



TRINITY COUNTY

PLANNING – CANNABIS

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Instructions

There is text **highlighted in yellow** where project-specific analysis is required. The text provided is an example of how the analysis should be completed.

Instructions regarding what a section should include are **bolded, underlined, and highlighted in green.**

Project Description

Noise and Light Attenuation Plan was created for CCL-###, **Farm Name/LLC**, as a result of not meeting the 350-foot residual buffer. This operation aims to provide additional resources that will assist Trinity County Planning, Cannabis Division to assess further impacts of light, noise, and odor for sites that are less than 350-feet from a sensitive receptor.

Contact or Business Name	
Distance and Aspect to Neighboring Dwelling(s)	1: 2: 3:
APN	
Acres	
Zoning District	
General Plan Designation	
Contact Phone #	
Contact E-mail	
Mailing Address	
License Type	
County License # (CCL)	

Include the purpose of the project with description of the current and proposed size and license type.

Noise Attenuation

Include a description of noise conditions, current and proposed, related to generator use and applicable mitigation measures.

This should include the number and location of generators, distance to property line/nearest sensitive receptor, generator make/model/size, hours of operations, and measured decibel levels at the source of the noise and at the property line. Potential mitigation measures could include but are not limited to:

- Secondary containment within a structure
- Vegetative screening

Include a description of noise conditions, current and proposed, related to fans and greenhouse/hoop house use and applicable mitigation measures.

This should include the number and location of fans, distance to property line/nearest sensitive receptor fan make/model/size, hours of operations, and measured decibel levels at the source of the noise and at the property line. Potential mitigation measures could include but are not limited to:

- Ensuring proper and stable installation of equipment
- Vegetative screening
- Variable speed controllers to reduce fan speed

If there are additional sources of noise, please include additional discussion per source of noise.

Example Noise Attenuation Plan

The gasoline-powered backup generator on-site is a Firman T07571 model with a sound rating of 72 dB and a peak wattage of 9400W. It is operated only when PG&E power is out to run both the groundwater well and minimal small farm equipment. It is contained within a plastic tub and is stored in the steel building/barn when not in use. In November of 2022, a decibel meter was used to measure noise levels at 100 feet from the generator. CDFW regulations require that no more than 50 decibels are emitted 100 feet from the source. 48 dB were detected at 100 feet from the generator. The farm manager has proposed secondary containment for the generator to further dampen noise.

There are four 42" J&D Manufacturing Typhoon exhaust fans and two 36" J&D Manufacturing Typhoon exhaust fans on-site. These fans have a rugged X-frame motor mount which improves stability and ensures quiet operation. Fans are in use from 7:00 PM to 7:00 AM from April to September. In November of 2022, a decibel meter was used to measure noise from 100 feet from the fans in each greenhouse. CDFW regulations require that no more than 50 decibels are emitted 100 feet from the source. 49 dB were detected at 100 feet from each fan. The farm manager has proposed the installation of a variable speed controller to further reduce fan speed and noise.

Light Attenuation

Include a description of lighting conditions, both current and proposed, for continual cannabis operations onsite and applicable mitigation measures.

This should include the number, location, size, and purpose of all lights including but not limited to grow lights, security lights, and lights for visibility. Potential mitigation measures could include but are not limited to:

- Down casting and shielding all lights
- Shielding greenhouses/hoop houses

Example Light Attenuation Plan:

The proposed project site currently has outdoor lighting that is used for security purposes. In addition, there is limited lighting associated with the existing residence, processing building, and other accessory buildings. These sources of light are limited and do not generate large amounts of light either on or off-site. Similar lighting would be used in the additional areas proposed for cultivation by this application. In addition, there would be limited lighting associated with the proposed processing building. The County Cannabis Cultivation Ordinance (Ordinance No. 315-823 and amendments) requires that the light generated by the proposed project meets the following requirement: 1) lighting shall be downcast, shielded and/or screened to keep light from emanating offsite or into the sky, and (2) lighting in greenhouses shall be shielded so that little to no light escapes, and light shall not escape at a level that is visible from neighboring properties between sunset and sunrise. If portions of the cultivation areas are converted to mixed-light cultivation in the future, using artificial lighting, the applicant will be required to comply with the County Cannabis Ordinance and ensure that little to no light escapes from the greenhouses. As discussed above, the applicant proposes the use of tarps to shield artificial lighting and prevent light pollution in the project vicinity.

All lighting associated with the project is contained within the greenhouses. There are 20 LED lights with 23W bulbs in each of the four larger greenhouses and 24 HPS Gavita lights with 825W bulbs in the smaller 30' by 48' greenhouse, which is also shielded with curtains that are located within the interior of the structure. The 23W LED bulbs produce 1600 lumens. The 825W HPS lights have a color temperature of 2200 kelvins, which is lower than the maximum standard of 3000 kelvins, in compliance with the International Dark Sky Association standards and Fixture Seal of Approval Program (<https://www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics>). Lights in the four larger greenhouses are used in April and May, from 7:00 PM to 10:00 PM. Lights in the smaller greenhouse are used year-round, from 7:00 AM to 10:00 AM and 4:00 PM to 7:00 PM. There are no additional lights used for the purposes of employee visibility.

Tarps are in place on the exterior of the greenhouses from April to September, from 7:00 PM to 7:00 AM. The tarp system on the smallest greenhouse is automated. The tarps on the four larger greenhouses are pulled manually, by one person, on chains attached to a motor that is used to roll the tarps down from where they are secured to the peak of the greenhouse roof with wire. They are made of 11 mil fiber reinforced blackout material. When not in use, they are stored, rolled up, on top of the greenhouses.

