

# Water Resource Protection Plan

**WDID#: 1B16462CHUM**

**TRC ID#: 180102120505TRC74**



*Submitted to:*

**Gueren White**

*Prepared by:*

**Timberland Resource Consultants**

**165 South Fortuna Blvd**

**Fortuna, CA 95540**

**Original Draft: 09-27-2016**

**Updated Draft: 07-17-2018**

### **Purpose**

This Water Resource Protection Plan (WRPP) has been prepared on behalf of the property owner, Gueren White, for APN 524-153-001 by agreement and in response to the California Water Code Section 13260(a), which requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, shall file with the appropriate regional water board a Report of Waste Discharge (ROWD) containing such information and data as may be required by the Regional Water Board. The Regional Water Board may waive the requirements of Water Code section 13260 for specific types of discharges if the waiver is consistent with the Basin Plan and in the public interest. Any waiver is conditional and may be terminated at any time. A waiver should include monitoring requirements to verify the adequacy and effectiveness of the waiver's conditions. Order R1-2015-0023 conditionally waives the requirement to file a ROWD for discharges and associated activities described in finding 4.

### **Scope of Report**

Order No. R1-2015-0023 states that "Tier 2 Dischargers and Tier 3 Dischargers who intend to cultivate cannabis before, during, or following site cleanup activities shall develop and implement a water resource protection plan that contains the elements listed and addressed below. Dischargers must keep this plan on site, and produce it upon request by Regional Water Board staff. Management practices shall be properly designed and installed, and assessed periodically for effectiveness. If a management measure is found to be ineffective, the plan must be adapted and implemented to incorporate new or additional management practices to meet standard conditions. Dischargers shall certify annually to the Regional Water Board individually or through an approved third party program that the plan is being implemented and is effectively protecting water quality, and report on progress in implementing site improvements intended to bring the site into compliance with all conditions of this Order."

### **Methods**

The methods used to develop this WRPP include both field and office components. The office component consisted of aerial photography review and interpretation, existing USGS quad map review, GIS mapping of field data, review of on-site photography points, streamflow calculations, and general planning. The field component included identifying and accurately mapping all watercourses, wet areas, and wetlands located downstream of the cultivation areas, associated facilities, and all appurtenant roads accessing such areas. An accurate location of the Waters of the State is necessary to make an assessment of whether potential and existing erosion sites/pollution sites have the potential to discharge waste to an area that could affect waters of the State (including groundwater). Next, all cultivation areas, associated facilities, and all appurtenant roads accessing such areas were assessed for discharges and related controllable water quality factors from the activities listed in Order R1-2015-0023, Finding 4a-j. The field assessment also included an evaluation and determination of compliance with the Standard Conditions per Provision I.B of Order No. R1-2015-0023. The water resource protection plans required under Tier 2 are meant to describe the specific measures a discharger implements to achieve compliance with standard conditions. Therefore, all required components of the water resource protection plan per Provision I.B of Order No. R1-2015-0023 were physically inspected and evaluated. A comprehensive summary of each Standard Condition as it relates to the subject property is appended.

### **Property Description**

This project consists of a 40 acre parcel which includes a residence and associated cannabis cultivation. The property contains two Class II tributaries to the South Fork Trinity River, California. The property is located within the NW ¼ of Section 13, Township 5N, Range 5E, Humboldt County.

### **Monitoring Plan**

Tier 2 Dischargers shall include a monitoring element in the water resource protection plan that at a minimum provides for periodic inspection of the site, checklist to confirm placement and efficacy of management measures, and document progress on any plan elements subject to a time schedule. Tier 2 Dischargers shall submit an annual report (Appendix C) by March 31 of each year that documents implementation and effectiveness of management measures during the previous year. Tier 2 annual reporting is a function that may be provided through an approved third party program.

Monitoring of the site includes visual inspection and photographic documentation of each feature of interest listed on the site map, with new photographic documentation recorded with any notable changes to the feature of interest. At a minimum, all site features must be monitored annually, to provide the basis for completion of the annual re-certification process. Additionally, sites shall be monitored at the following times to ensure timely identification of changed site conditions and to determine whether implementation of additional management measures is necessary to iteratively prevent, minimize, and mitigate discharges of waste to surface water: 1) just prior to October 15 to evaluate site preparedness for storm events and storm water runoff, 2) following the accumulation of 3" total precipitation or by November 15, whichever is sooner, and 3) following any rainfall event with an intensity of 3" precipitation in 24 hours. Precipitation data can be obtained from the National Weather Service Forecast Office (e.g. by entering the zip code of the parcel location at <http://www.srh.noaa.gov/forecast>).

### **Monitoring Plan Reporting Requirements**

Order No. R1-2015-0023, Appendix C must be submitted to the Regional Water Board or approved third party program upon initial enrollment in the Order (NOI) and annually thereafter by March 31. Forms submitted to the Regional Water Board shall be submitted electronically to [northcoast@waterboards.ca.gov](mailto:northcoast@waterboards.ca.gov). If electronic submission is infeasible, hard copies can be submitted to: North Coast Regional Water Quality Control Board, 5550 Skylane Boulevard, Suite A, Santa Rosa, CA 95403.

### **Assessment of Standard Conditions**

Assessment of Standard Conditions consisted of field examinations on May 16, 2016. The examination evaluated areas near, and areas with the potential to directly impact, watercourses for sensitive conditions including, but not limited to, existing and proposed roads, skid trails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris, jam potential, inadequate flow capacity, changeable channels, overflow channels, flood prone areas, and riparian zones. Field examinations also evaluated all roads and trails on the property, developed areas, cultivation sites, and any structures and facilities appurtenant to cultivation on the property. Anywhere the Standard Conditions are not met on the property, descriptions of the assessments and the prescribed treatments are outlined following each associated section below.

