Water Resource Protection Plan

for APN 522-143-033

WDID# 1B161517CHUM

Humboldt County

RESUBMITTED FOR NEW Application

Submitted to:

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

Prepared by:
Natural Resources Management Corporation
1434 3rd Street
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January 16, 2018

NRM
NATURAL RESOURCES MANAGEMENT
CORPORATION

Site Maps for Parcel

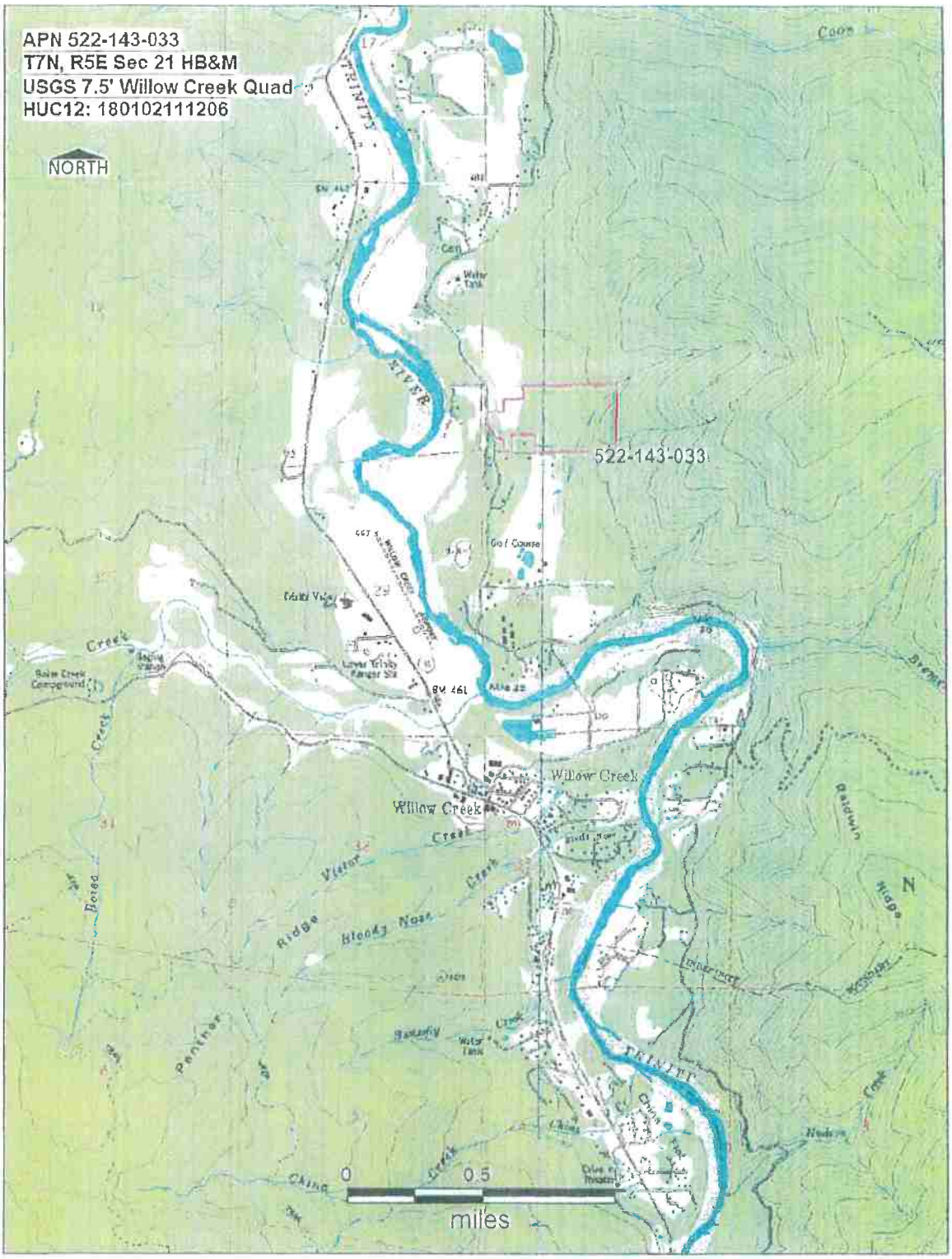

Figure 1. Vicinity map for parcel APN 522-143-033

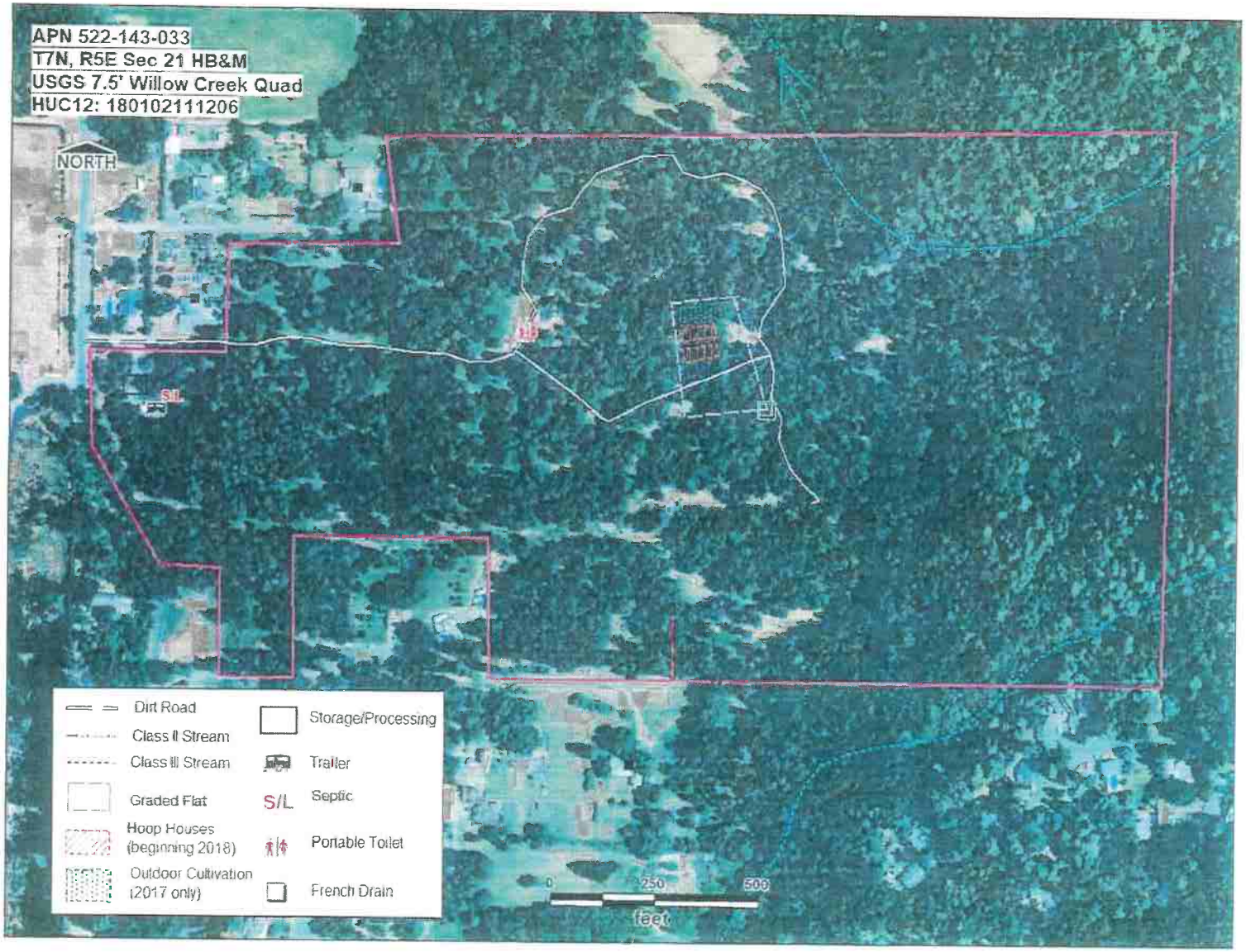

Figure 2. Ortho infrastructure map for parcel APN 522-143-033

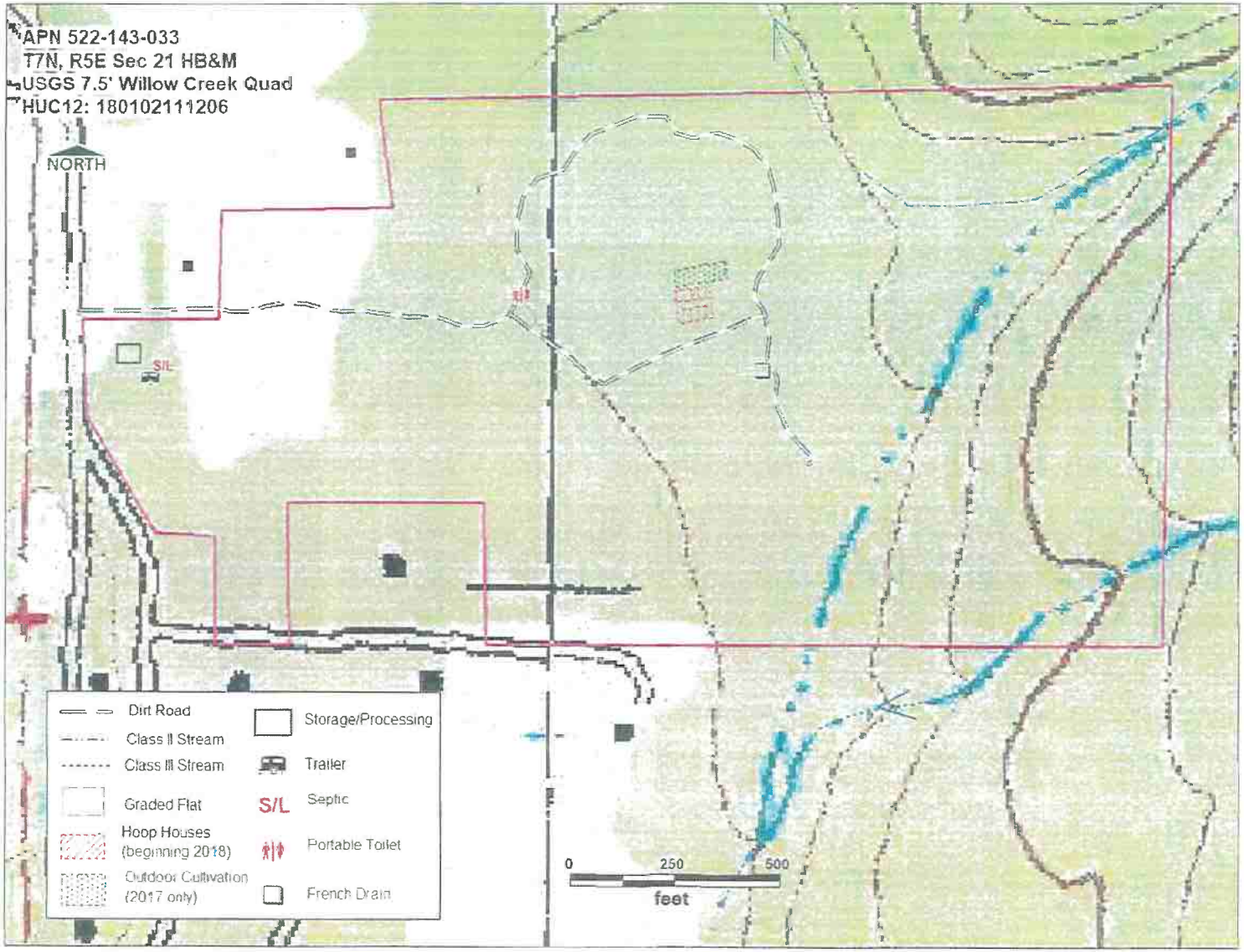

Figure 3. Topo infrastructure map for APN 522-143-033

Water Resource Protection Plan

This document serves as the Water Resource Protection Plan (WRPP) for site APN 522-143-033 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 65.44-acre parcel is located in northern Willow Creek at 680 feet in elevation. The parcel is primarily forested and contains a less than 3-acre conversion on prime agriculture land. The parcel is located in the Trinity River watershed and streams on the parcel drain west into the Trinity River. There are old logging roads present on the parcel; however, only one road is being used to access the cultivation area. There are no watercourse crossings on the parcel. The cultivation flat is 400 feet from the closest watercourse, which is the Class II stream to the northeast (Figure 2).

