

APPENDIX A

**Applicable LBNL 2006 LRDP EIR Mitigation Measures and
EMPs & UC Berkeley WVFMP EIR Mitigation Measures and EMPs**

As stated in **Section 3.4.6** of this Addendum, the proposed project is a part of the continuing wildland vegetation management programs at the Lawrence Berkeley National Lab and at the UC Berkeley campus. Mitigation measures to address significant impacts of the vegetation management activities were identified in the LBNL 2006 LRDP EIR and the UCB WVFMP EIR and were adopted when those plans were approved. Previously adopted mitigation measures that are applicable to the project have been incorporated into and made part of the project.

The two sets of mitigation measures have been compared and there are no conflicts between the mitigation measures, and both sets of mitigation measures are equally stringent and comparable in their effectiveness. Therefore, the Campuses have the option of implementing their own mitigation measures for project activities on lands that are under their management. Alternately, the Campuses could confer and develop a single list of mitigation measures from the measures listed below and agree to implement them.

Similarly, both UC LBNL and UC Berkeley have identified Environmental Protection Measures (EPMs) that the Campuses have committed to implement in conjunction with the proposed project to avoid and minimize impacts. Those EPMs have also been incorporated into the proposed project.

This appendix lists all applicable mitigation measures from the LBNL 2006 LRDP EIR and the UCB WVFMP EIR as well as EMPs that are applicable to the proposed project.

LBNL 2006 LRDP EIR Mitigation Measures

The UC LBNL 2006 LRDP EIR identified mitigation measures to mitigate the significant environmental impacts from Berkeley Lab development under the 2006 LRDP, including the continued implementation of the Lab's vegetation management program. These measures were adopted as part of the approval of the LBNL 2006 LRDP by the Regents of the University of California. Because the proposed Wildland Fire Hazard Reduction Project is within the scope of campus activities analyzed in the LBNL 2006 LRDP EIR, the following 2006 LRDP mitigation measures are applicable to the proposed Project and are included in and a part of the proposed Project (described in the Addendum **Section 3.0, Project Description**).

MM AQ-1b: To mitigate equipment exhaust emissions, LBNL shall require its construction contractors to comply with the following measures:

- Construction equipment shall be properly tuned and maintained in accordance with manufacturers' specifications.
- Best management construction practices shall be used to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use).

- Any stationary motor sources such as generators and compressors located within 100 feet of a sensitive receptor shall be equipped with a supplementary exhaust pollution control system as required by the BAAQMD and the California Air Resources Board.
- Incorporate use of low-NOx emitting, low-particulate emitting, or alternatively fueled construction equipment into the construction equipment fleet where feasible, especially when operating near sensitive receptors.
- For all construction projects of more than 10 days' duration, LBNL shall designate and have on-site during construction a qualified air quality manager to oversee the implementation of construction air quality mitigation measures. Alternatively, LBNL may direct the construction contractor(s) to employ and have on site a construction air quality manager acceptable to LBNL.
- Idling time of diesel-powered construction equipment shall be limited to three minutes.
- All diesel engines used by LBNL construction contractor(s) at the site, or for on-road hauling of construction material, shall be post-1996 models.
- On-site power shall be used to minimize reliance on portable generators.
- Offer incentives to encourage construction workers to carpool or employ other means of transportation. The incentives shall include, but are not necessarily limited to, preferential onsite parking and substantial assistance with transportation costs (gas cards, FasTrak toll passes, public transit passes, etc.); charging for parking as a disincentive shall also be explored.
- All construction diesel engines, which have a rating of 100 hp or more, shall meet, at a minimum, the Tier 2 California Emission Standards for Off-Road Compression Ignition Engines as specified in California Code of Regulations, Title 13, section 2423(b)(1) unless certified by the on-site construction air quality manager that such engine is not available for a particular item of equipment. In the event a Tier 2 engine is not available for any off-road equipment larger than 100 hp, that equipment shall be outfitted with a Tier 1 engine. In the event a Tier 1 engine is not available for any off-road equipment larger than 100 hp, that equipment shall be outfitted with a catalyzed diesel particulate filter (soot filter), unless certified by engine manufacturers or the on-site construction air quality manager that the use of such devices is not practical for specific engine types. For purposes of this condition, the use of such devices is "not practical" if, among other reasons:
 - (1) There is no available soot filter that has been certified by either the California Air Resources Board or U.S. Environmental Protection Agency for the engine in question; or
 - (2) The construction equipment is intended to be on-site for ten (10) days or less.

The use of a soot filter may be terminated immediately if one of the following conditions exists, provided that LBNL is informed within one (1) working day of the termination:

- (1) The use of the soot filter is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or reduced power output due to an excessive increase in backpressure.
- (2) The soot filter is causing or is reasonably expected to cause significant engine damage.
- (3) The soot filter is causing or is reasonably expected to cause a significant risk to workers or the public.
- (4) Any other seriously detrimental cause which has the approval of LBNL prior to the termination being implemented.

Relief may be granted from this requirement if the construction air quality manager can demonstrate to LBNL that a good faith effort has been made to comply with this requirement and that compliance is not possible.

- Include the specifications in this measure in the construction bid documents and contracts.

MM BIO-3: Direct disturbance, including tree and shrub removal or nest destruction by any other means, or indirect disturbance (e.g., noise, increased human activity in area) of active nests of raptors and other special-status bird species (as listed in EIR Table IV.C-1) within or in the vicinity of the proposed footprint of a future development project shall be avoided in accordance with the following procedures for Pre-Construction Special-Status Avian Surveys and Subsequent Actions. No more than two weeks in advance of any tree or shrub removal or demolition or construction activity involving particularly noisy or intrusive activities (such as concrete breaking) that will commence during the breeding season (February 1 through July 31), a qualified wildlife biologist shall conduct pre-construction surveys of all potential special-status bird nesting habitat in the vicinity of the planned activity and, depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on nesting special-status nesting birds:

- (1) Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding season (August 1 through January 31).
- (2) If pre-construction surveys indicate that no nests of special-status birds are present or that nests are inactive or potential habitat is unoccupied, no further mitigation is required.
- (3) If active nests of special-status birds are found during the surveys, a no-disturbance buffer zone will be created around active nests during the breeding season or until a qualified biologist determines that all young have fledged. The size of the buffer zones and types of construction activities restricted within them will be determined through consultation with the CDFW, taking into account factors such as the following:
 - a. Noise and human disturbance levels at the project site and the nesting site at the time of the survey and the noise and disturbance expected during the construction activity;

- b. Distance and amount of vegetation or other screening between the project site and the nest; and
 - c. Sensitivity of individual nesting species and behaviors of the nesting birds.
- (4) Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any breeding birds taking up nests would be acclimated to project-related activities already under way). However, if trees and shrubs are to be removed during the breeding season, the trees and shrubs will be surveyed for nests prior to their removal, according to the survey and protective action guidelines 3a through 3c, above.
- (5) Nests initiated during demolition or construction activities would be presumed to be unaffected by the activity, and a buffer zone around such nests would not be necessary.
- (6) Destruction of active nests of special-status birds and overt interference with nesting activities of special-status birds shall be prohibited.
- (7) The noise control procedures for maximum noise, equipment, and operations identified in Section IV.I, Noise, of this EIR shall be implemented.

