Water Resource Protection Plan

for APN 524-201-030

WDID# 1B171472CHUM

Humboldt County

Submitted to:

California Regional Water Quality Control Board -
North Coast Region
5550 Skylane Boulevard, Suite A
Santa Rosa, California 95403

Prepared by:
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November 11, 2017

NRM
NATURAL RESOURCES MANAGEMENT
CORPORATION

Site Maps for Parcel

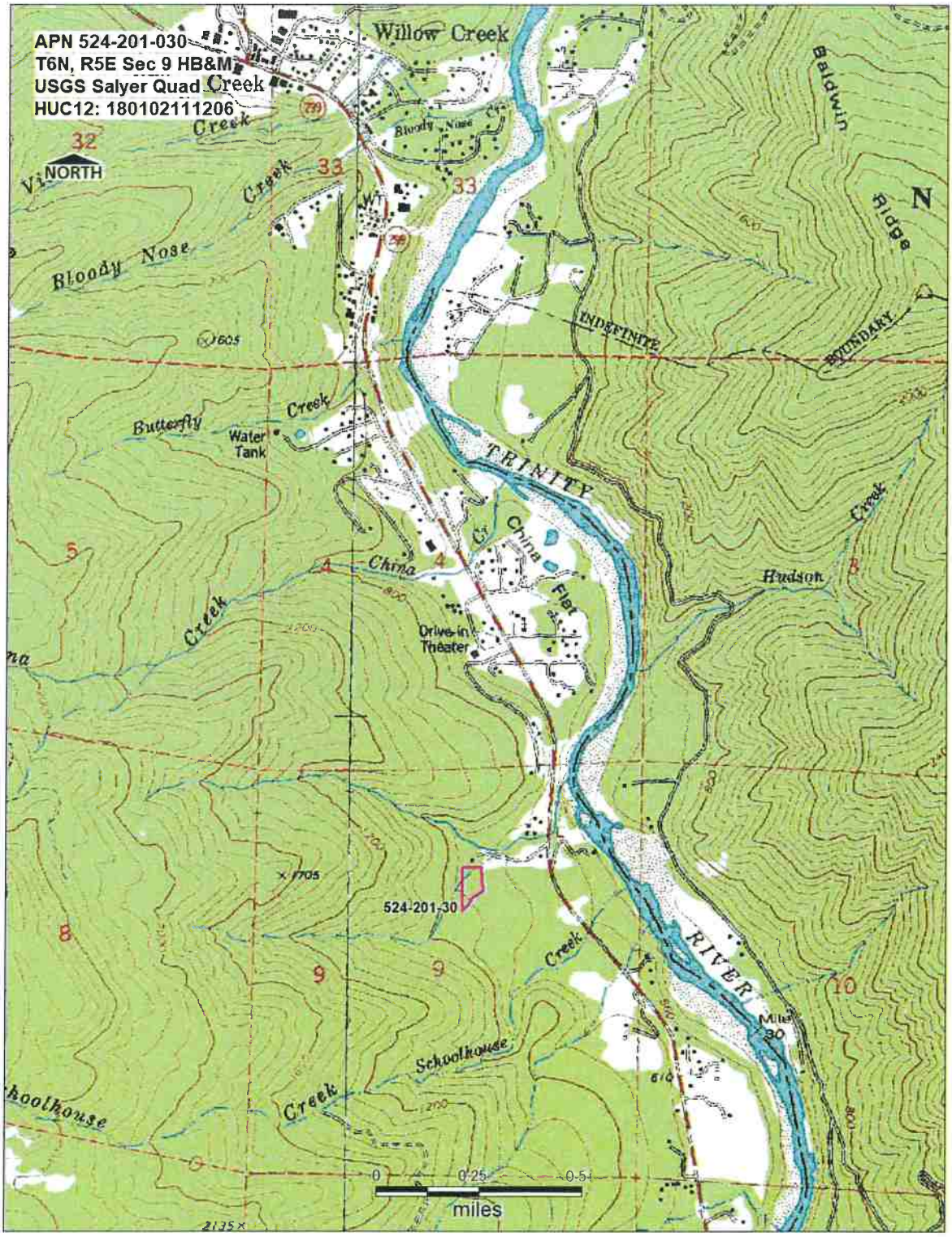

Figure 1. Vicinity Map for APN 524-201-030

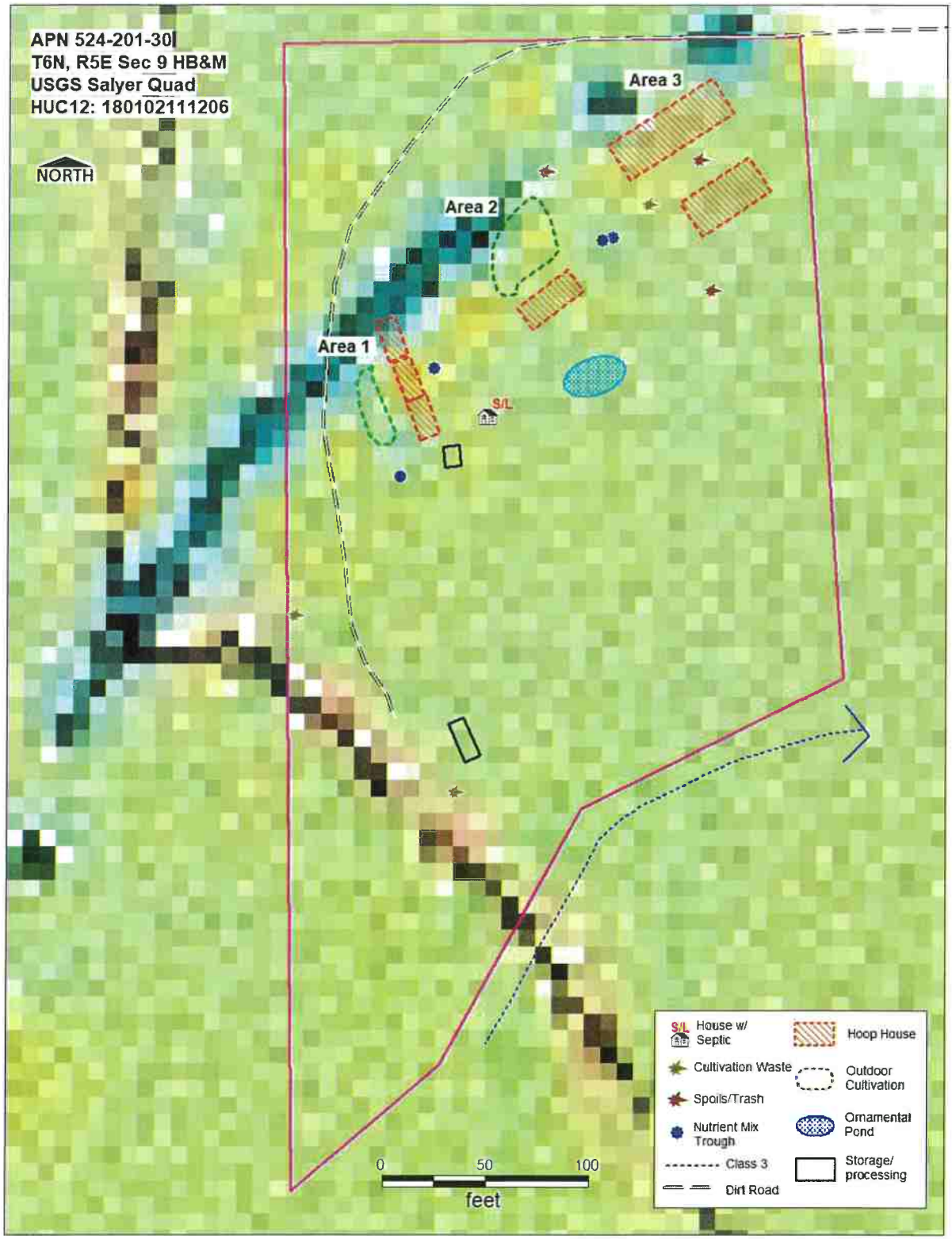

Figure 2. Parcel Map for APN 524-201-030

Figure 3. Parcel Map for APN 524-201-030

Water Resource Protection Plan

This document serves as the Water Resource Protection Plan (WRPP) for site APN 524-021-030 pursuant to Order No. R1-2015-0023. On August 13, 2015, the North Coast Regional Water Quality Control Board (NCRWQCB; Regional Water Board) adopted a General Waiver of Waste Discharge requirements and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region, Order No. R1-2015-0023. One of the requirements of Order No. R1-2015-0023 is to prepare a (WRPP) for all sites that are enrolled under Tier 2 of the order.

Summary

This 2.5-acre property is located between the communities of Willow Creek and Salyer in Humboldt County, CA (Figure 1). The parcel lies at ~720 ft. elevation within the Trinity River watershed. The Trinity River flows north approximately 1,600 feet east of the parcel. Slopes range between 2% and 14%. The parcel is developed with one single family home, a domestic orchard, several outbuildings, and two mobile trailers. The parcel was logged prior to home construction in 2003 and is mostly open with trees along the parcel boundaries. No watercourses cross the property.