There is one cultivation flat on the parcel, with a disturbed area of approximately 1.10 acres (47,780 square feet) and a slope of 0 percent. This flat is in the process of being developed for cultivation and will be complete in April 2018 (Plot Plan, Appendix B). There will be four 30-foot by 80-foot greenhouses and a 20-foot by 50-foot hoop house for nursery use when the Plan is completed, totaling approximately 10,000 square feet of cultivation plus another 1,000 square feet of nursery cultivation. For the 2017 cultivation season, only approximately 2,500 square feet of full-sun outdoor plants were grown on the cultivation terrace in a 125-foot by 50-foot area (6,250 square feet). The water source is municipal water, and water lines were installed in July 2017.

Currently, there is a trailer with permitted septic for the residential living space at the western access point on the parcel. A shed for nutrient storage is located next to the trailer. There will also be a portable toilet located west of the cultivation flat. The site was very clean and in order during the site visit in July 2017; the only issues found were a small generator that needs secondary containment and several spoils piles being actively used while burying the water and electric lines.

Current Conditions

Watercourses

A Class II stream flows east to west through the northeastern corner of the parcel and a Class III stream flows east to west through the southeast corner of the parcel. These streams are both tributary to the Trinity River, which is approximately 3,500 feet downstream from the parcel boundaries. The USGS Topographic map of Willow Creek quad (Figures 1 and 3) shows a third stream connecting the Class II and Class III on the parcel; however, this stream does not actually exist on the parcel. The parcel is located in the Trinity River watershed and streams on the parcel drain west into the Trinity River

There are no watercourse crossings on the parcel. The cultivation flat is 400 feet from the closest watercourse, which is the Class II stream to the northeast (Figure 2).

Roads

The main access road on the parcel is 3,550 feet (0.67 miles) in length and leads to the cultivation flat from the west. This road should be rocked to reduce sediment delivery to streams during wet weather. There are several other unused logging roads on the parcel. The roads are at a relatively flat grade, between 10 and 15 percent.

Watercourse Crossings

There are no watercourse crossings on this parcel.

Cultivation Areas

There is one cultivation flat on the parcel, with a disturbed area of approximately 1.10 acres (47,780 square feet) and a slope of 0 percent (Photo 7, Appendix A). This flat is in the process of being developed for cultivation and will be complete in April 2018 (Plot Plan, Appendix B). There will be four 30-foot by 80-foot greenhouses (Photo 8, Appendix A) and a 20-foot by 50-foot hoop house for nursery use when the Plan is completed, totaling 10,000 square feet of cultivation plus another 1,000 square feet of nursery cultivation. The natural background slope of the terraced area is between 10 and 15 percent. The cultivation flat is 400 feet from the closest watercourse, which is the Class II stream to the northeast (Figure 2).

For the 2017 cultivation season, only approximately 2,500 square feet of full-sun outdoor plants were grown on the cultivation terrace in a 125-foot by 50-foot area (6,250 square feet) (Photo 2, Appendix A). There will be no full-sun plants cultivated in 2018; this outdoor cultivation area was only used prior to installing the greenhouses on the terrace. These full-sun plants were grown in 20-gallon bags and watered by hand using a wand.

For the 2018 cultivation season, plants will be grown in 3-gallon pots in the four greenhouses (10,000 square feet) and there will be three harvests per season. Plants will be primarily watered by dripline, and supplementally watered by hand using a wand. The nursery cultivation in the 1,000-square foot hoop house will be watered by hand using a wand at an agronomic rate.

Within the 1.10-acre graded flat, there are two areas designated for other cultivation-related structures. There is a small flat that will be used for the 1,000-square foot hoop house for nursery propagation (Photo 4, Appendix A). Another flat will be used for processing (Photo 3, Appendix A). This processing flat will have a permanent building with septic as soon as the County permits have been issued. All grading on the parcel was permitted and included in the Plot Plan (Appendix B).

General Property Conditions

Currently, there is a trailer with permitted septic for the residential living space at the western access point on the parcel (Photo 11, Appendix A). A shed for nutrient storage is located next to the trailer (Photo 10, Appendix A). There will also be a portable toilet located west of the cultivation flat (Figures 2-3).

The site was very clean and in order during the site visit in July 2017; the only issues found were a small generator that needs secondary containment and several spoils piles being actively used while burying the water and electric lines. If the spoils piles still exist, they will need to be tarped and bordered by straw wattle for the winter. This generator was being used to pump water from tanks to the cultivation area, and will not be used in 2018 once the water lines for municipal have been completed. The water and electric lines will run along the main access road to the cultivation area (Photo 6, Appendix A).

List of Chemicals Stored Onsite & Information about Use

The Botanicare line of fertilizers is used, which includes the products Grow, CalMag, Liquid Karma, Bloom, and Silica. See Table 1 for application rate and NPK values.

Table 1. Fertilizers applied and NPK values for each product

Product	NPK Value	Application Rate
Botanicare Grow		
Botanicare CalMag		
Botanicare Bloom		
Botanicare Liquid Karma	0.1-0.1-0.5	
Botanicare Silica		

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

For the 2017 cultivation season, there was approximately 2,500 square feet of plants and approximately 10,800 gallons of water was used from June through September (Table 2). In 2018, there will be 10,000 square feet of outdoor cultivation in greenhouses plus 1,000 square feet of outdoor nursery cultivation in a hoop house. The plants will be watered at an agronomic rate with driplines and hand watering with a wand.

The water source for this parcel is municipal water supplied from the Willow Creek Community Services District (see Municipal Water Letter, Appendix B). Municipal water lines have been installed to the cultivation flat, running alongside the access road (Photo 6, Appendix A). Prior to installing water lines, the water for the cultivation was transferred from the trailer to the cultivation area in a pick-up truck and stored in two 150-gallon water tanks and pumped to the plants for irrigation (Photo 1, Appendix A). No water storage will be required since municipal water is used.

Table 2. Water use estimates for the 2017 season in gallons

Source	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Municipal	0	0	0	0	0	1,800	3,600	3,600	1,800	0	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.