## Summary of Standard Conditions Compliance

1. Site maintenance, erosion control, and drainage features Y☑/N☐
2. Stream crossing maintenance Y☑/N☐
3. Riparian and wetland protection and management Y☑/N☐
4. Spoils management Y☑/N☐
5. Water storage and use Y☑/N☐
6. Irrigation runoff Y☑/N☐
7. Fertilizers and soil amendments Y☑/N☐
8. Pesticides and herbicides? Y☑/N☐
9. Petroleum products and other chemicals Y☑/N☐
10. Cultivation-related wastes Y☑/N☐
11. Refuse and human waste Y☑/N☐

### A. Standard Conditions, Applicable to All Dischargers

1. Site maintenance, erosion control and drainage features (Compliance: Y☑ / N☐)
  - 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 not hydrologically connected<sup>1</sup>, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams.
  - 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.

**The roads, driveways, trails, and other defined corridors for foot or vehicle traffic are intact and adequately drained throughout the property. The Discharger will rock the road if winter use of this road results in impacts to the road surface. There is one**

<sup>1</sup> 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](http://www.forestsandfish.com/documents/Road_Mgmt_Survey.pdf))

location, Cultivation Site #3, which is potentially hydrologically connected with the large wetland on the property during the winter. The riparian buffer here is robust and has the ability to filter out sediment and nutrients from run-off before reaching the wetland. Cultivation Site #1 contains exposed bare mineral soil surrounding the cultivation. The Discharger plans to wood chip this cultivation site to immobilize the exposed soils. This location is not discharging into or near a watercourse. Physical reconnaissance of the property revealed no unstable areas per 14CCR 895.1. All construction materials were found organized and stored away from watercourses.

2. Stream Crossing Maintenance (Compliance: Y ☐ / N ☒)

- 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.<sup>2</sup>
- 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.<sup>3</sup>

There is one stream crossing located on the property. This existing crossing consists of an 18" diameter corrugated plastic culvert on a Class II watercourse. This section of road is completely rocked with minimal fill present within the road prism. The existing 18" diameter culvert is too small to facilitate the 100 year peak flow calculated using the Rational Formula. No evidence of previous failure or impacts due to the size of the culvert was found during the site assessment. The Discharger plans to maintain this culvert in its' existing condition. The risks to the watercourse if this crossing fails are low because of the minimal fill present within this segment of road. This site will be monitored by the Discharger and upgraded to a minimum 42" diameter culvert (metal or plastic) if any signs of failure occur. BMPs for culvert installation have been attached to this document.

Rational Method for 100-year flood flow (A < 200 acres)

$T_c = 60((11.9 \times L^3)/H)^{0.385}$				$Q_{100} = CIA$			
Crossing	Channel length (to top of basin) (mi) L	Elevation difference (ft) H	Concentration time (min) T <sub>c</sub>	Runoff coefficient C	100-year Return-Period Precipitation (in/hr) I*	Area (acres) A	100-yr flood flow (cfs) Q <sub>100</sub>
1				0.35	3.348	32.5	38.1

<sup>2</sup> 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.

<sup>3</sup> If infeasible to install a critical dip, an alternative solution may be chosen.

HW/D	CU18	CU24	CU30	CU36	CU42	CU48	CU54	CU60	CU72	CU84	CU96
1.0	5.6	11.6	20	32	47	66	89	115	180	265	375

**3. Riparian and Wetland Protection and Management (Compliance: Y ☒ / N ☐)**

- 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 a 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 or its Executive Officer may apply additional or alternative<sup>4</sup> conditions on enrollment, including site-specific riparian buffers and other BMPs beyond those identified in water resource protection plans to ensure water quality protection.
- 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. 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.

**There are four cultivation sites located on the property. Cultivation Site #1 (CS #1) is 310 feet away from a Class II watercourse while Cultivation Site #2 (CS #2) is 190 feet away from a Class II wetland. Cultivation Site #3 (CS #3) is approximately 50' away from the edge of the large Class II wetland. The riparian buffer located here is robust, consisting of dense vegetation and a nearly flat slope (<5%). This buffer will filter out sediment and nutrient loads as well as promote infiltration. Cultivation Site #4 is approximately 250' away from the nearest Class III watercourse.**

**4. Spoils Management (Compliance: Y ☒ / N ☐)**

- a. Spoils<sup>5</sup> shall not be stored or placed in or where they can enter any surface water.
- 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.

**The Discharger piles all spent soil into a spoils pile located near Cultivation Site #3. This location is on a gentle slope (<10%) and surrounded by native vegetation. The Discharger covers and secures the spoils over winter using a tarp and anchors. Spoils are then transported to their respectful cultivation sites and amended on-site away from watercourses.**

<sup>4</sup> 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.

<sup>5</sup> 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.

#### 5. Water Storage and Use (Compliance: Y ☐ / N ☒)

- 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<sup>6</sup> 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.<sup>7</sup>
- 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.