Approximately 4,320 square feet is under cultivation in three separate gardens (Figures 2-3). All cultivation areas are outside of riparian buffer zones. Irrigation water is sourced from a municipal supply.

This Tier 2 operation does not meet Associated Standard Conditions 4, 7, and 10.

Current Conditions

Watercourses

No watercourses cross this property. An unnamed class 3 tributary of the Trinity River flows northeast outside of the southeast property boundary (Figures 2-3). This watercourse appears to cross the property on the USGS QUAD map, but a site visit by NRM in July 2017 determined the mapped location of this watercourse inaccurate. All cultivation areas are over 200 ft. from the nearby class 3 watercourse. An ornamental pond unrelated to cannabis cultivation is located near the center of the property (Photo 5, Figures 2-3).

Roads

Approximately 470 feet of dirt access road cross this parcel (Photo 15, Figures 2-3). The condition of this road satisfies Associated Standard Condition 1 and creates no potential for erosion or sediment delivery.

Watercourse Crossings

There are no watercourse crossings on this parcel.

Cultivation Areas

There are three cultivation areas on this property (Figures 2-3). No grading or terracing was involved in the establishment of these areas. The nearest surface water is the class 3 watercourse to the south of the property boundary. All cultivation areas are more than 200 feet away from this watercourse.

- Area 1 includes 12 plants (372 ft^2) outdoors in pots and three 12-ft by 20-ft light-depravation hoop-houses with plants in pots (Photo 1). This area has a slope of about 12%.
- Area 2 includes 120 plants (920 ft^2) outdoors in pots and Smart pots and one 17-ft by 30-ft light-depravation hoop-house with plants in pots (Photo 6). This area has a slope ranging between 3 and 8%.
- Area 3 includes one 40-ft by 20-ft and one 60-foot by 20-ft light-depravation hoop-house with plants in pots and Smart pots (Photo 10). The smaller hoop-house is situated on a slope of 8% while the larger hoop-house is on a slope of 14%. Area 3 is at a slightly lower elevation than the rest of the property.

Two crops are obtained from the light-depravation areas. Irrigation is delivered by hand-watering seven days a week during the growing season: May through October.

General Property Conditions

Non-cannabis related infrastructure on this property includes a permitted residence with septic/leach-field (Figures 2-3), several mobile trailers, an above ground swimming pool, and an ornamental pond. Power is supplied by PG&E and propane is delivered by truck.

This operation fails to meet Associated Standard Conditions 4, 7, and 10. There are uncovered spoils piles (Photos 7, 11, 14); unsecured trash; and cultivation related debris (Photos 13, 16). Nutrients and fertilizers are not properly stored in a dry and contained area (Photo 9). Several nutrient mixing tanks are utilized in the application of fertilizers (Photos 2, 4, 8). These mixing areas do not currently have adequate containment or cover.

List of Chemicals Stored Onsite & Information About Use

Nutrients and chemicals used on site include:

- Compost-tea brewed of worm castings, compost, kelp, mycorrhizae, guano, and molasses applied every other day
- Bulletproof S.I. ™, Cutting-Edge Solutions Bloom ™, and Cutting-Edge Solutions Grow ™ applied at unspecified intervals throughout the growing season.

For future compliance, all nutrients, pesticides, herbicides, and fungicides used will be recorded. The product name, amount used and method of application will be recorded each time a product is used. A copy of these records will be kept onsite. Quantities used annually will be reported to the NCRWQCB by March 31st of the following year with the MRP (Appendix C, Monitoring and Reporting Program).

Water Use

4, 320 ft^2 are cultivated from May to October. An estimated total of 142,800 gallons were used for irrigation in 2016, and the same usage is predicted for 2017.

Irrigation water is sourced from the Willow Creek municipal supply, and there is currently no storage capacity on the property. Municipal water is also the source for domestic use and for irrigation of a domestic orchard.

Table 1. Estimated amount of water used for irrigation monthly in gallons

Source	JAN	FEB	MARCH	APRIL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Municipal	0	0	0	0	16.3K	22.5K	32.6K	32.6K	22.5K	16.3K	0	0

For future compliance, **water meters will be used** to quantify water use for irrigation and storage. A photo of the meter reading will be taken monthly to document water use.

Figure 4. Corrective Actions Map for APN 524-021-030

Corrective Actions Please refer to Figure 4, Corrective Actions Map.

Table 2. Features that need improvement. See Appendix B for Associated Standard Conditions (A.S.C.)