MM BIO-4: Project implementation under the 2006 LRDP shall avoid disturbance to the maternity roosts of special-status bats during the breeding season in accordance with the following procedures for Pre-Construction Special-Status Bat Surveys and Subsequent Actions. No more than two weeks in advance of any demolition or construction activity involving concrete breaking or similarly noisy or intrusive activities, that would commence during the breeding season (March 1 through August 31), a qualified bat biologist, acceptable to the CDFW, shall conduct pre-demolition surveys of all potential special-status bat breeding habitat in the vicinity of the planned activity. Depending on the survey findings, the following actions shall be taken to avoid potential adverse effects on breeding special-status bats:

- (1) If active roosts are identified during pre-construction surveys, a no-disturbance buffer will be created by the qualified bat biologist, in consultation with the CDFW, around active roosts during the breeding season. The size of the buffer will take into account factors such as the following:
- a. Noise and human disturbance levels at the project site and the roost site at the time of the survey and the noise and disturbance expected during the construction activity;
 - b. Distance and amount of vegetation or other screening between the project site and the roost; and
 - c. Sensitivity of individual nesting species and the behaviors of the bats.

- (2) If pre-construction surveys indicate that no roosts of special-status bats are present, or that roosts are inactive or potential habitat is unoccupied, no further mitigation is required.
- (3) Pre-construction surveys are not required for demolition or construction activities scheduled to occur during the non-breeding season (September 1 through February 28).
- (4) Noisy demolition or construction activities as described above (or activities producing similar substantial increases in noise and activity levels in the vicinity) commencing during the non-breeding season and continuing into the breeding season do not require surveys (as it is assumed that any bats taking up roosts would be acclimated to project-related activities already under way). However, if trees are to be removed during the breeding season, the trees would be surveyed for roosts prior to their removal, according to the survey and protective action guidelines 1a through 1c, above.
- (5) Bat roosts initiated during demolition or construction activities are presumed to be unaffected by the activity, and a buffer is not necessary.
- (6) Destruction of roosts of special-status bats and overt interference with roosting activities of special-status bats shall be prohibited.
- (7) The noise control procedures for maximum noise, equipment, and operations identified in Section IV.I, Noise, of this EIR shall be implemented.

MM BIO-5c: (1) A full-time designated monitor shall be employed at project sites that are within or directly adjacent to areas designated as having high potential for whipsnake occurrence, or (2) Daily site surveys for Alameda whipsnake shall be carried out by a designated monitor at construction sites within or adjacent to areas designated as having moderate potential for whipsnake occurrence. Each morning, prior to initiating excavation, construction, or vehicle operation at sites identified as having moderate potential for whipsnake occurrence, the project area of applicable construction sites shall be surveyed by a designated monitor trained in Alameda whipsnake identification to ensure that no Alameda whipsnakes are present. This survey is not intended to be a protocol-level survey. All laydown and deposition areas, as well as other areas that might conceal or shelter snakes or other animals, shall be inspected each morning by the designated monitor to ensure that Alameda whipsnakes are not present. At sites in high potential areas the monitor shall remain on-site during construction hours. At sites in moderate potential areas the monitor shall remain on-call during construction hours in the event that a snake is found on-site. The designated monitor shall have the authority to halt construction activities in the event that a whipsnake is found within the construction footprint until such time as threatening activities can be eliminated in the vicinity of the snake and it can be removed from the site by a biologist permitted to handle whipsnakes. USFWS shall be notified within 24 hours of such event.

MM BIO-5d: Alameda whipsnake awareness and relevant environmental sensitivity training for each worker shall be conducted by the designated monitor prior to commencement of on-site activities.

All on-site workers at applicable construction sites shall attend an Alameda whipsnake information session conducted by the designated monitor prior to beginning work. This session shall cover identification of the species and procedures to be followed if an individual is found on-site, as well as basic site rules meant to protect biological resources, such as speed limits and daily trash pickup.

MM BIO-5e: Hours of operation and speed limits shall be instituted and posted.

All construction activities that take place on the ground (as opposed to within buildings) at applicable construction sites shall be performed during daylight hours, or with suitable lighting so that snakes can be seen. Vehicle speed on the construction site shall not exceed 5 miles per hour.

MM CUL-3: If an archaeological artifact is discovered on-site during construction under the proposed LRDP, all activities within a 50-foot radius shall be halted and a qualified archaeologist shall be summoned within 24 hours to inspect the site. If the find is determined to be significant and to merit formal recording or data collection, adequate time and funding shall be devoted to salvage the material. Any archaeologically important data recovered during monitoring shall be cleaned, catalogued, and analyzed, with the results presented in a report of finding that meets professional standards.

MM CUL-4: In the event that human skeletal remains are uncovered during construction or groundbreaking activities resulting from implementation of the 2006 LRDP at the LBNL site, CEQA Guidelines Section 15064.5(e)(1) shall be followed:

- In the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps should be taken:
 1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - (A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and
 - (B) If the coroner determines the remains to be Native American: (1) The coroner shall contact the Native American Heritage Commission within 24 hours. (2) The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American. (3) The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code Section 5097.98, or
 2. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

- (A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 24 hours after being notified by the commission;
- (B) The descendant identified fails to make a recommendation; or
- (C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

MM GEO-3a: Construction under the LRDP shall be required to use construction best management practices and standards to control and reduce erosion. These measures could include, but are not limited to, restricting grading to the dry season, protecting all finished graded slopes from erosion using such techniques as erosion control matting and hydroseeding or other suitable measures.

MM GEO-3b: Revegetation of areas disturbed by construction activities, including slope stabilization sites, using native shrubs, trees, and grasses, shall be included as part of all new projects.

MM NOISE-1a: To reduce daytime noise impacts due to construction/demolition, LBNL shall require construction/demolition contractors to implement noise reduction measures appropriate for the project being undertaken. Measures that might be implemented could include, but not be limited to, the following:

- Construction/demolition activities would be limited to a schedule that minimizes disruption to uses surrounding the project site as much as possible. Such activities would be limited to the hours designated in the Berkeley and/or Oakland noise ordinance(s), as applicable to the location of the project. This would eliminate or substantially reduce noise impacts during the more noise-sensitive nighttime hours and on days when construction noise might be more disturbing.
- To the maximum extent feasible, equipment and trucks used for project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible).
- Stationary noise sources shall be located as far from adjacent receptors as possible.
- At locations where noise may affect neighboring residential uses, LBNL will develop a comprehensive construction noise control specification to implement construction/demolition noise controls, such as noise attenuation barriers, siting of construction laydown and vehicle staging areas, and community outreach, as appropriate to specific projects. The specification will include such information as general provisions, definitions, submittal requirements, construction limitations, requirements for noise and vibration monitoring and control plans, noise control materials and methods. This document will be modified as appropriate for a particular construction project and included within the construction specification.