**This project utilizes three separate points of diversion (POD) for multiple uses.**

- **POD #1:** This existing diversion consists of a screened 2" diameter polypipe within the channel of an unnamed Class II watercourse. This diversion gravity feeds water at a rate of 50 gallons per minute to the micro hydroelectric power generator on the property. This system diverts water from the Class II for approximately 1300 stream feet. Overflow is delivered to the Class II wetland by way of a 6" flex plastic culvert. This is a non-consumptive diversion for domestic power generation during the fall and winter (October 15 – May 15).
- **POD #2:** The existing diversion structure consists of a screened ¾" diameter polypipe within the channel of an unnamed Class II watercourse off property on APN 524-152-002. The diversion is no longer in use.
- **POD #3:** This existing diversion consists of a 3" diameter screened polypipe located upstream of a dam structure that necks down to a 1" diameter polypipe. This stone impoundment was constructed by a previous landowner and little is known of its history. This pipe diverts surface water at a maximum rate of 1,500 gallons per day for agricultural use. This diversion is limited to 300 gallons per day from May 15<sup>th</sup> to October 15<sup>th</sup>. The Discharger would like to use this diversion to refresh the aesthetic off-stream pond on the property. This pond is approximately 100' long, 60' across and approximately 6' deep. The pond holds an estimated 85,000 gallons of water.
- **POD #4:** Is a proposed diversion structure designed to divert a combination of surface and groundwater for agricultural use. This structure was designed by Trinity Valley Consulting Engineers with consultation from David Manthorne, Environmental Biologist, California Department of Fish and Wildlife (CDFW). This

<sup>6</sup> See definition and link to maps at: <http://water.usgs.gov/GIS/huc.html>

<sup>7</sup> "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.

diversion will consist of a vertical 24" diameter culvert (metal or plastic) placed vertically within moist soils directly adjacent to the 3 acre Class II pond/wetland. It is the opinion of CDFW and the consulting biologist, Jack Henry, that the minimal drawdown of this pond will not significantly impact native species. The Discharger plans to divert a maximum to 3,000 gallons per day from May 15th to October 15th. The discharger will install water meters to monitor water use throughout the rest of the 2016 cultivation season as well as float valves on appropriate water tanks.

This project consists of three cultivation sites totaling 11,150.

- CS #1 is made up of a 20 foot by 50 foot greenhouse and includes an additional 3,500 square feet of outdoor cultivation. This site is located on a gradual 5% slope.
- CS #2 consists of a 1,200 square foot row of outdoor cultivation. This row is planted parallel along a seasonal road on a 12% slope.
- CS #3 consists of three 15 feet by 40 feet greenhouses and 3000 square feet of outdoor cultivation. This location is on a vegetated 5% slope.
- CS #4 consists of a 1,000 sq. ft. patch of outdoor cultivation.

An Initial Statement of Water Diversion and Use has been filed with the State Water Control Board for POD #2-4. Trinity Valley Consulting Engineers has filed a Lake and Stream Bed Alteration agreement with CDFW for the diversion structures.

6. Irrigation Runoff (Compliance: Y ☒ / N ☐)

- a. 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 off-stream 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.

No irrigation runoff was present during inspection, nor is there evidence that it had occurred in the past.

7. Fertilizers and Soil Amendments (Compliance: Y ☒ / N ☐)

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



The discharger stores all fertilizers and amendments within two storage structures located on the property. The first is a 4' by 6' hard plastic utility shed and the second is an abandoned single wide trailer. Both of these structures provide adequate containment and protection from the elements.

8. Pesticides/Herbicides (Compliance: Y ☒ / N ☐)

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 labeling 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.

The discharger uses two organic pesticides, Neem Oil and Green Cleaner. These are stored within the two storage structures on the property. These structures adequately protect from the elements.

9. Petroleum products and other chemicals (Compliance: Y ☐ / N ☒)

- 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.

The discharger stores small amounts of fuel, 5-10 gallons, within the shed adjacent to the residence. The Discharger shall store these small canisters within secondary containment when not in use. Fuel is used primarily to power landscaping equipment used in maintenance on the property. Domestic power is provided through a combination of solar power and hydroelectric.

10. Cultivation-related wastes (Compliance: Y ☒ / N ☐)

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<sup>8</sup> 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.

The discharger uses a combination of compost and burn piles to treat organic cultivation-related waste. Composting is done at two locations. Compost Pile #1 is approximately 200 feet away from the Class II wetland on a 5% slope and is contained using wooden pallets. Compost Pile #2 is located east of the 4' by 6' storage shed and is contained within metal fencing. Burn piles occur on the landing which contains CS #1 which is over 300' from any watercourse. Non-organic cultivation-related waste is treated with domestic waste and addressed in standard condition (A)11.

11. Refuse and human waste (Compliance: Y ☐ / N ☒)

- 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.

The discharger contains all trash, including non-organic cultivation waste, within plastic and metal trash bins located near the residence. The discharger transports this trash to the Hawthorne Transfer station in Eureka, CA once every month.

Human refuse is contained using a privy, compost toilet, and septic system. The privy is located approximately 200' away from the Class II wetland and is an unknown depth. There is also a compost toilet maintained by the discharger located within the residence on the property. The processing structure contains a septic system which has no record of registration with Humboldt County. The discharger is also planning on installing a septic system within the residence per applicable County health code. Once a new septic system is installed the compost toilet and privy will be abandoned.

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. Appendix B accompanying this Order includes environmental protection and mitigation measures that apply to cleanup activities such as: temporal limitations on construction; limitations on earthmoving and construction equipment; guidelines for removal of plants and revegetation; conditions for

<sup>8</sup> Plant waste may also be composted, subject to the same restrictions cited above for cultivation-related waste storage.

erosion control, limitations on work in streams, riparian and wetland areas; and other measures.