Odor Control Plan

Properties that are zoned Agricultural that do not meet the 350 ft. residential setback requirement shall produce an Odor Control Plan.

Trinity County Programmatic FEIR Mitigation Measure 3.3-3: Implement Odor Control Plan for the Growing, Cultivation, Processing, Handing of Cannabis:

- Identify and describe odor-emitting activities and the nature and characteristics of the emissions.
- Location and distance of sensitive receptors (e.g., residents, youth-oriented facilities, schools, churches, residential treatment centers) from the site.
- Demonstrate that the cannabis site's distance to receptors, wind direction, and local topographic conditions would not result in detection of cannabis odors by off-site sensitive receptors that would create a nuisance.
- If off-site odor nuisance impacts cannot be avoided without odor controls, identify procedures and controls for reducing/controlling odors on-site, including the following as applicable to the cannabis use and license type (outdoor, mixed-light, and indoor):. The operator may propose a numeric odor detection threshold for on-site operations (such as dilution-to-threshold standard that is verified by persons of normal odor sensitivity as defined by European Standard EN 13725) subject to County review and approval.
 - All fully enclosed and secure structures that contain cannabis plants or products that generate odors will employ mechanical ventilation controls, carbon filtration, or other equivalent or superior method(s) to eliminate the detection of cannabis off the parcel. This will include all drying and processing of cannabis plant material recently harvested.
 - Outdoor operations may include different plant strains and smaller grow areas or relocation of outdoor activities indoors or, in a mixed-light facility contained within an enclosed structure, use of site design or other technology and/or use of odor easements to address odor impacts.
 - Corrective actions to address County-verified off-site odor complaints will be identified. This may include immediate and complete harvest of the cannabis plants or identification of other methods to be applied as part of the current harvest or the next harvest to minimize off-site odor impacts so that they would not conflict with other applicable standards of the County's Cannabis Program or State license requirements.

Include a description of odor emitting conditions onsite, both current and proposed, for continual cannabis operations onsite and applicable mitigation measures.

This should include the distance to nearest sensitive receptors (residences, churches, youth-oriented facilities), types of facilities onsite that will emit odors (cultivation, harvest storage/processing areas, compost), staff responsibilities, and monitoring schedules. Potential mitigation measures could include but are not limited to:

- Biofiltration
- Bi-Polar Ionization/ Catalytic Oxidization
- Carbon Air Filtration/ Carbon Scrubbers
- Companion Planting Herbs and Native Flowers
- Cultivation of Low Odor Strains
- Deodorization
- Fogging
- Misting Systems
- Odor Masking Agents
- Odor Neutralization
- Ozone generation
- Vapor Phase Systems

Background

As cannabis plants grow, they release a distinctive range of odors which are made up of different types of volatile organic compounds (VOCs) called terpenes. Activities during the production, harvest, post-harvest, waste, and composting cycles can release significant odors. Installing a range of control technologies that reduce the amount of all strong odor emissions released during all stages of cannabis production, as well as the correct operation, maintenance, staff training, record keeping and following the best management practices detailed in this document are the means to a successful odor control plan for reducing air quality impacts from a cannabis operation.

Carbon Filtration

Carbon filtration is currently the best control technology for reducing all odor emissions from cannabis cultivation facilities. These filters work by using an absorption process where porous carbon surfaces chemically attract and trap VOCs along with other gas phase contaminants. Carbon absorbs its molecular weight of contaminants; the more porous the activated carbon is, the more contaminants it will capture. Depending on the filter system, carbon filtration can remove 50-98% of VOCs. As the filter ages, less carbon surface area is available to trap VOCs; at this point the filter will need to be replaced. Depending on the filter load, most carbon filters will last 6-12 months in a commercial cultivation environment. An effective filtration system must be properly sized according to the space needed for volume and air flow requirements. It is important not to exceed the maximum rated cubic feet per minute rating for air circulation through the filter. If exceeded, the passing air will not have enough contact time with the carbon, and the filter will not be effective at removing odor. Carbon filters will be used in combination with other odor control technologies.

Ozone Generation

Ozone generators use ultraviolet bulbs or corona (electrical) discharge to produce ozone gas that works on a molecular level to eliminate virtually all odor. Ozone can be used safely and efficiently by utilizing generators that fit directly into exhaust lines.

Bi-Polar Ionization/ Catalytic Oxidization

Ions produced by Plasma Air units break down gases with electron-volt ionization to harmless compounds prevalent in the atmosphere such as oxygen, nitrogen, water vapor and carbon dioxide. The resultant compounds are a function of entering contaminants into the plasma field. Once VOCs are broken down, odors are eliminated.

High-Pressure Misting Systems

High-pressure misting or fog systems are an effective and economically viable means of odor control. These products remove VOCs, as opposed to other solutions that mask odors, using a combination of high-pressure fog and a scientifically researched mixture of essential oils. Billions of atomized droplets attach to and eliminate pungent odors associated with flowering cannabis plants. These systems work by forcing water through a specialized nozzle to create micron droplets that are then released into the air. These droplets attract VOCs and add weight to them so they will sink to the ground, where they can be effectively removed. Chemical injectors introduce a neutralizing solution into the water supply, allowing high-pressure misting systems to eliminate any type of nuisance odor. Misting fans can integrate air streams into the fog produced by the misting system, which helps the droplets cover a wider and more uniform area.

Summary

Early strategic planning is the key to effective odor control for cannabis operations. Applicant will monitor odor and if odor concerns are detected by offsite sensitive receptors, project will utilize odor control methodologies, detailed above.