Unique Map Points	Map Point Descriptions	A.S.C	Temporary BMP	Permanent BMP (Best Management Practices)	Priority for Action	Time Schedule for completion of Permanent BMP	Completion Date
1	Spoils pile	4b	Cover	Spent growing medium should be collected, contained, removed from site and disposed of properly at waste disposal facility.	1	October 1, 2017	
2	Cultivation-related wastes	10	N/A	Wastes and refuse must be collected, contained, removed from site and disposed of properly at waste disposal facility	1	October 1, 2017	
3	Nutrient storage	7a	N/A	Nutrient bottles and amendment containers must be placed in dry, enclosed containment	1	October 1, 2017	
4	Fertilizer mixing tanks	7a, 7c	N/A	Current mixing trough must be replaced with containers with a lid or a closed tank.	1	October 1, 2017	
5	Bagged Soil	7a	N/A	Stored bags need secondary containment	1	October 1, 2017	

Priority time frames: 1 is high priority with treatment being planned to occur immediately; 2 is a high priority for treatment to occur prior to the start of the non-diversion period; 3 is a moderate priority for treatment to occur within a year, or prior to the winter of the second season of operations; 4 is a lower priority with treatment being planned within the shortest time possible, but no later than the expiration of this Order (five years).

Map points:

1) - Cultivation-medium spoils pile - Approximately 1 cu. yd. of loose medium piled and scattered on the ground northeast of Area 2 (Photo 7). Spoils must be removed from site and disposed of at a waste disposal facility. The pile should be temporarily covered until removal. Alternatively, cultivation medium can be collected, stored in a dry, contained location, and re-used.
   - Approximately 1 cu. yd. of loose medium piled and scattered on the ground south of Cultivation Area 3 (Photo 17). Spoils must be removed from site and disposed of at a waste disposal facility. The pile should be temporarily covered until removal. Alternatively, cultivation medium can be collected, stored in a dry, contained location, and re-used.
   - Approximately 5 cu. yds. of loose medium piled on the ground between hoop-houses in Cultivation Area 3 (Photo 11). Spoils must be removed from site and disposed of at a waste disposal facility. The pile should be temporarily covered until removal. Alternatively, cultivation medium can be collected, stored in a dry, contained location, and re-used.
2) - Cultivation-related wastes – Pile of broken irrigation tubes. Located on western property boundary by the road. Wastes must be collected, contained, removed from site and disposed of properly at waste disposal facility (Photo 15).

- Hoses, screens, bottles, plastic debris scattered around the compost-tea brewing station (Photo2). Wastes must be collected, contained, removed from site and disposed of properly at waste disposal facility.
- Cultivation-related wastes- Piles of pots and tarps on the west side of Area 3 (Photo 13). Wastes must be collected, contained, removed from site and disposed of properly at waste disposal facility.
- Cultivation-related wastes – Tubs, buckets, bags, and wire scattered on the ground next to the old unused greenhouse/drying shed (Photo 16). Wastes must be collected, contained, removed from site and disposed of properly at waste disposal facility.

3) - Nutrients and fertilizers stored on a wooden bench at the top of the embankment between Areas 2 and 3. (Photo 9). Nutrients and amendments must be stored in dry, enclosed containment where they cannot drip onto the ground or leach in the rain.
   - Nutrients and amendments stored on the ground bedside a compost tea brewing area (Photo 2). Nutrients and amendments must be stored in dry, enclosed containment where they cannot drip onto the ground or leach in the rain.
4) - Nutrient mixing in open-topped troughs set on a rotting wooden platform on top of the embankment between Areas 2 and 3 (Photo 8). Open troughs can spill and overflow onto the ground. These troughs must be replaced with containers with lids or with closed tanks. They should also be moved away from the edge on the embankment.
   - Nutrient mixing in an open-topped trough on the west side of the house by Cultivation Area 1 (Photo 4). Open troughs can spill and overflow onto the ground. This trough must be replaced with a lidded container or with a closed tank.
5) Unused bags of cultivation medium-located west of Area 3. Bags need secondary containment in a dry and enclosed location to prevent leaching or spillage (Photo 12).

Winter Site Preparation

Prior to winter rains at the end of the growing season the following steps will be taken to prepare the site for winter.

- Soil used in cultivation will be piled and covered or removed from site and disposed of at a waste disposal facility,
- Cannabis stems and root balls will be chipped, burned or disposed of at a waste disposal facility.
- All nutrients, fuels, and other chemicals will be placed in a secure storage shed
- All cultivation trash and debris will be properly disposed of at a waste disposal facility. Receipts for disposal will be kept.

Monitoring

Corrective Action Monitoring

NRM will conduct a monitoring site visit after October 1, 2017 to check corrective action completion. Photos and notes from the monitoring site visit will be used to create a monitoring report.