**Mitigation measures are listed below in the Mitigation Report and also noted above in the document. All locations listed within the mitigation report will be monitored by the Discharger.**

**Mitigation Report (Identified Sites Requiring Remediation)**

*\*Time schedule for treatment accounts for appropriate permit approvals and allowed season of operations per state and local regulations.*

Unique Map Point(s)	Map Point Description	Associated Standard Condition	Temporary BMP	Permanent BMP	Priority for Action	Time Schedule for completion of Permanent BMP	Completion Date
CS #1	Exposed top soil within cultivation site	(A)1a	Wood chipped landing	Seed landing	2	10/15/16	
SC #1	Undersized stream crossing	(A)2a-b	Monitor site	Replace with 42" diameter culvert	4	10/15/16	
POD #4	Proposed shallow well diversion installation	(A)5a-c	Pump from surface of the wetland	Install Well	1	08/31/17	
OWTS	Use of Compost toilet and Privy	(A)11a	N/A	Install septic system compliant with applicable county health code	4	04/04/21	

Treat Priority: Treatment Priority (1) indicates a very high priority with treatment being planned to occur immediately, (2) indicates a high priority site with treatment to occur prior to the start of the winter period (Oct. 15), (3) indicates a moderate priority with treatment being planned to occur within one year, or prior to the winter period (Oct. 15) of the 2<sup>nd</sup> season of operations, and (4) indicates a low priority with treatment being planned to occur in the shortest time possible, but no later than the expiration of this Order (five years).

## Photographs



**Picture 1:** This is a photograph of Cultivation Site #1. This location contains a 50' by 20' greenhouse and 3,500 square feet of outdoor cultivation. The Discharger plans mulch and seed this landing before winter in order to immobilize the top soil. Photo date: 05/16/2016

## Photographs



**Picture 2:** This is a photograph of Cultivation Site #2. This site consists of 1,200 square feet of outdoor cultivation. Photo date: 05/16/2016



## Photographs



**Picture 3:** This is a photograph of the three 15' by 40' greenhouses located within Cultivation Site #3. Photo date: 05/15/2016

## Photographs



**Picture 4:** This is a photograph of the 3,000 square foot of outdoor cultivation located at CS #3.  
Photo date: 05/15/2016



## Photographs



**Picture 5:** This is a photograph of the micro hydroelectric (POD #1) unit on the property. The 6" diameter corrugated plastic flex pipe delivers outflow to the water body below. Photo date: 05/15/2016

## Photographs



**Picture 6:** This is a picture of the diversion structure which is a part of POD #2. This structure consists of a piece of screened 3" diameter PVC plumbed to 2" diameter polypipe behind a stone wall impoundment. Photo date: 05/16/2016.

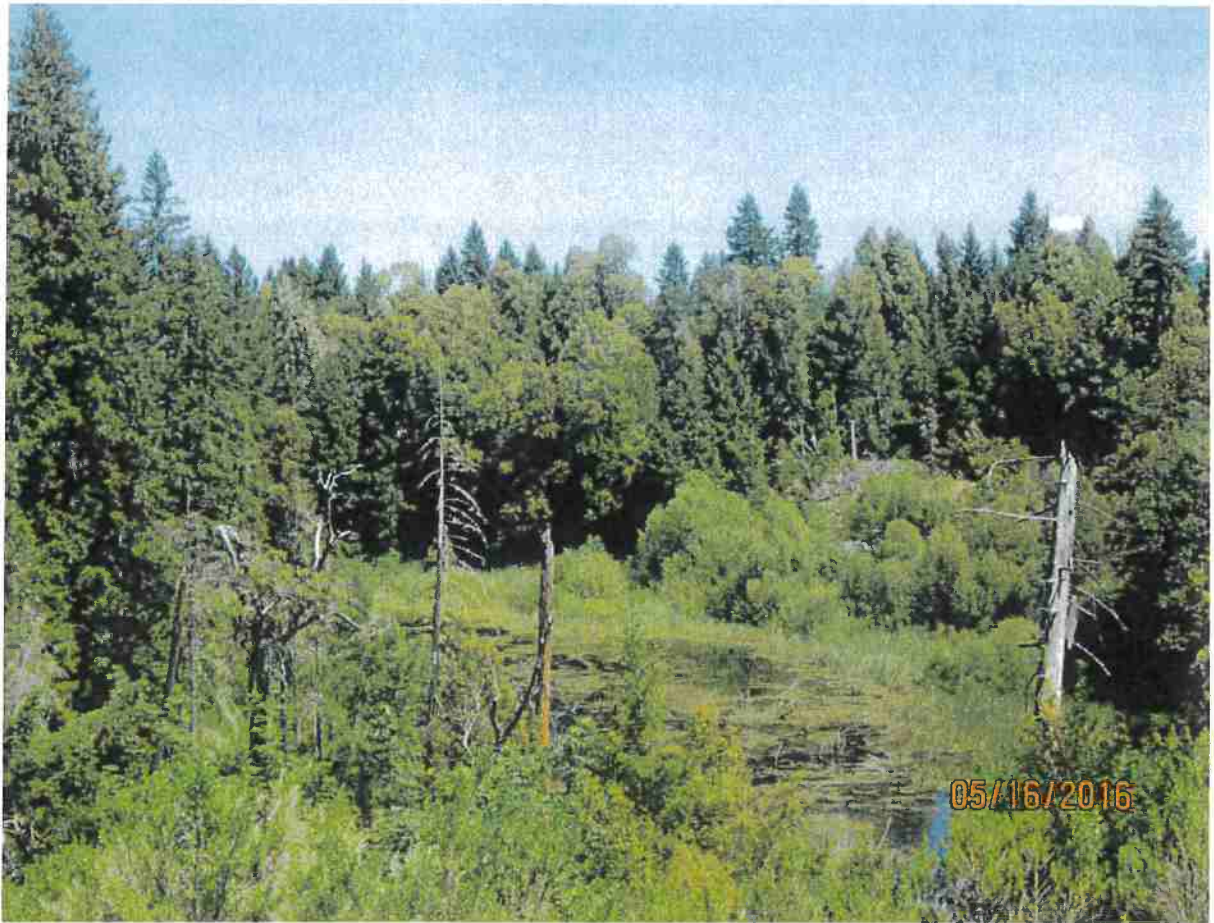


## Photographs



**Pictures 7 & 8:** These are photographs facing upstream (left) and downstream (right) from POD #2.  
Photo date: 05/16/2016.