MM NOISE-1b: For each subsequent project pursuant to the LRDP that would involve construction and/or demolition activities, LBNL shall engage a qualified noise consultant to determine whether, based on the location of the site and the activities proposed, construction/demolition noise levels could approach the property-line receiving noise standards of the cities of Berkeley or Oakland (as applicable). If the consultant determines that the standards would not be exceeded, no further mitigation is required. If the standards would be reached or exceeded absent further mitigation, one or more of the following additional measures would be required, as determined necessary by the noise consultant.

- Stationary noise sources shall be muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.
- Impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for project construction shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.
- Noise from idling trucks shall be kept to a minimum. No trucks shall be permitted to idle for more than 10 minutes if waiting within 100 feet of a residential area.
- If determined necessary by the noise consultant, a set of site-specific noise attenuation measures shall be developed before construction begins; possible measures might include erection of temporary noise barriers around the construction site, use of noise control blankets on structures being erected to reduce noise emission from the site, evaluation of the feasibility of noise control at the receivers by temporarily improving the noise reduction capability of adjacent buildings, and monitoring the effectiveness of noise attenuation measures by taking noise measurements.
- If determined necessary by the noise consultant, at least two weeks prior to the start of excavation, LBNL or its contractor shall provide written notification to all neighbors within 500 feet of the construction site. The notification shall indicate the estimated duration and completion date of the construction, construction hours, and necessary contact information for potential complaints about construction noise (i.e., name, telephone number, and address of party responsible for construction). The notice shall indicate that noise complaints resulting from construction can be directed to the contact person identified in the notice. The name and phone number of the contact person also shall be posted outside the LBNL boundaries.

UC LBNL Environmental Protection Measures

- EPM-1:** The Southwest Polygon includes Cafeteria Creek, an intermittent stream that supports a riparian corridor. The proposed project has been designed to include a 25-foot riparian buffer from the banks of the creek. To ensure that the riparian corridor is not affected, no project work would be performed within the buffer zone and trees that are located outside the buffer zone but have canopies that extend into the buffer zone would also not be removed although selective trimming may be performed (ESA 2023). The buffer zone would be clearly marked by qualified biologists with environmentally sensitive area (ESA) fencing before commencement of work by the Berkeley Lab in the eastern portion of the Southwest Polygon.
- EPM-2:** Some of the proposed project work areas are relatively undisturbed. A full-time biological monitor would be present at the work sites for the duration of project activities. The qualified biological monitor would conduct pre-construction surveys, train work crews, identify sensitive biological resources, and establish avoidance zones, fencing, and other measures to avoid impacts to special-status wildlife and plant species, including Alameda whipsnake and western leatherwood tree.
- EPM-3:** The Southwest Polygon provides marginally suitable habitat for San Francisco dusky-footed woodrat. To ensure that impacts to the species are avoided, within seven days before initiation of treatment activities in the Southwest Polygon, a qualified biologist would conduct a focused survey for San Francisco dusky-footed woodrat nests within the treatment area on the Berkeley Lab. In the event that a nest is observed, the biologist would check to determine whether it is active or not. If the nest is active, a no-disturbance buffer would be established around the nest and mechanical and manual treatments would not occur within the buffer zone. Once the nest is no longer active and treatment in the avoided area is required, the nest may be dismantled and moved to another appropriate location.
- EPM-4:** Although the proposed project would be implemented outside the bat breeding period, bat roosts could still be present within the treatment areas in all three polygons. To avoid impacts on roosting bats, pre-activity bat roost surveys would be completed by a qualified biologist for bat roosts in suitable habitat within relevant portions of the project work area polygons. If a roost were to be observed, a no-disturbance buffer of 250 feet would be established around the active roost, and mechanical and manual treatments would not occur within this buffer. If treatment in the avoided area is required, it may be resumed once the qualified biologist determines that all bats have left the roost.
- EPM-5:** In the event that treatment work needs to be completed with two crews working concurrently, UC LBNL will require that at least one of the two crews uses electric powered equipment to avoid resulting in excessive daily emissions of air pollutants.

UCB WVFMP EIR Mitigation Measures

The UC Berkeley Hill Campus Wildland Vegetative Fuel Management Plan (WVFMP) EIR identified mitigation measures to mitigate the significant environmental impacts from the implementation of the WVFMP. These measures were adopted as part of the approval of the UC Berkeley Hill Campus WVFMP by the Regents of the University of California. Because the proposed Wildland Fire Hazard Reduction Project is

within the scope of the WVFMP, the following WVFMP mitigation measures are included in and a part of the proposed Project (described in the Addendum **Section 3.0, Project Description**).

MM AQ-1: Limit the Number and Mix of Crews and/or Use Electric Chainsaws for Mechanical and/or Manual Treatment Crews Operating on the Same Day

UC Berkeley shall limit the number and mix of mechanical and manual treatment crews working on the same day in the Plan Area and/or use only electric-powered hand-held chain saws such that the combined levels of ROG or the combined levels of NOX will not exceed BAAQMD's threshold of 54 lb/day. Prior to the start of mechanical or manual treatment activity involving more than one treatment crew on a single day, UC Berkeley shall develop a plan for ensuring that the combined emissions of ROG or NOX generated by all the crews that would operate simultaneously on any single day would not exceed 54 lb/day. UC Berkeley shall only allow mechanical or manual treatment activity to occur with a plan in place that ensures emissions of ROG or NOX would not exceed 54 lb/day.

For the purpose of implementing this mitigation, a mechanical crew consists of up to nine workers using up to nine pieces of power equipment, including heavy equipment (e.g., feller/bunchers, masticators); and a manual treatment crew consists of up to 15 workers using up to 15 pieces of handheld power equipment (e.g., chain saws, brush cutters, weed whips).

To achieve this, UC Berkeley may determine the number and mix of mechanical and manual treatment crews using the daily emission levels for one crew presented in Table 3.3-5. For instance, UC Berkeley will not allow more than one manual treatment crew to operate on the same day because the combined level of ROG emissions from two manual treatment crews would be 58.8 lb/day, which would exceed BAAQMD's threshold of 54 lb/day. UC Berkeley could allow two mechanical treatment crews to be active on the same day, or allow one mechanical treatment crew and one manual treatment crew to be active on the same day, because the combined level of emissions under these scenarios would not exceed BAAQMD's threshold of 54 lb/day for ROG or NOX. Rather than, or in combination with, limiting the number and mix of mechanical and manual treatment crews working on the same day to reduce ROG and NOX emissions below BAAQMD thresholds, UC Berkeley may use electric powered hand-held chain saws instead of petroleum powered chainsaws. The use of electric powered chainsaws would eliminate all ROG and NOX emissions generated by petroleum-powered chainsaws and result in lower daily emissions of ROG and NOX generated by mechanical and manual treatment crews. Daily emission levels of different treatment crew types using electric chain saws instead of petroleum-powered chain saws are presented in Table 3.3-7. For example, using the daily emission levels presented in Table 3.3-7, UC Berkeley could allow up to two mechanical treatment crews and one manual treatment crew, which would generate combined daily emissions levels of 10.9 lb/day of ROG and 50.2 lb/day of NOX. UC Berkeley will only implement these combinations if all the crews would use electric chainsaws in place of any hand-held petroleum powered chain saws. If needed, UC Berkeley will use a mix of multiple treatment crews with and without electric chainsaws if, based on the daily emission levels presented in Table 3.3-5 and Table 3.3-7, the combined levels of ROG and NOX would not exceed BAAQMD's recommended threshold of 54 lb/day.