Annual Monitoring

Fall / Winter Monitoring

Annual monitoring for this site will follow the revised Appendix C from the Order No. 2015-0023. Each year, monitoring will occur on a minimum of three occasions: prior to October 15th; by December 15th; and immediately following a precipitation event with 3 inches of accumulation in a 24hr period.
During each monitoring event, the following items will be inspected:

1. Pumps, nutrients, fertilizers, and any petroleum products are stored in a dry, enclosed location.
2. Soils, growing mediums and any spoils are properly contained and covered to prevent nutrient leaching.

Monitoring may be done by the landowner/registrant. Photos will be taken at each monitoring point. Monitoring photos and notes will be kept on-site. The landowner/registrant will submit monitoring forms and photos to NRM or the NCRWQCB.

Growing Season Monitoring

During the growing season the landowner will monitor the following items at least monthly:

- Cultivation area during or immediately after watering to ensure irrigation water is infiltrating (not running off)
- Cultivation area to ensure that all fertilizers and other chemicals are properly contained in the storage shed and that all trash and debris is properly contained and secured.

The landowner/registrant will keep a record of monitoring completion dates and any necessary corrective actions. A copy of this record will also be submitted to NRM.

During the growing season, all fertilizer and irrigation water use will be tracked. The type and amount of fertilizers used and the monthly total of water used for irrigation will be reported to NRM by December 31st of each year.

The annual monitoring report will be submitted to the Regional Water Board by March 31st of each year. The report will include the Appendix C reporting form from the NCRWQCB Order No. R1-2015-0023.