## Photographs



**Picture 9:** This is a photograph of the 3 acre Class II pond. This photograph was taken from south of the pond facing north. Photo date: 05/16/2016



## Photographs



**Picture 10:** This is a photo of the soil spoils pile located on the property and marked on the map. This location is on a relatively flat slope and heavily vegetated. Photo date: 05/16/2016.

## Photographs



**Picture 11:** This is a photograph of the storage structures used on the property. The photo on the left is a 6' by 4' plastic utility shed. The image on the right is of the single wide trailer used for storage. Photo date: 05/16/2016



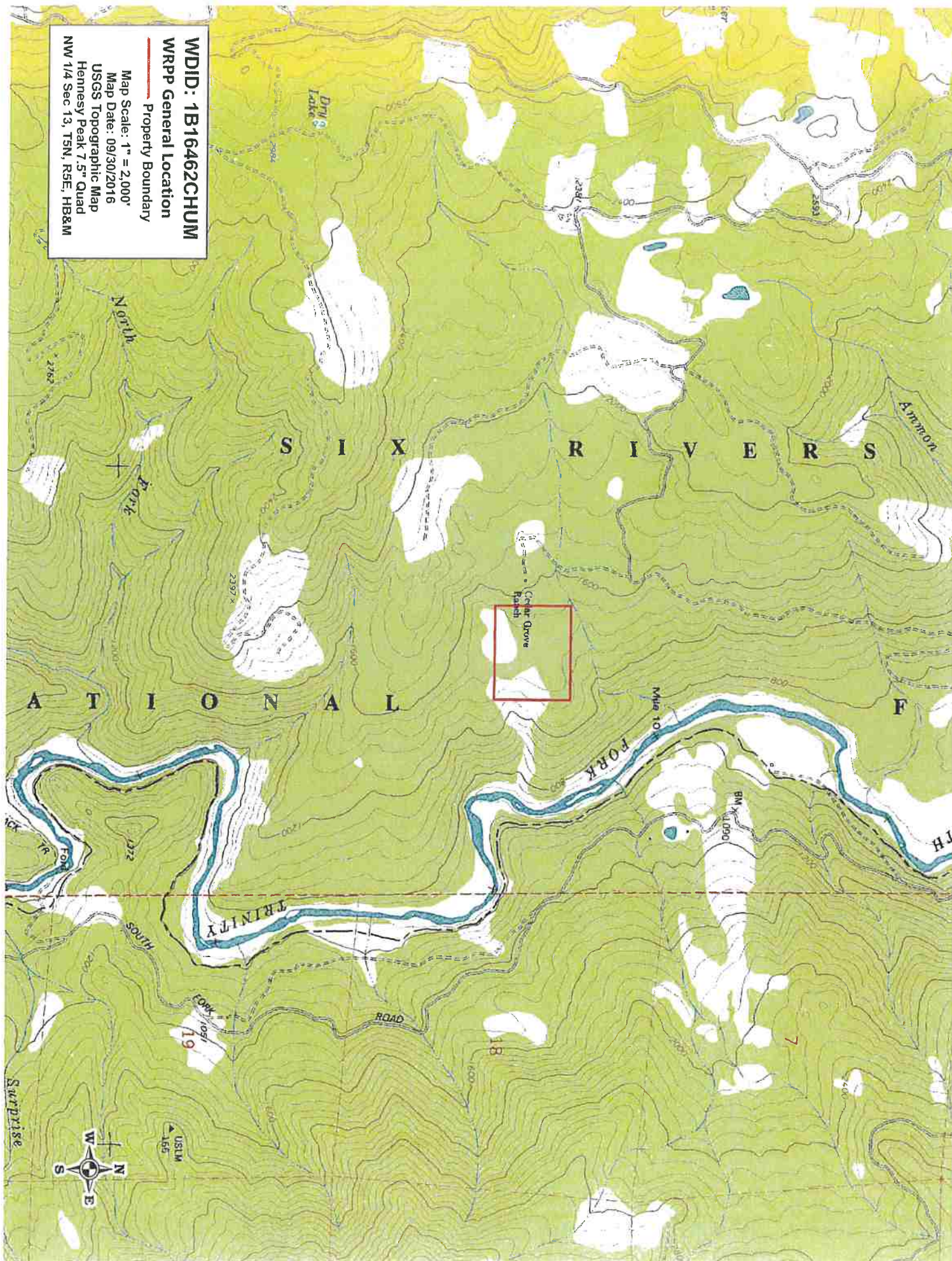
## Photographs



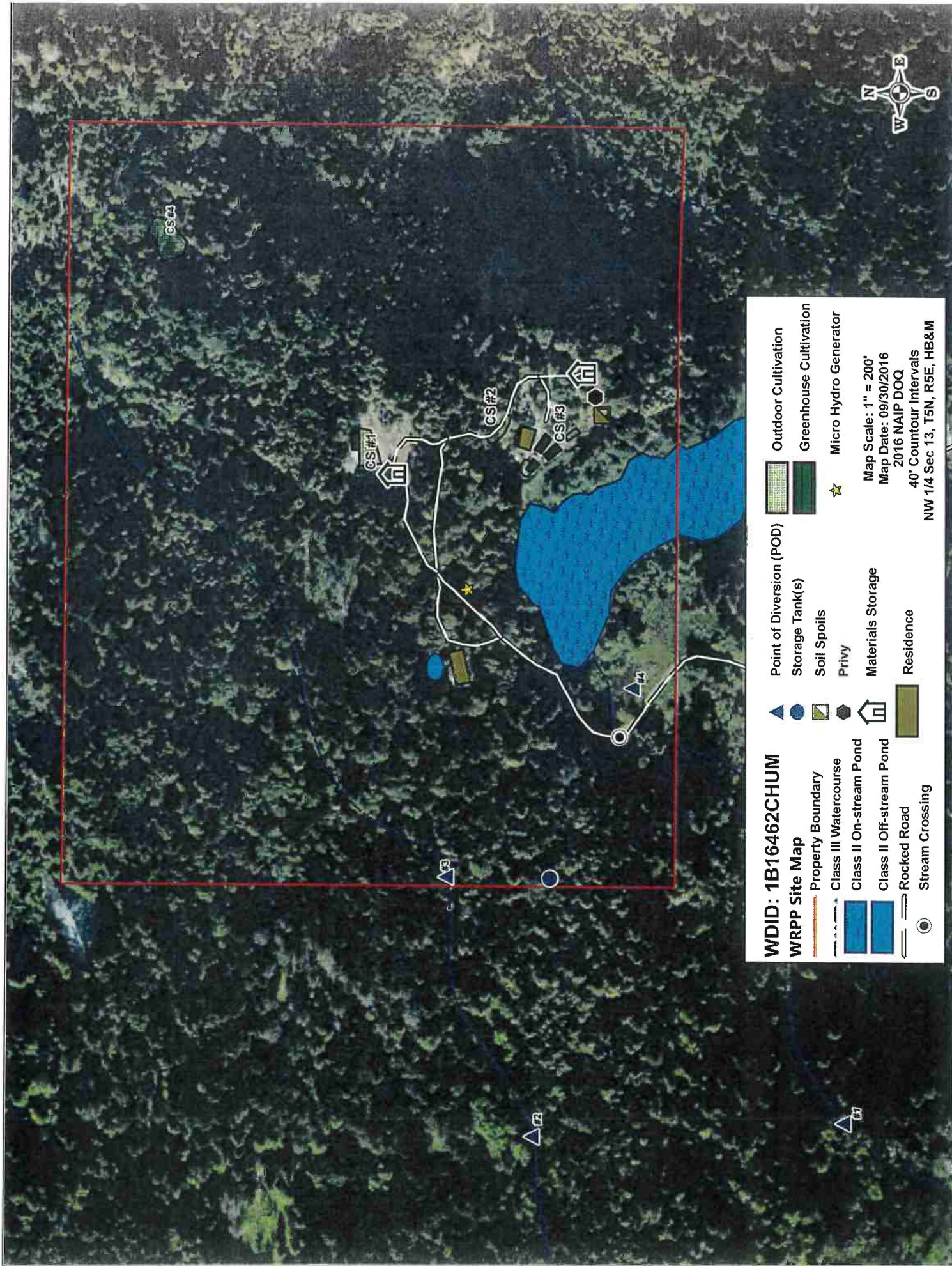
**Pictures 12:** This is a photograph of the composting location on the property. Organic cultivation waste is treated here. Photo date: 05/16/2016



**WDID: 1B16462CHUM**  
**WRPP General Location**  
Property Boundary  
Map Scale: 1" = 2,000'  
Map Date: 09/30/2016  
USGS Topographic Map  
Hennesy Peak 7.5" Quad  
NW 1/4 Sec 13, T5N, R5E, HB&M







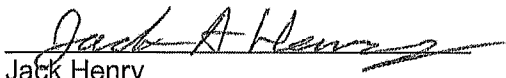




## STATEMENT OF CONTINGENT AND LIMITING CONDITIONS CONCERNING THE PREPARATION AND USE OF WATER RESOURCE PROTECTION PLAN

### Prepared by Timberland Resource Consultants

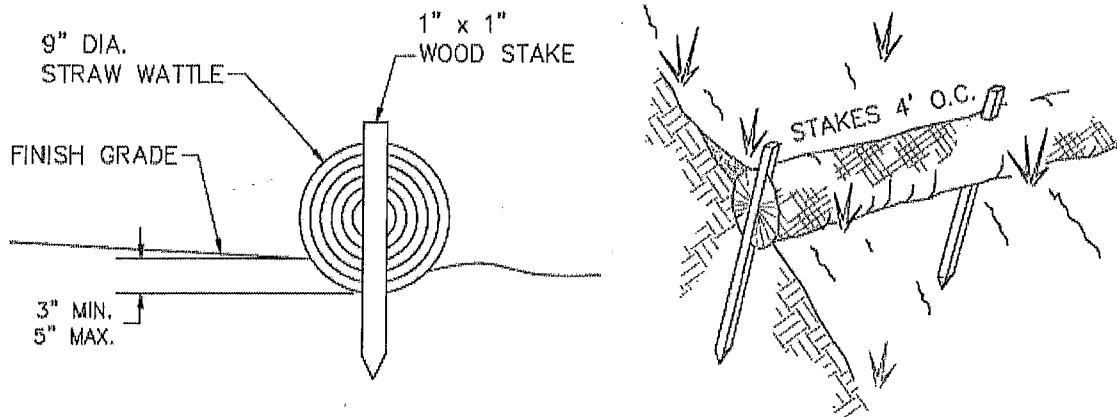
1. This Water Resource Protection Plan has been prepared for the property within APN 524-153-001 in Humboldt County, at the request of the Client.
2. Timberland Resource Consultants does not assume any liability for the use or misuse of the information in this Water Resource Protection Plan.
3. The information is based upon conditions apparent to Timberland Resource Consultants at the time the inspection was conducted, and as disclosed to Timberland Resource Consultants by the Discharger and/or Landowner. Changes due to land use activities or environmental factors occurring after this inspection, have not been considered in this Water Resource Protection Plan.
4. Maps, photos, and any other graphical information presented in this report are for illustrative purposes. Their scales are approximate, and they are not to be used for locating and establishing boundary lines.
5. The conditions presented in this Water Resource Protection Plan may differ from those made by others or from changes on the property occurring after the inspection was conducted. Timberland Resource Consultants does not guarantee this work against such differences.
6. Timberland Resource Consultants did not conduct an investigation on a legal survey of the property.
7. Persons using this Water Resource Protection Plan are advised to contact Timberland Resource Consultants prior to such use.
8. Timberland Resource Consultants will not discuss this report or reproduce it for anyone other than the Client named in this report without authorization from the Client.