MM BIO-1b: Conduct Special-Status Plant Surveys and Implement Avoidance Measures and Mitigation

If it is determined that suitable habitat for special-status plant species is present within a treatment area (e.g., through implementation of Mitigation Measure BIO-1a) the following measures will be implemented:

- Prior to implementation of treatment activities and during the blooming period for the special-status plant species with potential to occur in the treatment area (see table below), as determined during implementation of Mitigation Measures BIO-1a, a qualified botanist will conduct protocol-level surveys for special-status plants within the treatment area following survey methods from CDFW's Protocols for Surveying and Evaluating Impacts on Special Status Native Plant Populations and Natural Communities (CDFW 2018). The qualified botanist will 1) be knowledgeable about plant taxonomy, 2) be familiar with plants of the San Francisco Bay Area region, including special-status plants and sensitive natural communities, 3) have experience conducting floristic botanical field surveys as described in CDFW 2018, 4) be familiar with the California Manual of Vegetation (Sawyer et al. 2009 or current version, including updated natural communities data at <http://vegetation.cnps.org/>), and 5) be familiar with federal and state statutes and regulations related to plants and plant collecting.
- If protocol-level surveys, consisting of at least two survey visits (e.g., early blooming season and later blooming season) during a normal weather year, have been completed in the 5 years before implementation of the treatment project and no special-status plants were found, and no treatment activity occurred after the protocol-level survey, treatment may proceed in that area without additional plant surveys.
- If special-status plants are not found, the botanist will document the findings in a letter report to UC Berkeley and no further mitigation will be required.
- If special-status plant species are found, the plant will be avoided completely, if feasible (i.e., project objectives can still be met). This may include establishing a no-disturbance buffer around the plants and demarcation of this buffer by a qualified biologist or botanist using flagging or high-visibility construction fencing. The size of the buffer will be determined by the qualified biologist or botanist and will be large enough to avoid direct or indirect impacts on the plant.
- If special-status plant species are found that cannot be avoided during treatments because the treatment objectives cannot be met if the special-status plant is avoided, the following will be implemented:
 - The qualified botanist will determine if the special-status plant population will benefit from treatment in the occupied habitat area even though some of the individual plants may be adversely affected during treatment activities. If the qualified botanist determines that treatment activities will be beneficial to a special-status plant population, no compensatory mitigation will be required. For a treatment to be considered beneficial to special-status plants, the qualified botanist will demonstrate that habitat function (i.e., the arrangement and capability of habitat features to provide refuge, foraging, and reproduction habitat to plants and animals, and thereby contribute to the conservation of biological and genetic diversity and evolutionary

processes) is expected to improve with implementation of the treatment such that special-status plant populations would expand, regenerate, or display increased vigor after treatment implementation. This determination will consider and cite scientific studies demonstrating that the species or a similar species has benefitted from increased sunlight from canopy opening, eradication of invasive species, or otherwise reduced competition for resources. This determination will be documented in the survey results letter report. UC Berkeley may consult with CDFW and/or USFWS for technical information regarding this determination.

- Plants with California Rare Plant Rank 1, 2, or 3. If a qualified botanist determines that treatment activities will not be beneficial to a special-status plant population and the species is not listed under ESA, CESA, or NPPA, the qualified botanist will determine if treatment would substantially reduce the abundance, distribution, and viability of local and regional populations as defined by the loss of special-status plants restriction the range of the plant, or substantial modification of habitat function such that the habitat would be rendered unsuitable. The qualified botanist will demonstrate that the abundance, distribution, and viability of local and regional populations of the specific species found would be maintained with implementation of the treatment; this will be documented in the survey results letter report. If the qualified botanist determines that the abundance, distribution, and viability of local and regional populations will not be maintained with implementation of the treatment, UC Berkeley will prepare a Compensatory Mitigation Plan.
- Federally or State-Listed Plants. If a qualified botanist determines that treatment activities will not be beneficial to the plant and the species is listed under ESA, CESA, or NPPA, the qualified botanist will determine if treatment would damage or kill listed plants, or adversely modify their habitat resulting in reduced growth and reproduction or death and loss of listed plant occurrences. This determination will be documented in the survey results letter report. If the qualified botanist determines that treatment will damage or kill listed plants, or adversely modify their habitat resulting in reduced growth and reproduction or death and loss of listed plant occurrences, UC Berkeley will prepare a Compensatory Mitigation Plan.
- If a Compensatory Mitigation Plan is warranted, the following will be implemented:
 - The Compensatory Mitigation Plan will describe the appropriate conservation measures and compensatory mitigation strategy being implemented to compensate for unavoidable losses of special-status plants. The plan will address direct and indirect impacts that could occur as a result of treatment activities and will implement the conservation measures and compensatory mitigation to ensure that treatment will not result in a net loss of the special-status plant. Conservation measures and compensatory mitigation may include preserving and enhancing existing populations, creating off-site populations on mitigation sites through seed collection or transplantation, and/or restoring or creating suitable habitat, and must meet the success criteria described below. If the special-status plant taxa are listed under ESA, CESA, or NPPA, the plan will be submitted to CDFW and/or USFWS (as appropriate) for review and comment.

- Success criteria for preserved and compensatory populations would include:
 - The extent of occupied area and plant density (number of plants per unit area) in compensatory populations would be equal to or greater than the affected occupied habitat.
 - Compensatory and preserved populations would be self-producing.
 - Populations would be considered self-producing when:
 - plants reestablish annually for a minimum of five years with no human intervention such as supplemental seeding; and reestablished and preserved habitats contain an occupied area and flower density comparable to existing occupied habitat areas in similar habitat types in the treatment area vicinity.
- If off-site conservation includes dedication of conservation easements, purchase of mitigation credits, or other off-site conservation measures, the details of these measures would be included in the plan, including information on responsible parties for long-term management, conservation easement holders, long-term management requirements, success criteria such as those listed above and other details, as appropriate to target the preservation of long-term viable populations.
- If relocation efforts are part of the Compensatory Mitigation Plan, the plan would include details on the methods to be used, including collection, storage, propagation, receptor site preparation, installation, long-term protection and management, monitoring and reporting requirements, success criteria such as those listed above, and remedial action responsibilities should the initial effort fail to meet long-term conservation requirements.

