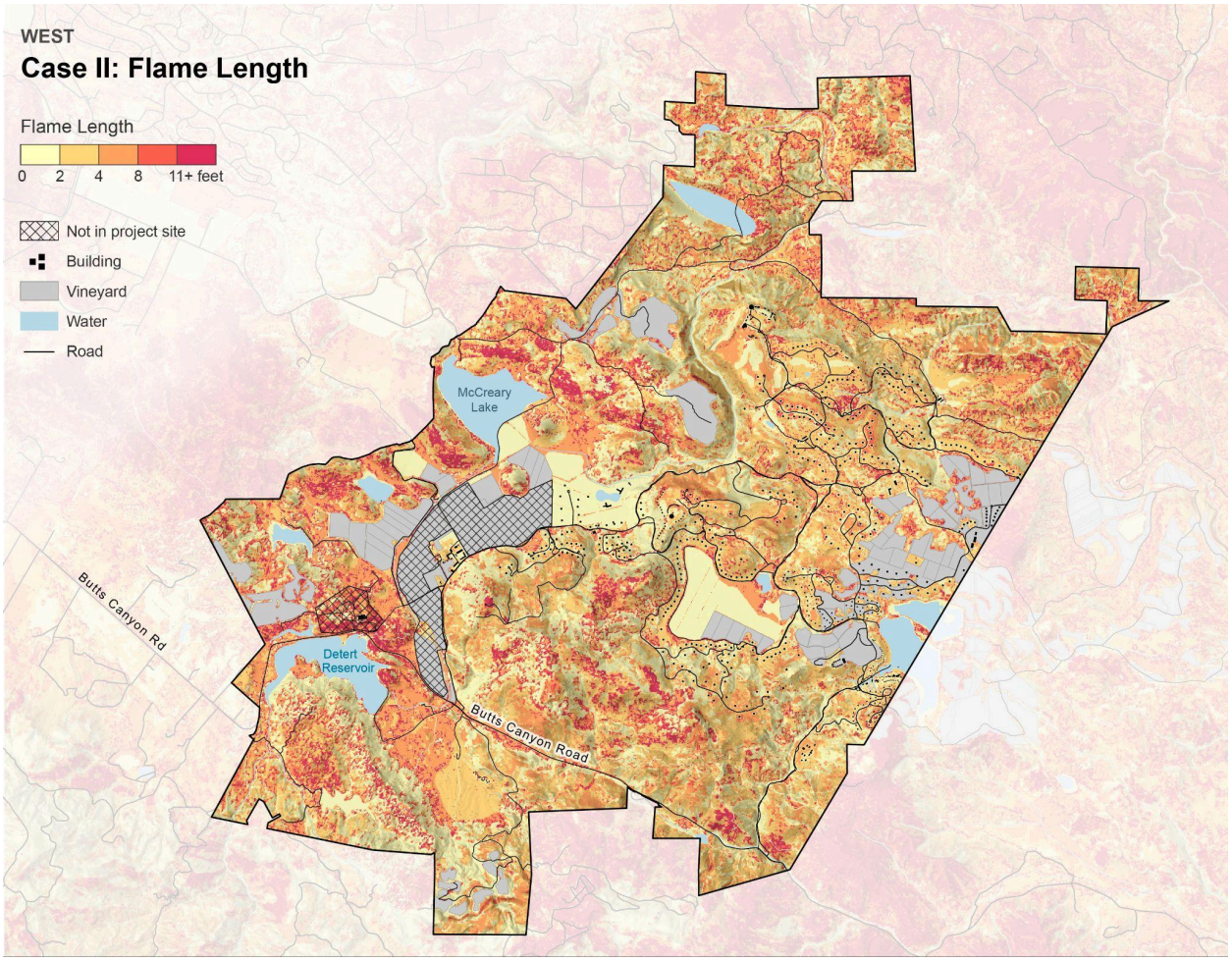
Figure 5.8: Projected changes in flame length due to design feature activities



5.2.1.3. Case 2: Phase 1 of the MGV with Design Features and Mitigation Measures

The combination of Design Features and Mitigation Measures (Case II) is highly effective at reducing fire behavior and limiting fuel connectivity across the entire site. Site-wide, the DF+MM case is projected to reduce the average fire intensity by approximately 50%, the average rate of spread by 28%, and the proportion of the site area capable of supporting canopy fire activity by 25%. The widespread application of active management, including grazing, lop and scatter, and mastication, are projected to have widespread benefits across the site and beyond, and more localized benefits are projected to result from intensive defensible space around buildings. Fire behavior is projected to decrease the most around roads and buildings, with nearly 70% reductions in flame length and 60% reductions in rate of spread projected within 100 feet of existing and proposed buildings.

Figure 5.9: projected flame length under Case II



As with ignition likelihood, wildfire behavior shows a reduction of wildfire intensity with Case I (design features alone). Again, however, considering the highly stochastic nature of severe wildfire events, this analysis retains a determination that a project of this magnitude should implement the full suite of mitigation measures laid out in Table 1.1 in Section 1 above. In the subsequent section, fire behavior is analyzed considering both the proposed design features and mitigation measures.