Water Resource Protection Plan

Name of Legally Responsible Person (LRP) Sarah Robert

Title for LRP (owner, lease, operator, etc.) owner

Signature: _____ Date: 12-20-17

WRPP prepared by: **Natural Resources Management Corp. (NRM)**

Date: 12-20-17

NRM Signature: _____

Appendix A. Photo Documentation – Pictures were taken 7/18/2017

Photo 1. Cultivation Area 1

Photo 2. Nutrient mixing station

Photo 3. Storage shed

Photo 4. Nutrient mixing station

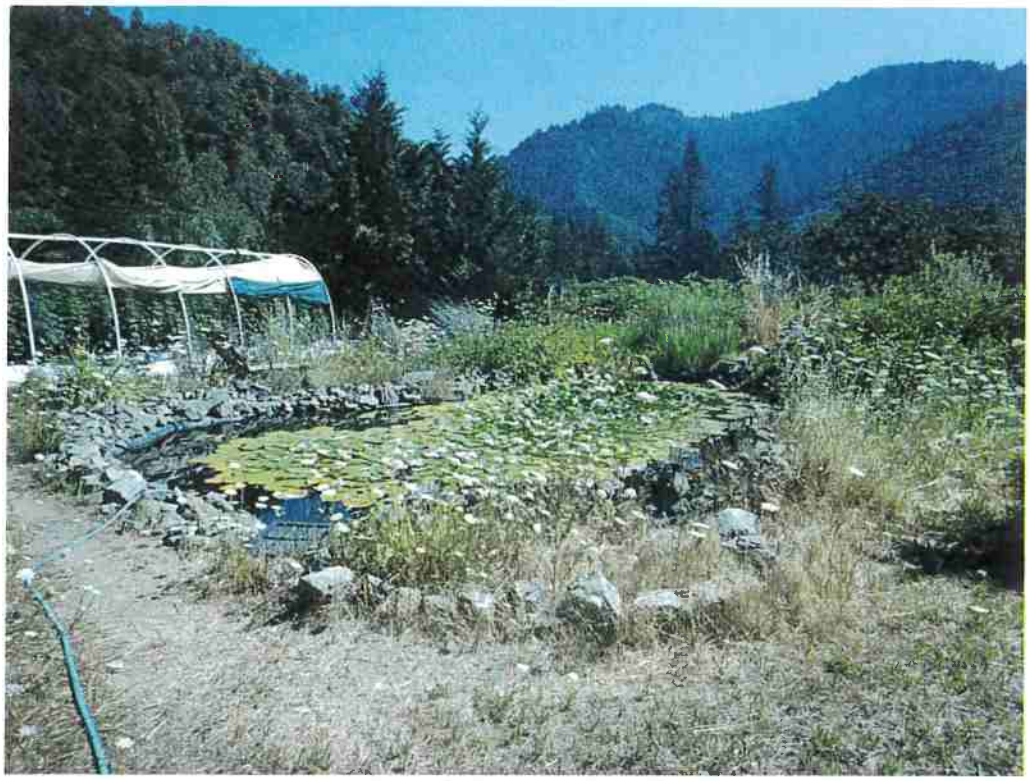

Photo 5. Ornamental pond

Photo 6. Cultivation Area 2

Photo 7. Spoils pile

Photo 8. Nutrient mixing station

Photo 9. Nutrient storage

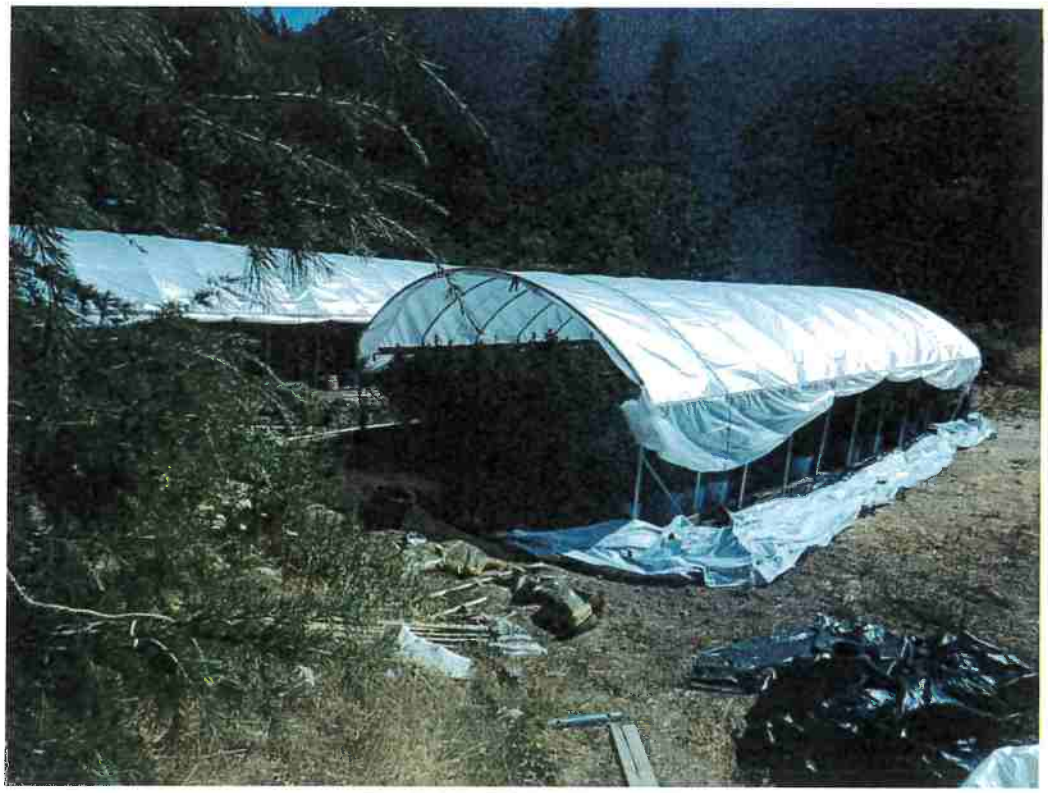

Photo 10. Cultivation area 3

Photo 11. Spoils pile between hoop-houses in Cultivation Area 3

Photo 12. Stored bags of cultivation medium

Photo 13. Cultivation-related trash

Photo 14. Spoils pile

Photo 15. Road, Cultivation related waste

Photo 16. Cultivation-related trash

Photo 17. Spoils south of Cultivation Area 3

Appendix B. Associated Standard Conditions

I. As described in the Order, dischargers will fall within one of three tiers.

Discharger shall be in the tier that covers the most impactful part of the operations (i.e., different sections of a property cannot be divided among the tiers). **All dischargers**, regardless of Tier are subject to the standard conditions in section **I.A,** MRP section I.D., and General Terms, Provisions and Prohibitions. **Tier 2 Dischargers** are also subject to section **I.B. (a Water Resources Protection Plan)**, and Tier 3 Dischargers are subject to sections I.A., I.B. (if cultivating cannabis), and I.C.

A. Standard Conditions, Applicable to All Dischargers

1. Site maintenance, erosion control and drainage features

a. Roads shall be maintained as appropriate (with adequate surfacing and drainage features) to avoid developing surface ruts, gullies, or surface erosion that results in sediment delivery to surface waters.

b. Roads, driveways, trails, and other defined corridors for foot or vehicle traffic of any kind shall have adequate ditch relief drains or rolling dips and/or other measures to prevent or minimize erosion along the flow paths and at their respective outlets.

c. Roads and other features shall be maintained so that surface runoff drains away from potentially unstable slopes or earthen fills. Where road runoff cannot be drained away from an unstable feature, an engineered structure or system shall be installed to ensure that surface flows will not cause slope failure.