MM BIO-2b: Implement Alameda Whipsnake Avoidance and Minimization Measures

Regardless of the results of the reconnaissance-level survey required under Mitigation Measure BIO-1a or habitat assessment required under Mitigation Measure BIO-2a, before implementation of treatment projects (including initial treatment activities and treatment maintenance) under the WVFMP, the following measures will be incorporated into project design:

- A qualified biologist will conduct a pre-treatment survey for Alameda whipsnake within 24 hours of initiation of initial treatment activities or treatment maintenance in treatment area. In addition, a qualified biologist will conduct a daily pre-activity Alameda whipsnake survey sweep for treatments that require more than one day to implement. If an Alameda whipsnake is observed, the qualified biologist will identify actions sufficient to avoid impacts on the species (e.g., halt work) and to allow it to leave the area on its own volition.
- A qualified biologist will monitor all treatment activities. The biologist will monitor the implementation of treatment activities to look for whipsnake and to ensure the measures to avoid impacts on the species are followed. The biologist will monitor truck and equipment access (i.e., the biologist will walk in front of truck or equipment on access roads ordinarily closed to vehicle traffic to look for whipsnake).
- UC Berkeley (or contractors) will immediately (i.e., the same day) process (remove completely from the treatment area, chip, gasify, or permanently place within the

treatment area for soil stabilization) all cut materials (i.e., brush, stems, slash, and logs) as they are produced to avoid attracting Alameda whipsnake to the vegetation piles.

- If processing within the same day is not feasible, UC Berkeley (or contractors) will determine suitable location(s) outside of suitable scrub and directly adjacent woodland/grassland habitat (e.g., within landings or temporary refuge areas), in coordination with a qualified biologist, for temporary storage of cut materials that cannot be processed immediately. Log trailers could be used as biomass repositories and removed when full. If vegetation must be removed to create a temporary storage location, UC Berkeley (or contractors) will remove understory vegetation first to facilitate visibility of Alameda whipsnake by a qualified biologist, followed by trees. Then, UC Berkeley (or contractors) will install temporary fencing to exclude Alameda whipsnake. If temporary exclusion fencing is installed, UC Berkeley (or contractors) will prepare an exclusion fencing plan that identifies the size and location of temporary staging areas, the fencing materials to be used, installation instructions, and monitoring requirements.
- Cut vegetation that will be burned in piles during biomass disposal and utilization will not be placed on top of burrows. Burn piles will be lit from one end (uphill side on slopes) to allow Alameda whipsnakes, that may be using the pile for refuge, to escape. Piles will not be burned during the winter when Alameda whipsnake may be using them as winter retreats (generally November through February or March, as determined by a qualified biologist based on temperature and weather conditions).
- In suitable habitat where suitable winter retreats may be present (e.g., within native scrub habitat not degraded by substantial nonnative tree overstory, rock outcrops within approximately 50 feet of scrub habitat), as determined by a qualified biologist, UC Berkeley (or contractors) will avoid ground disturbance and use of heavy equipment during the winter (generally November through February or March, as determined by a qualified biologist based on temperature and weather conditions).
- Unless removal is required to meet program objectives, UC Berkeley (or contractors) will avoid uprooting any native species within native scrub habitat, as determined by a qualified biologist, and in other habitat, UC Berkeley (or contractors) will retain native species. Based on the results of the habitat assessment required under Mitigation Measure BIO-2a in this EIR, a qualified biologist will determine if any of the following would occur after implementation of the measures listed above: residual loss of habitat function for Alameda whipsnake; injury or mortality of Alameda whipsnake; or disturbance of Alameda whipsnake that could substantially disrupt essential behavior patterns (e.g., breeding, feeding, or sheltering) to such an extent that injury or mortality is likely. If a qualified biologist determines that these impacts are unlikely, treatment may proceed. If a qualified biologist determines that loss of habitat function for Alameda whipsnake is likely; injury or mortality of Alameda whipsnake is likely; or disturbance of Alameda whipsnake is likely which could substantially disrupt essential behavior patterns (e.g., breeding, feeding, or sheltering) to such an extent that injury or mortality is likely, after implementing the measures identified above, then additional feasible measures will be implemented, as determined in consultation with a qualified biologist. These measures may include the following (and potentially others not listed below):

- UC Berkeley (or contractors) will not conduct treatment activities within 100 feet of scrub habitat in areas where it is likely that Alameda whipsnake could occur, as identified by a qualified biologist.
- UC Berkeley (or contractors) will only operate heavy equipment from developed or disturbed areas (e.g., existing roads).
- UC Berkeley (or contractors) will limit vegetation removal to trees/clumps of trees and nonnative shrubs (e.g., French broom) that can be removed from developed areas (e.g., established roads) or bare areas (i.e., disturbed areas devoid of vegetation and burrows) without ground disturbance outside the road or bare area. The biological monitor will inspect trees and shrubs for whipsnake immediately before removal.
- UC Berkeley (or contractors) will avoid ground disturbance during vegetation removal (i.e., the stump and roots will remain at a height such that ground disturbance is avoided). UC Berkeley (or contractors) will also avoid disturbance of shrub understory and duff, bark, or branches built up at the base of a tree. If disturbance of shrub understory and duff, bark, or branches at the base of the tree is not feasible (i.e., the stump height remains too high to meet fuel-reduction objectives), UC Berkeley (or contractors) may clear duff, bark, or branches built up at the base of the tree by hand only to the extent needed, while allowing for visibility of Alameda whipsnake by the biological monitor, before cutting the tree closer to the base. UC Berkeley (or contractors) will not disturb roots or soil during hand work.

UC Berkeley (or contractors) will avoid disturbance to suitable rock outcrop habitat by maintaining rock and native shrubs within 50 feet of rock outcroppings.

- If a qualified biologist determines that disturbance, injury, or mortality of Alameda whipsnake cannot be avoided through implementation of additional measures, then UC Berkeley would consult with CDFW and USFWS before treatment activities occur and implement any additional measures, including avoidance or compensatory actions, determined through consultation and/or required by incidental take authorization to mitigate impacts on Alameda whipsnake pursuant to CESA and ESA. These additional measures may include installation of exclusion fencing around treatment areas, purchase of credits at a conservation bank, creation of additional habitat, adaptive management strategies, and/or long-term monitoring of treated habitat within the Plan Area to determine whether treatment has improved habitat for Alameda whipsnake. No actions that could adversely affect Alameda whipsnake will be allowed if disturbance, injury, or mortality of Alameda whipsnake could result, unless consultation with CDFW and USFWS is completed, and additional measures are implemented as required through consultation.