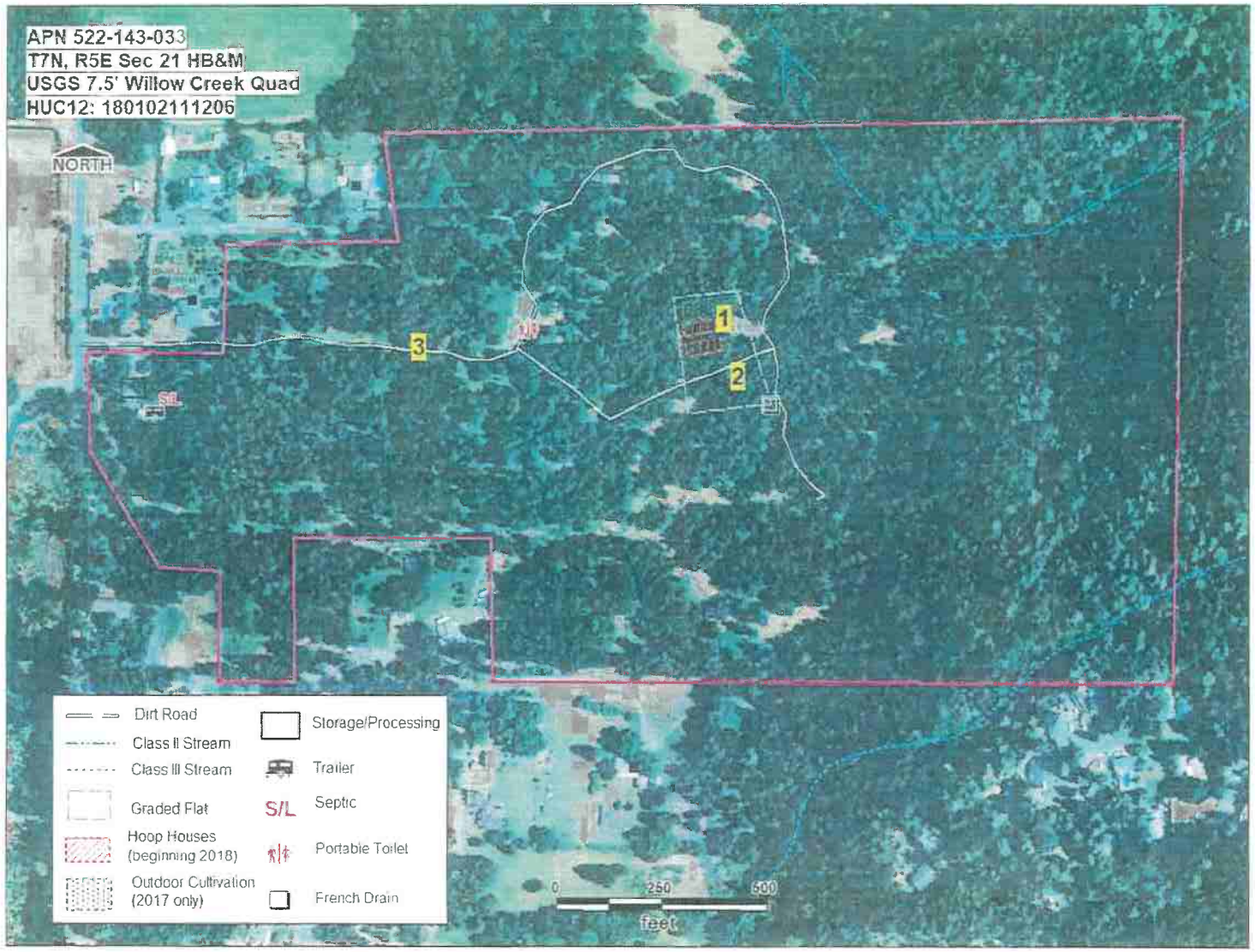

Figure 5. Corrective Actions map

Corrective Actions Please refer to Figure 5, Corrective Actions map

Table 4. 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	Generator	9.a.	NA	Generator needs drip pan underneath	1	October 15, 2017	October 15, 2017
2	Spoils Piles	4.b.	NA	Tarp and border with straw wattle before winter rains	1	October 15, 2017	
3	Dirt Road	1.a.	NA	Rock the dirt road leading to the cultivation flat	3	October 15, 2018	

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).

1) The generator that is being used to run the water pump by the outdoor cultivation space should have a drip pan beneath it as well as a roof overhead to prevent fuel from spilling on the ground and getting into surface/ground water. This Corrective Action was completed prior to October 15, 2017. The generator will not be used in 2018 because there will be municipal water lines running to the cultivation area.

2) The spoils piles that were on site in July during the installation of water and electric lines should be tarped and bordered with straw wattle prior to winter rains, if any of these piles still exist. (Photo 6, Appendix A)

3) The dirt road leading to the cultivation flat should be rocked to prevent erosion and sediment delivery to waterways.

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 left in beds and planted with a cover crop or covered with a thick layer of straw, if not covered by a year-round roof overhead.
- Any bare soil on the fill slopes on the landing will be covered with straw 2 to 3 inches thick and secured with a tackafier.
- Cannabis stems and root balls will be burned or disposed of in a licensed waste facility.
- All nutrients, fuels, and all chemicals will be placed in a secure storage shed
- All cultivation trash and debris will be properly disposed of
- The dirt road leading to cultivation will be rocked to prevent erosion and sediment delivery to surface water. Other roads on site will be maintained to prevent sediment delivery to surface waters.

Monitoring

Corrective Action Monitoring

Corrective Actions will be checked by the winter self-monitoring photos sent to NRM and at the next site visit by NRM.

Annual Monitoring

Fall / Winter Monitoring

Annual monitoring for this site will follow the revised Appendix C from the RWCQB 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 all petroleum products are stored in a dry, contained location
2. Soil and any spoils are properly contained and covered to prevent nutrient leaching
3. Road surfaces in working condition with no sign of erosion (runnels, channeling)

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:

- Tanks and water lines to ensure there are no leaks
- Cultivation area during or immediately after watering to ensure irrigation water is infiltrating and not running off

- Cultivation area to ensure that all fertilizers and other chemicals are properly contained 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)_____