d. Roads, clearings, fill prisms, and terraced areas (cleared/developed areas with the potential for sediment erosion and transport) shall be maintained so that they are hydrologically disconnected, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams. Connected roads are road segments that deliver road surface runoff, via the ditch or road surface, to a stream crossing or to a connected drain that occurs within the high delivery potential portion of the active road network. A connected drain is defined as any cross-drain culvert, water bar, rolling dip, or ditch-out that appears to deliver runoff to a defined channel. A drain is considered connected if there is evidence of surface flow connection from the road to a defined channel or if the outlet has eroded a channel that extends from the road to a defined channel (http://www.forestsandfish.com/documents/Road_Mgmt_Survey.pdf).

e. Ditch relief drains, rolling dip outlets, and road pad or terrace surfaces shall be maintained to promote infiltration/dispersal of outflows and have no apparent erosion or evidence of soil transport to receiving waters.

f. Stockpiled construction materials are stored in a location and manner so as to prevent their transport to receiving waters.

2. Stream Crossing Maintenance

a. Culverts and stream crossings shall be sized to pass the expected 100- year peak streamflow.

b. Culverts and stream crossings shall be designed and maintained to address debris associated with the expected 100-year peak streamflow.

c. Culverts and stream crossings shall allow passage of all life stages of fish on fish-bearing or restorable streams, and allow passage of aquatic organisms on perennial or intermittent streams.

d. Stream crossings shall be maintained so as to prevent or minimize erosion from exposed surfaces adjacent to, and in the channel and on the banks.

e. Culverts shall align with the stream grade and natural stream channel at the inlet and outlet where feasible. At a minimum, the culvert shall be aligned at the inlet. If infeasible to align the culvert outlet with the stream grade or channel, outlet armoring or equivalently effective means may be applied.

f. Stream crossings shall be maintained so as to prevent stream diversion in the event that the culvert/crossing is plugged, and critical dips shall be employed with all crossing installations where feasible. If infeasible to install a critical dip, an alternative solution may be chosen.

3. Riparian and Wetland Protection and Management

a. For Tier 1 Dischargers, cultivation areas or associated facilities shall not be located within 200 feet of surface waters. While 200 foot buffers are preferred for Tier 2 sites, at minimum, cultivation areas and associated facilities shall not be located or occur within 100 feet of any Class I or II watercourse or within 50 feet of any Class III watercourse or wetlands. The Regional Water Board or its Executive Officer may apply additional or alternative conditions on enrollment, including site-specific riparian buffers and other BMPs beyond those identified in water resource protection plans to ensure water quality protection. Alternative site-specific riparian buffers that are equally protective of water quality may be necessary to accommodate existing permanent structures or other types of structures that cannot be relocated.

b. Buffers shall be maintained at natural slope with native vegetation.

c. Buffers shall be of sufficient width to filter wastes from runoff discharging from production lands and associated facilities to all wetlands, streams, drainage ditches, or other conveyances.

d. Riparian and wetland areas shall be protected in a manner that maintains their essential functions, including temperature and microclimate control, filtration of sediment and other pollutants, nutrient cycling, woody debris recruitment, groundwater recharge, streambank stabilization, and flood peak attenuation and flood water storage.

4. Spoils Management

a. Spoils shall not be stored or placed in or where they can enter any surface water. Spoils are waste earthen or organic materials generated through grading or excavation, or waste plant growth media or soil amendments. Spoils include but are not limited to soils, slash, bark, sawdust, potting soils, rock, and fertilizers.

b. Spoils shall be adequately contained or stabilized to prevent sediment delivery to surface waters.

c. Spoils generated through development or maintenance of roads, driveways, earthen fill pads, or other cleared or filled areas shall not be sidecast in any location where they can enter or be transported to surface waters.

5. Water Storage and Use

a. Size and scope of an operation shall be such that the amount of water used shall not adversely impact water quality and/or beneficial uses, including and in consideration with other water use

by operations, instream flow requirements and/or needs in the watershed, defined at the scale of a HUC-12 watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.

b. Water conservation measures shall be implemented. Examples include use of rainwater catchment systems or watering plants with a drip irrigation system rather than with a hose or sprinkler system.

c. For Tier 2 Dischargers, if possible, develop off-stream storage facilities to minimize surface water diversion during low flow periods.

d. Water is applied using no more than agronomic rates. "Agronomic rates" is defined as the rates of fertilizer and irrigation water that a plant needs to enhance soil productivity and provide the crop or forage growth with needed nutrients for optimum health and growth, without having any excess water or nutrient percolate beyond the root zone.

e. Diversion and/or storage of water from a stream should be conducted pursuant to a valid water right and in compliance with reporting requirements under Water Code section 5101.

f. Water storage features, such as ponds, tanks, and other vessels shall be selected, sited, designed, and maintained so as to insure integrity and to prevent release into waters of the state in the event of a containment failure.