MM BIO-2f: Conduct Focused Surveys for Nesting Raptors and Other Native Nesting Birds and Implement Protective Buffers

If it is determined that suitable habitat for nesting raptors or other native nesting birds, including special-status species (i.e., white-tailed kite, northern harrier, yellow warbler) is present within a treatment area (e.g., through implementation of Mitigation Measure BIO-1a), the following measures will be implemented:

- To minimize the potential for loss of nesting raptors and other birds, treatment activities will be conducted during the nonbreeding season (approximately September 1-January 31, as determined by a qualified biologist), if feasible. If treatment activities are conducted during the nonbreeding season, no further mitigation will be required.
- Within 14 days before the onset of treatment activities during the breeding season (approximately February 1 through August 31, as determined by a qualified biologist), a qualified biologist familiar with birds of California and with experience conducting nesting bird surveys will conduct focused surveys for white-tailed kites, northern harrier, other nesting raptors and other native birds and will identify active nests within 500 feet of the site.
- Because the nests of yellow warbler are small and difficult to find, occupancy of suitable habitat (i.e., riparian woodland) for this species will be determined by a qualified biologist familiar with the life history of yellow warbler and with experience identifying the calls of yellow warbler. If yellow warblers are observed calling, exhibiting territorial displays, carrying nest materials, carrying prey, or other signs of breeding behavior, the habitat will be considered occupied.
- Impacts on nesting birds will be avoided by establishing appropriate buffers around active nest sites identified during focused surveys to prevent disturbance to the nest. Activity will not commence within the buffer areas until a qualified biologist has determined that the young have fledged, the nest is no longer active, or reducing the buffer will not likely result in nest abandonment. An avoidance buffer of 0.25 mile will be implemented for white-tailed kite, in consultation with CDFW. For other species, a qualified biologist will determine the size of the buffer for non-raptor nests after a site- and nest-specific analysis. Buffers typically will be 500 feet for raptors (other than white-tailed kite) and 100 feet for non-raptor species. Factors to be considered for determining buffer size will include presence of natural buffers provided by vegetation or topography, nest height above ground, baseline levels of noise and human activity, species sensitivity, and expected treatment activities. The size of the buffer may be adjusted if a qualified biologist determines that such an adjustment would not be likely to adversely affect the nest. Any buffer reduction for a special-status species (i.e., white-tailed kite, northern harrier, yellow warbler) from the typical size (i.e., 0.25 mile, 500 feet, 100 feet, respectively) will require consultation with CDFW. Periodic monitoring of the nest by a qualified biologist during and after treatment activities will be required if the activity has potential to adversely affect the nest, the buffer has been reduced, or if birds within active nests are showing behavioral signs of agitation (e.g., standing up from a brooding position, flying off the nest) during treatment activities, as determined by the qualified biologist.
- Removal of golden eagle nests is prohibited regardless of the occupancy status under the federal Bald and Golden Eagle Protection Act. If golden eagle nests are found during focused surveys, then the nest tree shall not be removed.

MM BIO-2j: Conduct Focused Surveys for San Francisco Dusky-Footed Woodrat; Implement Avoidance Measures, or Relocate Nests

If it is determined that suitable habitat (e.g., woodland, forest, scrub) for San Francisco dusky-footed woodrat is present within a treatment area (e.g., through implementation of Mitigation

Measure BIO-1a), the following measures will be implemented for treatment projects under the WVFMP:

- Within seven days before initiation of treatment activities, a qualified biologist with familiarity with woodrats and experience conducting woodrat surveys will conduct a focused survey for San Francisco dusky-footed woodrat nests within the treatment area, within all associated access roads and staging areas, and within a sufficient buffer surrounding these areas where indirect disturbance could occur, as determined by the qualified biologist.
- If no woodrat nests are found during the focused survey, the qualified biologist will submit a letter report summarizing the results of the survey to UC Berkeley, and no further mitigation would be required.
- If woodrat nests are detected within the treatment area, the qualified biologist will determine whether the nest is active; this is typically determined through the presence of large amounts of scat. If active woodrat nests are present that can be avoided, the perimeter of these nests will be demarcated with high-visibility construction fencing to prevent accidental encroachment by vehicles, equipment, or personnel.
- If active woodrat nests within a treatment area are detected that cannot be avoided, and treatment activities are planned to occur during the woodrat breeding season (April through June), these active nests must be avoided until the end of the breeding season.
- If active woodrat nests within a treatment area cannot be avoided, and treatment activities are planned to occur outside of the woodrat breeding season, a CDFW-approved qualified biologist in consultation with CDFW will dismantle the woodrat nest by hand, removing the materials layer by layer to allow adult woodrats to escape. If young are discovered during the disassembling process, the qualified biologist will leave the area for at least 24 hours to allow the adult woodrats to relocate their young on their own.
- When the disassembly process is completed, the nest materials will be collected and moved to another suitable nearby location to allow for nest reconstruction.

MM BIO-2k: Conduct Focused Bat Surveys and Implement Avoidance Measures

If it is determined that suitable roost habitat (e.g., woodland, forest, scrub) for pallid bat, Townsend's big-eared bat, or western red bat is present within a treatment area (e.g., through implementation of Mitigation Measure BIO-1a), the following measures will be implemented for treatment projects under the WVFMP:

- In the early planning stages of treatment projects, a qualified biologist with familiarity with bats and bat ecology, and experience conducting bat surveys will conduct surveys for bat roosts in suitable habitat (e.g., large trees, crevices, cavities, exfoliating bark, bridges, unoccupied buildings) within and adjacent to a treatment area.
- If no evidence of bat roosts is found, then no further study will be required.
- If evidence of bat roosts is observed, the species and number of bats using the roost will be determined. Bat detectors may be used to supplement survey efforts.

- A no-disturbance buffer of 250 feet will be established around active pallid bat, Townsend's big-eared bat, or western red bat roosts, and mechanical and manual treatments will not occur within this buffer. Prescribed broadcast burning activities and pile burning within this buffer will be implemented outside of the bat breeding season, which is April 1–August 31.

MM CUL-1a: Conduct Archaeological Surveys

Before conducting treatment activities that involve ground disturbance or prescribed burning in an area not previously surveyed for cultural resources (refer to Attachment A, Figure 3 of the Cultural Resources Sensitivity Analysis [UC Berkeley 2020] for surveyed areas), UC Berkeley will retain a qualified archaeologist to conduct a field survey for archaeological resources. If archaeological resources are found during the field survey, the resources will be inventoried using appropriate state record forms and submitted to the NWIC. The resources will be evaluated for NRHP and CRHR significance. If the resources are found to be significant, appropriate measures will be identified by the qualified cultural resource specialist and Native American representatives, implemented at the direction of UC Berkeley, and documented in the project record. Appropriate measures to minimize impacts to significant resources could include avoidance, capping, or data recovery excavations of the finds. Fencing will be installed around any resources to be avoided, including a buffer area. Justification will be included for any tribal recommendations that are not implemented. If identified resources cannot be avoided, an archaeological monitor will be present during any ground disturbance or prescribed burning in the vicinity of discovered resources. The monitoring period will be determined by the qualified cultural resource specialist. If the resource is determined to not be significant, or if no resources are present within the project site, no further mitigation would be required unless there is a discovery during a treatment activity. If additional archaeological resources are found during treatment activities, the procedures identified in Mitigation Measure CUL-1b for the discovery of unknown resources will be followed.