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

Signature:_____ Date:_____

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

Date:_____

NRM Signature:_____

Appendix A. Photo Documentation

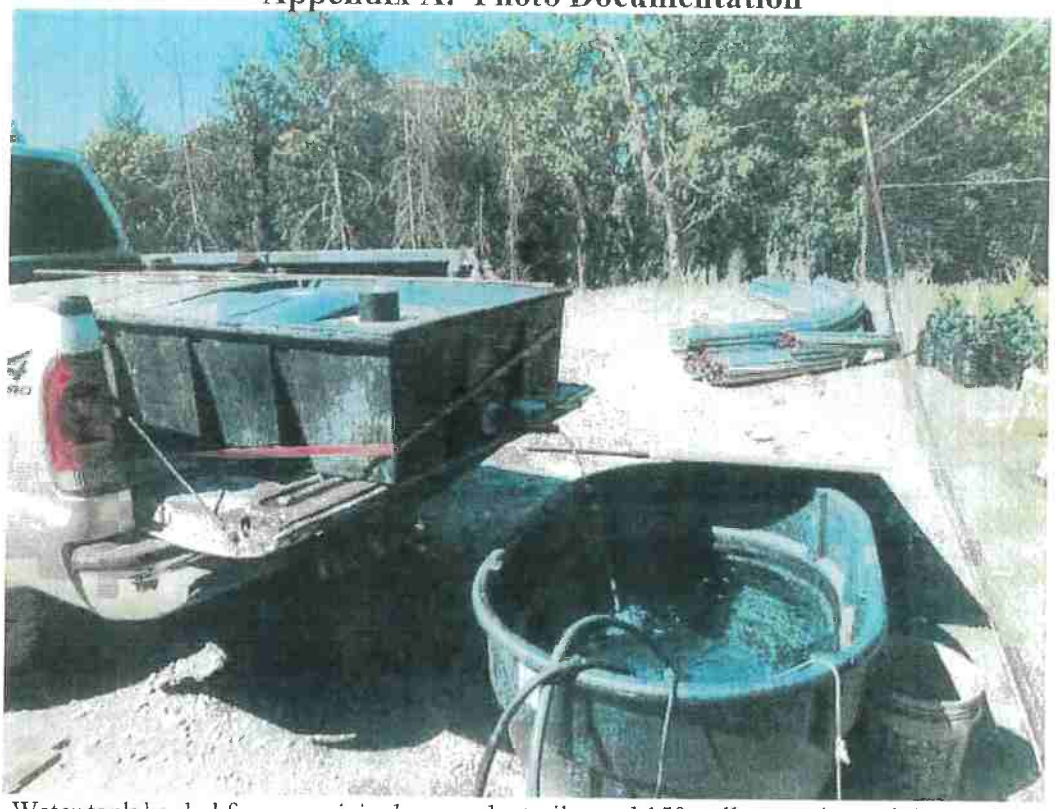

Photo 1. Water tank hauled from municipal source by trailer and 150-gallon nutrient mixing tank. Used until municipal water lines have finished being installed leading to the cultivation area (July 27, 2017)

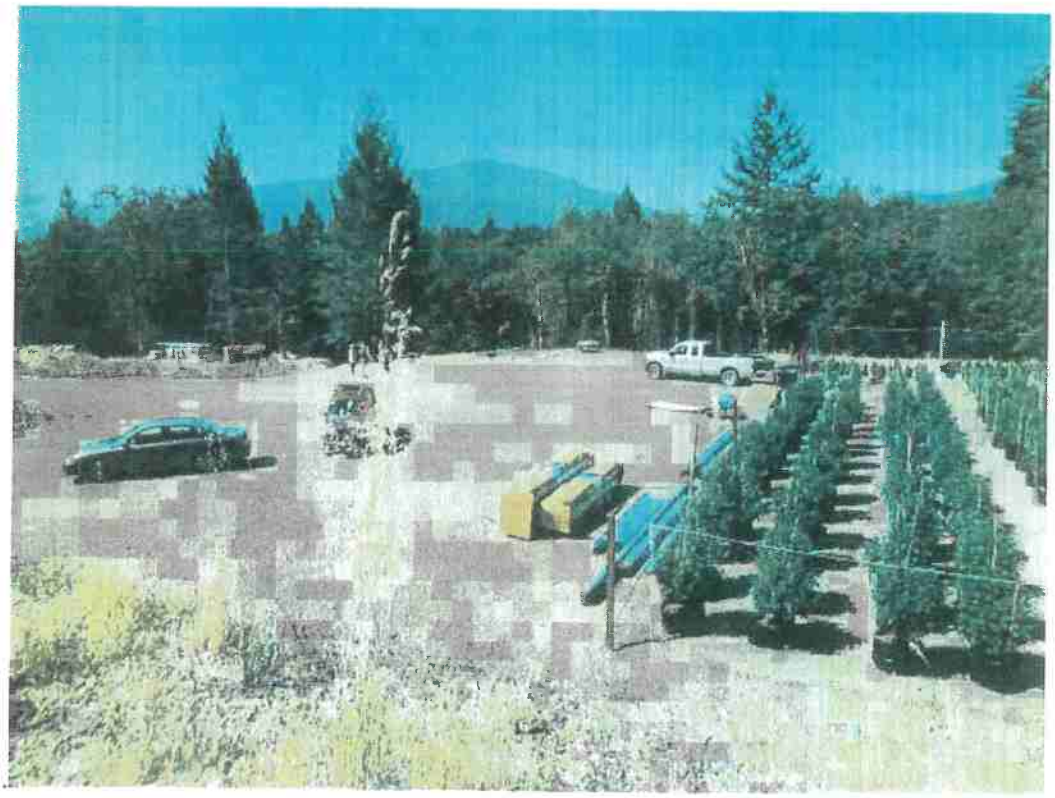

Photo 2. Cultivation flat and outdoor cultivation area used in 2017 (July 27, 2017)