  
Jack Henry  
Timberland Resource Consultants

# Attachments

## BMP: Erosion Control

- Erosion control and sediment detention devices and materials shall be incorporated into the cleanup/restoration work design and installed prior to the end of project work and before the beginning of the rainy season. Any continuing, approved project work conducted after October 15 shall have erosion control works completed up-to-date and daily.
- Erosion control materials shall be, at minimum, stored on-site at all times during approved project work between May 1 and October 15.
- Approved project work within the 5-year flood plain shall not begin until all temporary erosion controls (straw bales or silt fences that are effectively keyed-in) are installed downslope of cleanup/restoration activities.
- Non-invasive, non-persistent grass species (e.g., barley grass) may be used for their temporary erosion control benefits to stabilize disturbed slopes and prevent exposure of disturbed soils to rainfall.
- Upon work completion, all exposed soil present in and around the cleanup/restoration sites shall be stabilized within 7 days.
- Soils exposed by cleanup/restoration operations shall be seeded and mulched to prevent sediment runoff and transport.
- Straw Wattles (if used) shall be installed with 18 or 24 inch wood stakes at four feet on center. The ends of adjacent straw wattles shall be abutted to each other snugly or overlapped by six inches. Wattles shall be installed so that the wattle is in firm contact with the ground surface.



### **BMP: Permanent Culvert Crossing**

- New culvert installations shall be sized to accommodate flows associated with a 100-year storm event.
- If the new culvert is replacing a poorly installed old culvert, the crossing may need to be abandoned to the following standard:
  - When fills are removed they shall be excavated to form a channel that is as close as feasible to natural watercourse grade and orientation, and that is wider than the natural channel.
  - Excavated banks shall be laid back to a 2:1 (50%) or natural slope.
- New culverts shall be placed at stream gradient, or have downspouts, or have energy dissipaters at outfall.
  - Align culverts with the natural stream channel orientation to ensure proper function, prevent bank erosion, and minimize debris plugging. See Figure 97 below.
  - Place culverts at the base of the fill and at the grade of the original streambed or install a downspout past the base of the fill. Downspouts should only be installed if there are no other options.
  - Culverts should be set slightly below the original stream grade so that the water drops several inches as it enters the pipe.
  - Culvert beds should be composed of rock-free soil or gravel, evenly distributed under the length of the pipe.
  - Compact the base and sidewall material before placing the pipe in its bed.
  - Lay the pipe on a well-compacted base. Poor basal compaction will cause settling or deflection in the pipe and can result in separation at a coupling or rupture in the pipe wall.
  - Backfill material should be free of rocks, limbs, or other debris that could dent or puncture the pipe or allow water to seep around the pipe.
  - Cover one end of the culvert pipe, then the other end. Once the ends are secure, cover the center.
  - Tamp and compact backfill material throughout the entire process, using water as necessary for compaction.
  - Backfill compacting will be done in 0.5 – 1.0 foot lifts until 1/3 of the diameter of the culvert has been covered.
  - Push layers of fill over the crossing to achieve the final design road grade, road fill above the culvert should be no less than one-third to one-half the culvert diameter at any point on the drivable surface.
- Critical dips shall be installed on culvert crossings to eliminate diversion potential. Refer to Figure 84 below.
- Road approaches to crossings shall be treated out to the first drainage structure (i.e. waterbar, rolling dip, or hydrologic divide) to prevent transport of sediment.
- Road surfaces and ditches shall be disconnected from streams and stream crossings to the greatest extent feasible. Ditches and road surfaces that cannot be feasible disconnected from streams or stream crossings shall be treated to reduce sediment transport to streams.
- If downspouts are used, they shall be secured to the culvert outlet and shall be secure on fill slopes.
- Culverts shall be long enough so that road fill does not extend or slough past the culvert ends.
- Inlet of culverts, and associate fill, shall be protected with appropriate measures that extend at least as high as the top of the culvert.
- Outlet of culverts shall be armored with rock if road fill sloughing into channel can occur.
- Armor inlets and outlets with rock, or mulch and seed with grass as needed (not all stream crossings need to be armored).
- Where debris loads could endanger the crossing, a debris catchment structure shall be constructed upstream of the culvert inlet.
- Bank and channel armoring may occur, when appropriate, to provide channel and bank stabilization.

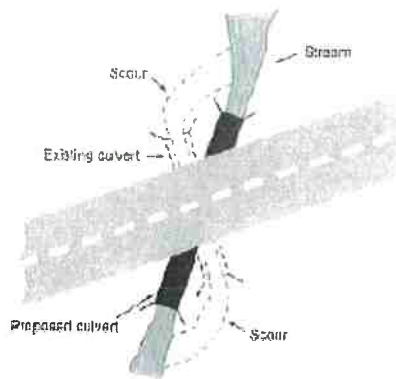


FIGURE 97. Culvert alignment should be in relation to the stream and not the road. It is important that the stream enters and leaves the culvert in a relatively straight horizontal alignment so streamflow does not have to turn to enter the inlet or discharge into a bank as it exits. This figure shows a redesigned culvert installation that replaces the bending alignment that previously existed. Channel turns at the inlet increase plugging potential because wood going through the turn will not align with the inlet. Similarly, channel turns at the inlet and outlet are often accompanied by scour against the channel banks (Wisconsin Transportation Information Center, 2004).