MM CUL-1b: Protect Inadvertent Discoveries of Unique Archaeological Resources or Subsurface Historical Resources

If any prehistoric or historic-era subsurface archaeological features or deposits, including locally darkened soil ("midden"), that could conceal cultural deposits, are discovered during treatment activities, all ground-disturbing activity and prescribed burning within 100 feet of the resource will be halted and a qualified cultural resource specialist will assess the significance of the find.

If the find is determined to be significant by the qualified cultural resource specialist (i.e., because the find constitutes a unique archaeological resource, subsurface historical resource, or tribal cultural resource), the cultural resource specialist in consultation with Native American representatives will develop and implement appropriate procedures such that the integrity of the resource is protected (i.e., the resource stays intact and complete) and ensure that no additional resources are affected. These procedures will be documented in the project record. For any recommendations from Native American representatives that are not implemented, the reasons for not implementing the recommendations will be documented. Procedures could include, but would not be limited to, preservation in place, archival research, subsurface testing, or contiguous block unit excavation and data recovery.

MM CUL-1c: Avoid and Protect Known Unique Archaeological Resources

For archaeological resources that are known or those that are identified during surveys conducted pursuant to Mitigation Measure CUL-1a, and have been determined by a qualified archaeologist to qualify as a unique archaeological resource, they will be appropriately marked in consultation with Native American representatives and their locations communicated to workers to ensure protection and avoidance. Confidentiality of cultural resources sites will be maintained with minimal disclosure of site locations. If identified resources cannot be avoided, an archaeological monitor will be present during any ground disturbance or prescribed burning in the vicinity of discovered resources.

MM NOI-1: Notify Residential and Academic Land Uses

At least three days prior to beginning treatment activities or biomass disposal activities using chainsaws, mechanical equipment, or water tenders, UC Berkeley will provide advanced notice to occupants of residential land uses in the City of Berkeley that are within 215 feet of such activity and occupants of residential land uses in the City of Oakland that are within 135 feet of such treatment activity. At 215 feet noise generated by chainsaws (i.e., the loudest piece of equipment) would attenuate to less than 75 dB Leq, which is the City of Berkeley's noise standard for nonscheduled, intermittent, short-term operation of mobile equipment. At 135 feet noise generated by chainsaws (i.e., the loudest piece of equipment) would attenuate to less than 80 dB Leq, which is the City of Oakland's noise standard for construction-generated noise. Because the distance used for notification is based on the distance required to reduce the noise levels associated with the loudest piece of equipment to below local standards, it would be sufficient to also reduce noise levels associated with the lower volume activities and equipment. Additionally, UC facilities and academic land uses within these noise contours will be notified.

Notification will include the dates and hours during which excessive noise generating activities are anticipated to occur and contact information, including a daytime telephone number, of a project representative.

Recommendations to assist noise-sensitive land uses in reducing interior noise levels (e.g., closing windows and doors) will also be included in the notification.

UC Berkeley Environmental Protection Measures

EPM CUL-1: Environmental Awareness Training

A qualified archaeologist and/or Native American representative will provide Environmental Awareness Training to all staff, including supervisors, involved with vegetation treatment activities before initiation of a treatment. Training materials will be provided to any new staff over the course of a treatment project. Upon completion of the training, staff will sign a form stating that they attended the training and understand and will comply with the information presented. The training will cover the cultural history of the area; relevant information regarding known archaeological resources; actions to take for the inadvertent discovery of cultural resources, including whom to contact if any potential archaeological resources or artifacts are encountered; applicable laws; and avoidance and minimization measures to be implemented. The training will

also underscore the requirement for confidentiality and culturally-appropriate treatment of any discovery of significance to Native Americans and behaviors consistent with Native American Tribal values.

EPM AQ-2: Minimize Air Emissions

UC Berkeley will implement applicable BAAQMD measures (BAAQMD 2017) to minimize air quality emissions, as appropriate, including the following:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) will be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off-site will be covered.
- All visible mud or dirt track-out onto adjacent public roads will be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads will be limited to 15 mph.
- Idling times will be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage will be provided for construction workers at all access points.
- All construction equipment will be maintained and properly tuned in accordance with manufacturer's specifications. All equipment will be checked by a certified visible emissions evaluator.
- Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person will respond and take corrective action within 48 hours. The Air District's phone number will also be visible to ensure compliance with applicable regulations.

EPM BIO-1: Material Storage

All material stockpiling and staging areas will be located within designated landings that are outside of sensitive habitats.

EPM BIO-2: Avoid Spread or Introduction of Exotic Plants

The spread or introduction of exotic plant species will be avoided by minimizing soil disturbance to areas during and following treatments. Only native plant seeds or stock will be used for erosion control, as needed. If necessary, fencing, signs, maintenance, access control, jute fabric, sediment traps, mulch, straw wattles (without plastic monofilament netting), vegetation management, exotic species control, or any other commonly used erosion control technique may be used to promote the ecological health of treatment areas.

EPM BIO-3: Let Wildlife Leave Area Unharmmed

If any wildlife is encountered during treatment activities, the animal will be allowed to leave the treatment area unharmed and on its own accord.

EPM BIO-4: Environmental Awareness Training

A qualified biologist will provide Environmental Awareness Training to all staff involved with vegetation treatment activities before initiation of a treatment. Training materials will be provided to any new staff over the course of a treatment project. Upon completion of the training, staff will sign a form stating that they attended the training and understand and will comply with the information presented. The training will describe the appropriate work practices necessary to effectively implement the EPMs and mitigation measures and to comply with the state and federal Endangered Species Acts and will include the identification and relevant life history information of sensitive biological resources (e.g., wildlife, plants, habitats) that may potentially occur within the Plan Area.

EPM BIO-5: Delineate Project Areas

UC Berkeley will clearly delineate project areas and restrict access to work crews outside of that area to prevent impacts to adjacent sensitive biological resources.

EPM BIO-6: Access Plan to Minimize Ground Disturbance

UC Berkeley will use existing roads, trails, and former logging paths and minimize ground disturbance from equipment and vehicles (e.g., wheels, tracks, skidding to landings), to the extent feasible. UC Berkeley will develop an access/implementation plan that maps and names all fire roads and/or trails that will be used to reach treatment areas and that details the starting location(s) and direction of progression of treatment in coordination with a qualified biologist.

EPM GEO-1: Suspend Disturbance During and After Precipitation

Ground-disturbing activities will not occur when soils are saturated as defined in 14 CCR 895.1, or within one week following an inch or more of rain, unless the ground is consistently firm and can support the weight of machinery or livestock (during managed herbivory) without creating ruts.