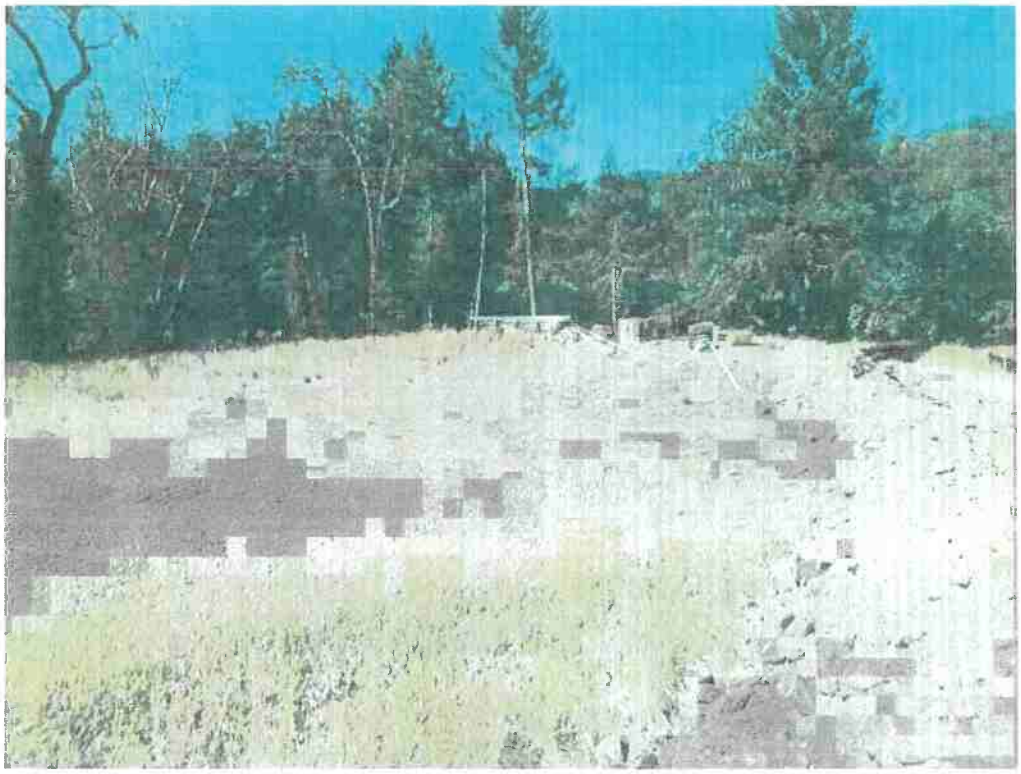

Photo 3. Graded flat for future processing building. Actively used spoils piles to the right in photo, from installing the water and electric lines (July 27, 2017)

Photo 4. Graded flat for future nursery hoop house (July 27, 2017)

Photo 5. French drain on southeast corner of the cultivation flat (July 27, 2017)

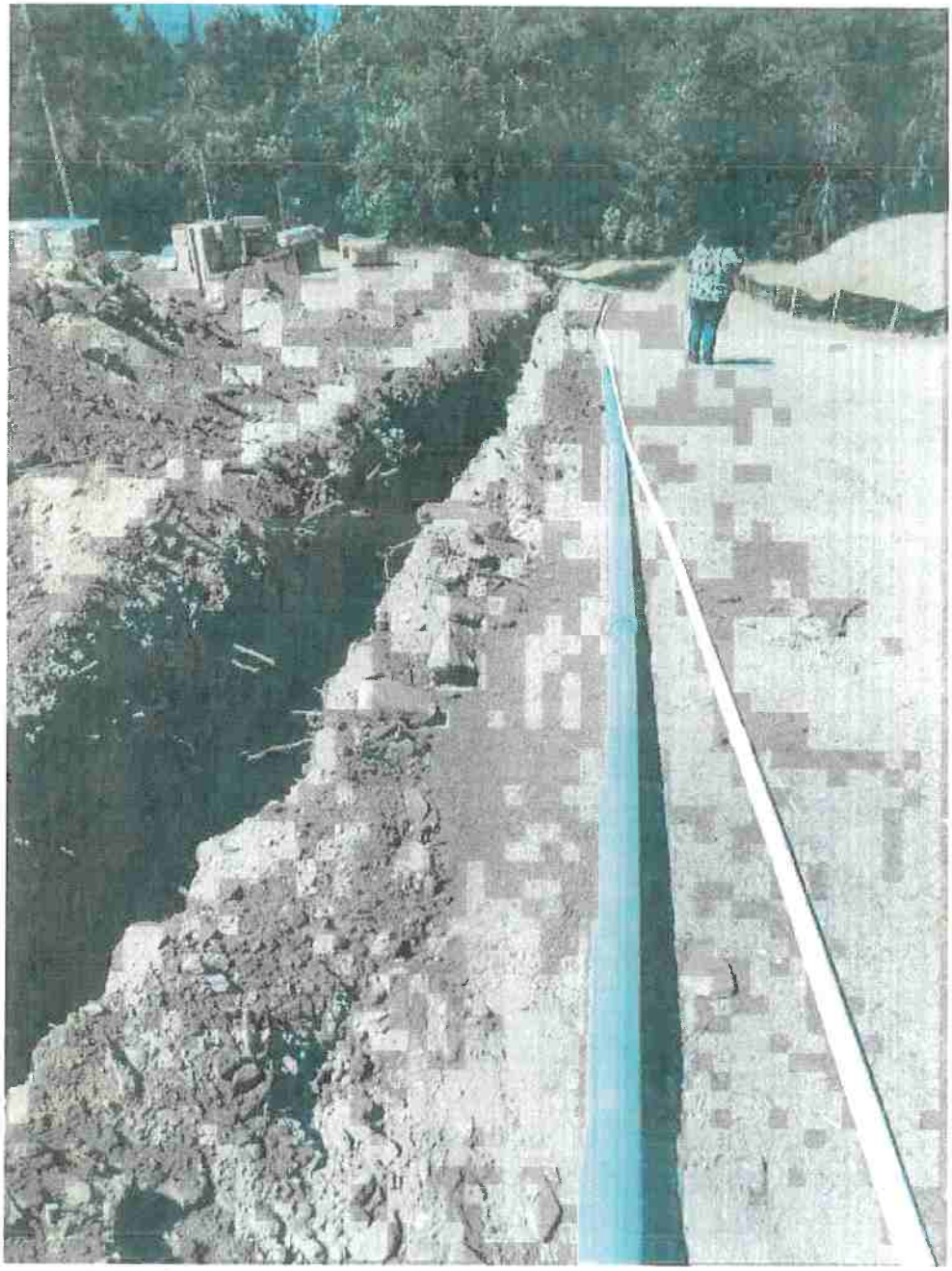

Photo 6. Water and electric lines being buried alongside road leading to cultivation area, active spoils piles to the left in photo (July 27, 2017)