6. Irrigation Runoff

Implementing water conservation measures, irrigating at agronomic rates, applying fertilizers at agronomic rates and applying chemicals according to the label specifications, and maintaining stable soil and growth media should serve to minimize the amount of runoff and the concentration of chemicals in that water.

In the event that irrigation runoff occurs, measures shall be in place to treat/control/contain the runoff to minimize the pollutant loads in the discharge. Irrigation runoff shall be managed so that any entrained constituents, such as fertilizers, fine sediment and suspended organic particles, and other oxygen consuming materials are not discharged to nearby watercourses. Management practices include, but are not limited to, modifications to irrigation systems that reuse tailwater by constructing offstream retention basins, and active (pumping) and or passive (gravity) tailwater recapture/redistribution systems. Care shall be taken to ensure that irrigation tailwater is not discharged towards or impounded over unstable features or landslides.

7. Fertilizers and Soil Amendments

a. Fertilizers, potting soils, compost, and other soils and soil amendments shall be stored in locations and in a manner in which they cannot enter or be transported into surface waters and such that nutrients or other pollutants cannot be leached into groundwater.

b. Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates (see footnote on previous page).

c. Cultivation areas shall be maintained so as to prevent nutrients from leaving the site during the growing season and post-harvest.

8. Pesticides/Herbicides

At the present time, there are no pesticides or herbicides registered specifically for use directly on cannabis and the use of pesticides on cannabis plants has not been reviewed for safety, human health effects, or environmental impacts. Under California law, the only pesticide products not illegal to use on cannabis are those that contain an active ingredient that is exempt from residue tolerance requirements and either registered and labeled for a broad enough use to include use on cannabis or exempt from registration requirements as a minimum risk pesticide under FIFRA section 25(b) and California Code of Regulations, title 3, section 6147. For the purpose of compliance with conditions of this Order, any uses of pesticide products shall be consistent with product labelling and any products on the site shall be placed, used, and stored in a manner that ensures that they will not enter or be released into surface or ground waters.

9. Petroleum products and other chemicals

a. Petroleum products and other liquid chemicals, including but not limited to diesel, biodiesel, gasoline, and oils shall be stored so as to prevent their spillage, discharge, or seepage into receiving waters. Storage tanks and containers must be of suitable material and construction to be compatible with the substance(s) stored and conditions of storage such as pressure and temperature.

b. Above ground storage tanks and containers shall be provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation.

c. Dischargers shall ensure that diked areas are sufficiently impervious to contain discharged chemicals.

d. Discharger(s) shall implement spill prevention, control, and countermeasures (SPCC) and have appropriate cleanup materials available onsite.

e. Underground storage tanks 110 gallons and larger shall be registered with the appropriate County Health Department and comply with State and local requirements for leak detection, spill overflow, corrosion protection, and insurance coverage.

10. Cultivation-related wastes

Cultivation-related wastes including, but not limited to, empty soil/soil amendment/ fertilizer/pesticide bags and containers, empty plant pots or containers, dead or harvested plant waste, and spent growth medium shall, for as long as they remain on the site, be stored at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwaters. Plant waste may also be composted, subject to the same restrictions cited for cultivation-related waste storage.

11. Refuse and human waste

a. Disposal of domestic sewage shall meet applicable County health standards, local agency management plans and ordinances, and/or the Regional Water Board's Onsite Wastewater Treatment System (OWTS) policy, and shall not represent a threat to surface water or groundwater.

b. Refuse and garbage shall be stored in a location and manner that prevents its discharge to receiving waters and prevents any leachate or contact water from entering or percolating to receiving waters.

c. Garbage and refuse shall be disposed of at an appropriate waste disposal location.

12. Remediation/Cleanup/Restoration

Remediation/cleanup/restoration activities may include, but are not limited to, removal of fill from watercourses, stream restoration, riparian vegetation planting and maintenance, soil stabilization, erosion control, upgrading stream crossings, road outsloping and rolling dip installation where safe and suitable, installing ditch relief culverts and overside drains, removing berms, stabilizing unstable areas, reshaping cutbanks, and rocking native-surfaced roads. Restoration and cleanup conditions and provisions generally apply to Tier 3 sites, however owners/operators of Tier 1 or 2 sites may identify or propose water resource improvement or enhancement projects such as stream restoration or riparian planting with native vegetation and, for such projects, these conditions apply similarly.