EPM GEO-2: Stabilize Disturbed Soil Areas

Bare soil will not be exposed in over 50 percent of the site, and no single bare patch will be larger than 15 square feet. UC Berkeley will stabilize newly created bare soil with mulch or equivalent, to minimize the potential for erosion and sediment discharge. In these areas, mulch/chip depth will be 3-6 inches over at least 90 percent of the exposed area and will be placed as soon as possible after treatment activities and before October 15.

EPM GEO-3: Minimize Erosion

To minimize erosion, UC Berkeley will prohibit heavy equipment use where slopes are steeper than 30 percent. During managed herbivory, grazing animals will be herded out of removed from an area if accelerated soil erosion is observed.

EPM GEO-4: Drain Stormwater via Water Breaks

UC Berkeley will drain compacted and/or bare linear treatment areas capable of generating storm runoff via water breaks using the spacing and erosion control guidelines contained in Sections 914.6, 934.6, and 954.6(c) of the California Forest Practice Rules (2020). Where water breaks cannot effectively disperse surface runoff, including where water breaks cause surface runoff to be concentrated on downslopes, other erosion controls will be installed as needed to eliminate the concentration of runoff, such as application of mulch or installation of check dams. Water bars and rolling dips will be monitored and maintained for at least three years following the first winter of installation to ensure they are functioning properly.

EPM GEO-5: Steep Slopes

UC Berkeley will require a Registered Professional Forester (RPF) or licensed geologist to evaluate treatment areas with slopes greater than 50 percent for unstable areas (areas with potential for landslide) and unstable soils (soil with moderate to high erosion hazard). If unstable areas or soils are identified within the treatment area, are unavoidable, and will be potentially directly or indirectly affected by a treatment, a licensed geologist (P.G. or C.E.G.) will determine the potential for landslide, erosion, or other issues related to unstable soils and identify measures that will be implemented by UC Berkeley such that substantial erosion or loss of topsoil will not occur.

EPM HAZ-1: Maintain All Equipment

UC Berkeley will maintain all diesel- and gasoline-powered equipment per manufacturer's specifications and in compliance with all state and federal emissions requirements, as well as all equipment used for herbicide application. Maintenance records will be available for verification. Before the start of treatment activities, UC Berkeley will inspect all equipment for leaks and inspect everyday thereafter until equipment is removed from a treatment site. Any equipment found leaking will be promptly removed.

EPM HAZ-2: Spill Prevention and Response Plan

UC Berkeley or the licensed Pesticide Control Advisor (PCA) will prepare a Spill Prevention and Response Plan (SPRP) before beginning any herbicide treatment activities to provide protection to onsite workers, the public, and the environment from accidental leaks or spills of herbicides, adjuvants, or other potential contaminants. The SPRP will include (but not be limited to):

- a map that delineates staging areas, and storage, loading, and mixing areas for herbicides;
- a list of items required in an onsite spill kit that will be maintained throughout the life of the activity; and
- procedures for the proper storage, use, and disposal of any herbicides, adjuvants, or other chemicals used in vegetation treatment.

EPM HAZ-3: Comply with Herbicide Application Regulations

UC Berkeley will obtain all required licenses and permits before herbicide application. UC Berkeley will prepare all herbicide applications to do the following:

- Be implemented consistent with recommendations prepared annually by a licensed PCA.
- Comply with all appropriate laws and regulations pertaining to the use of pesticides and safety standards for employees and the public, as governed by the EPA, DPR, and applicable local jurisdictions.
- Adhere to label directions for application rates and methods, storage, transportation, mixing, container disposal, PPE, and weather limitations to application such as wind speed, humidity, temperature, and precipitation.
- Be applied by an applicator appropriately licensed by the state.

EPM HAZ-4: Triple Rinse Herbicide Containers

UC Berkeley will triple rinse all herbicide and adjuvant containers with clean water at an approved site, and dispose of rinsate by placing it in the batch tank for application per 3CCR Section 6684. Disposal of non-recyclable containers will be at legal dumpsites. Disposal of all herbicides will follow label requirements and waste disposal regulations.

EPM HAZ-6: Notification of Herbicide Use in the Vicinity of Public Areas

Signage will be posted at each pedestrian entry point notifying the public of upcoming and recent herbicide application locations, and footpaths and trails will be closed to the public during herbicide application. Signs will be posted before the start of treatment and notification will remain in place for at least 24 hours after treatment ceases.

EPM HYD-2: Avoid Impacts to Non-Target Vegetation and Sensitive Resources from Herbicides

UC Berkeley will implement the following measures when applying herbicides:

- Locate herbicide mixing sites in areas devoid of vegetation and where there is no potential of a spill reaching non-target vegetation or a waterway.
- No herbicide will be applied during precipitation events or if precipitation is forecasted to occur within 24 hours before or after treatment activities.
- Use only herbicides labeled for use in aquatic environments when working in riparian habitats or other areas where there is a possibility the herbicide could come into direct contact with water. Only hand application of herbicides will be allowed in riparian habitats and only during low-flow periods or when seasonal streams are dry.
- Herbicides that are not approved for use in aquatic environments would not be used, mixed, or stored within 60 feet of any surface waters, wetlands, or riparian areas.

EPM NOI-1: Limit Heavy Equipment Use to Daytime Hours

Operation of heavy equipment (heavy off-road equipment, tools, and delivery of equipment and materials) will occur during daytime hours if such noise would be audible to sensitive receptors (e.g., residences) and will not be scheduled during the university's Reading/Review/Recitation Week and finals week.

EPM NOI-2: Maintain Equipment

All mechanical equipment and hand-operated power tools will be used and maintained according to manufacturer specifications. All diesel- and gasoline-powered equipment will be equipped with noise-reduction intake and exhaust mufflers and engine shrouds, in accordance with manufacturers' recommendations.

EPM NOI-3: Close Equipment Engine Shrouds

Equipment engine shrouds will be closed during equipment operation.

EPM NOI-4: Limit Equipment Idling

All motorized construction equipment will be shut down when not in use. Idling of equipment and haul trucks will be limited to 5 minutes.

EPM WIL-1: Prohibit Treatments During High Fire Danger

Vegetation treatments will not occur during extreme fire danger conditions such as red flag warnings, as posted by the local CAL FIRE unit. UC Berkeley will define the conditions under which work can proceed. It will be UC Berkeley's responsibility to determine the fire danger before the start of each workday and may determine to limit or cease operations to mitigate wildfire risk without a red flag warning. In addition, during the dry season, a ground inspection for fire will occur within 2 hours of felling, yarding, and mechanical loading activities ceasing each day, per Section 918.8, 958.8 of the California Forest Practice Rules (2020).

EPM WIL-2: Require Spark Arrestors

UC Berkeley will require all mechanized hand tools to have federal- or state-approved spark arrestors.

EPM WIL-3: Require Fire Suppression Tools

UC Berkeley will require tree cutting crews to carry one fire extinguisher per chainsaw. Each vehicle would be equipped with one long-handled shovel and one axe or Pulaski consistent with PRC Section 4428. A fire suppression resources inventory will be submitted to the local CAL FIRE unit before prescribed burning as required by 14 CCR Section 918.