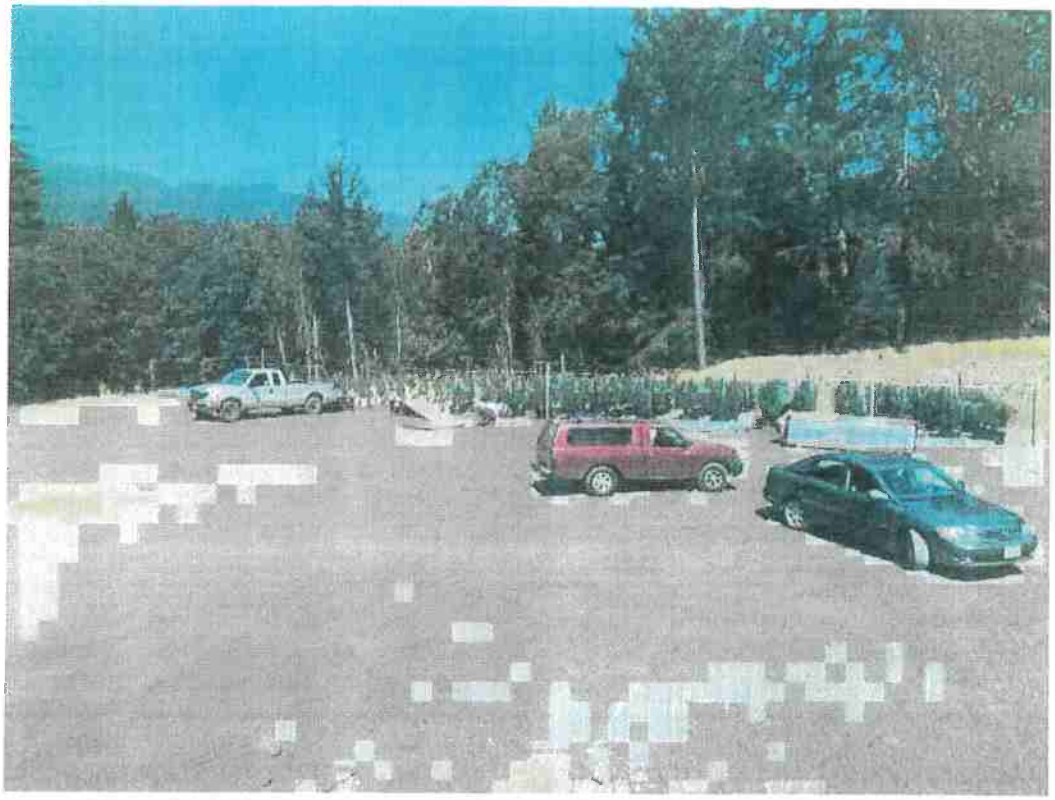

Photo 7. Cultivation flat with outdoor area from 2017 season (July 27, 2017)

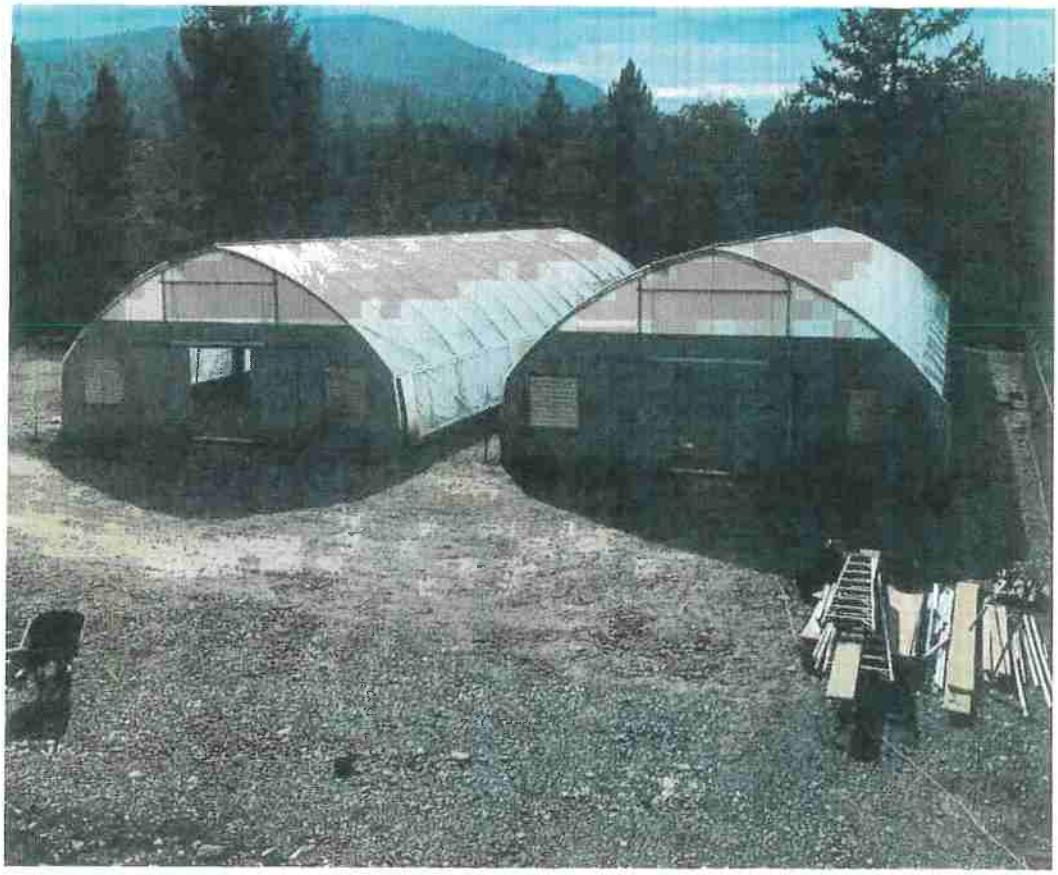

Photo 8. Two of the four planned greenhouses for 2018 season on the cultivation flat (October 16, 2017)

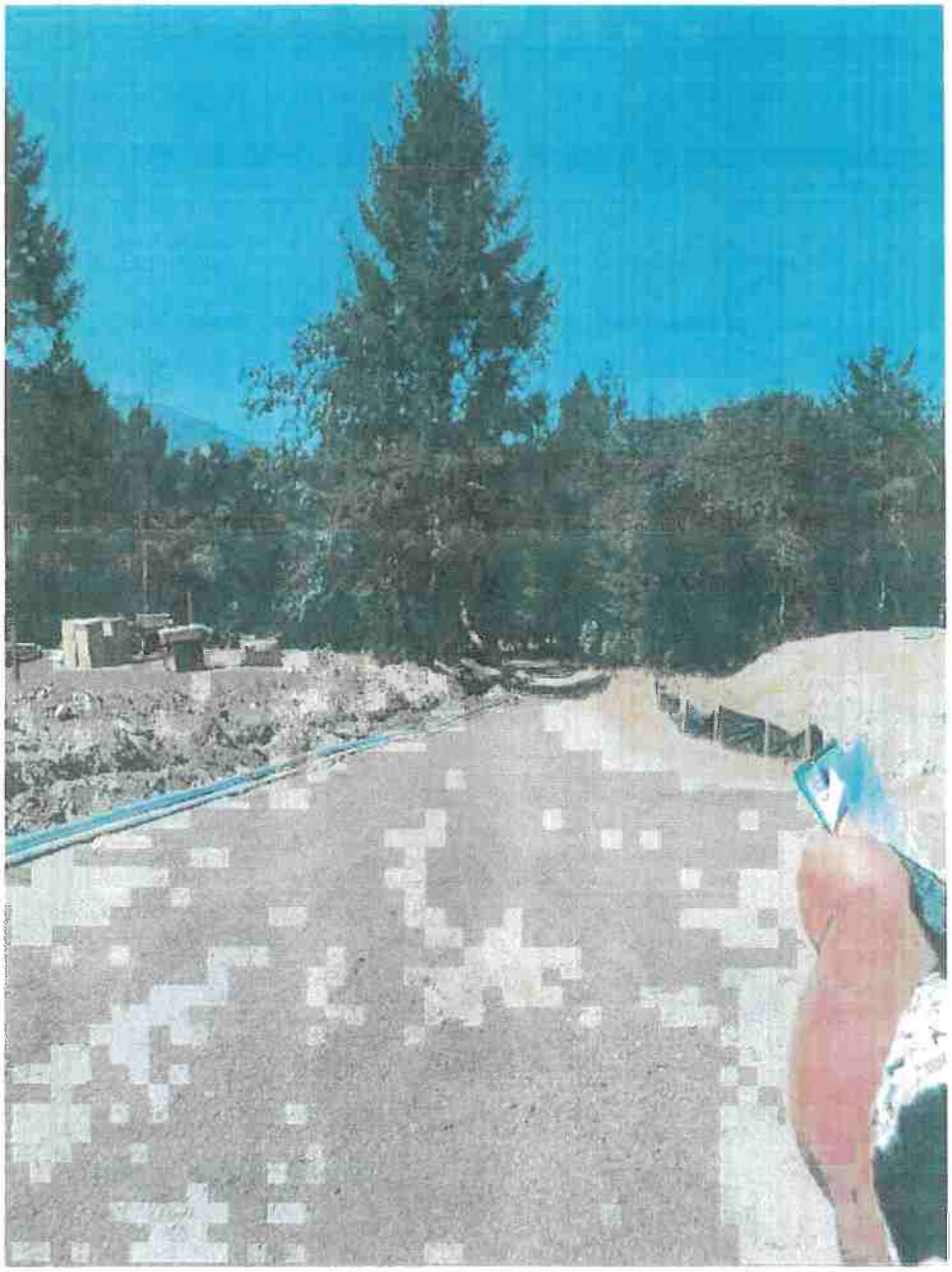

Photo 9. Road through the newly graded cultivation flat (July 27, 2017)

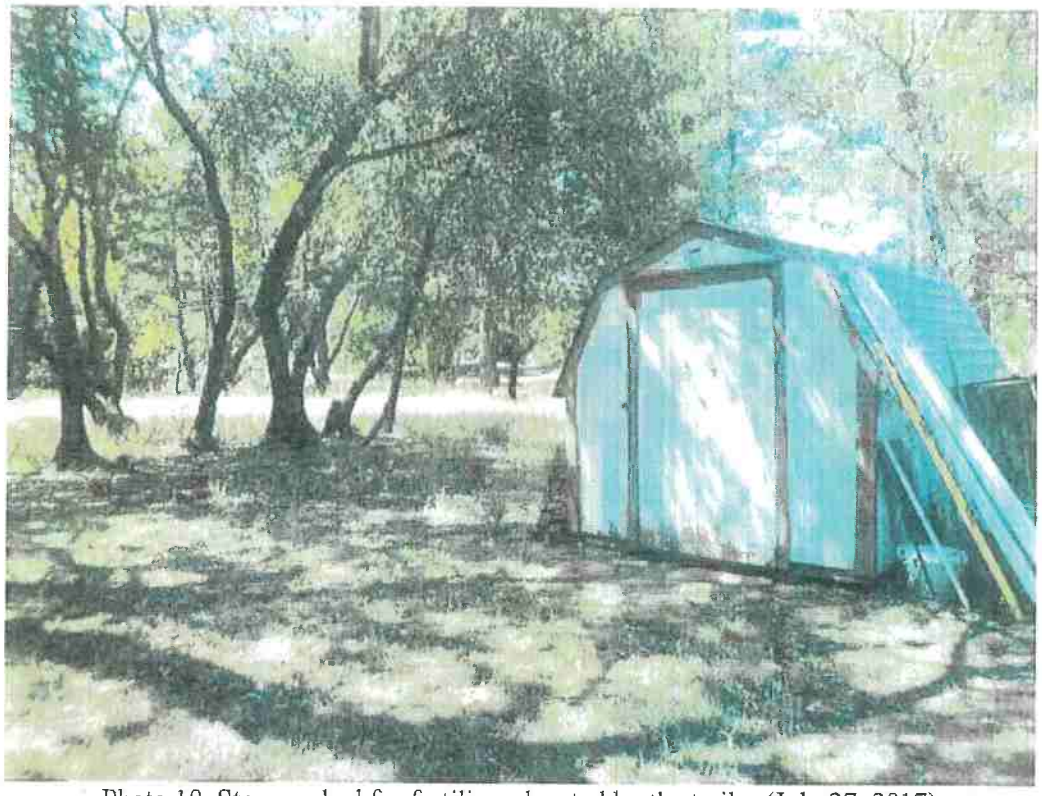

Photo 10. Storage shed for fertilizers located by the trailer (July 27, 2017)

Photo 11. Trailer (residential structure) with septic (July 27, 2017)

Appendix B. Plot Plan

Appendix C. 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.