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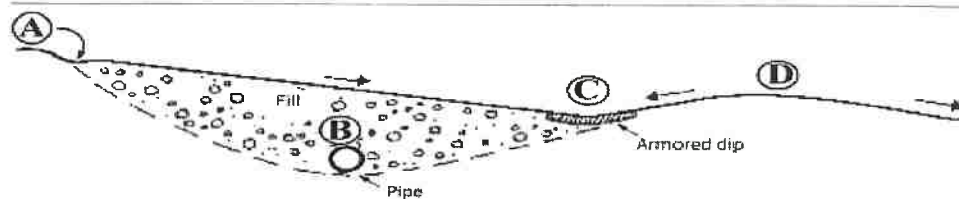
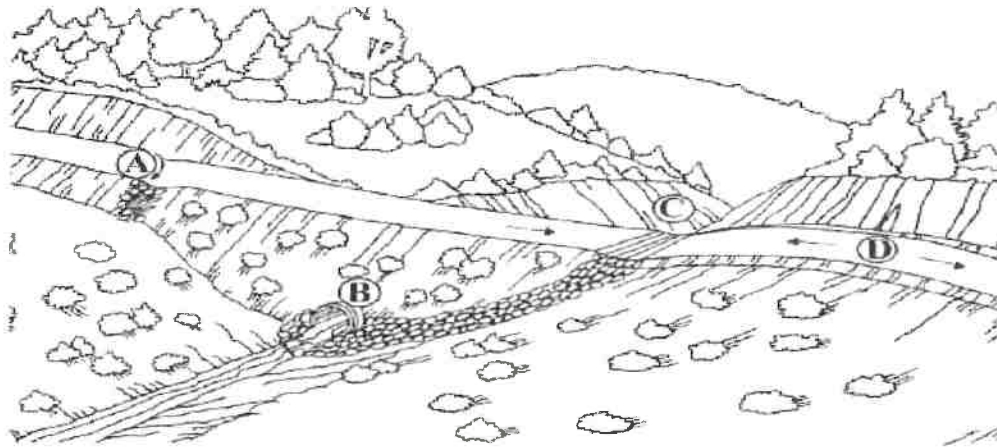
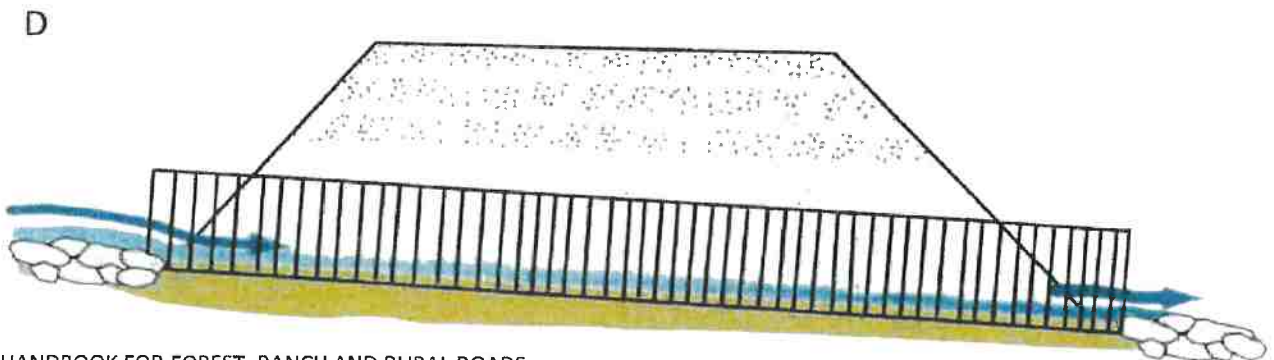
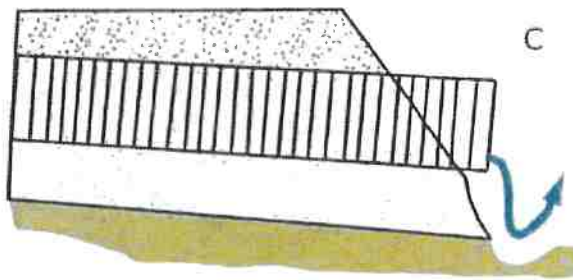
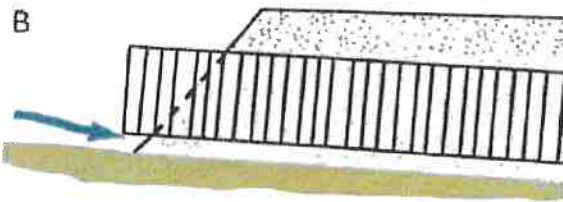
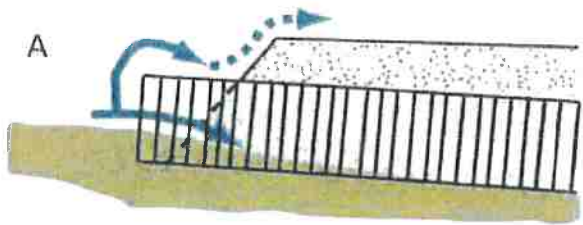


FIGURE 94. Critical dips or dipped crossing NIs should be centered near a stream crossing's down-road hingeline, not over the centerline of the crossing where overtopping could cause washout or severe erosion of the NI. If the stream crossing culvert (B) plugs, water will pond behind the NI until reaching the critical dip or low point in the crossing (C) and flowing back down into the natural stream channel. The down-road ditch must be plugged to prevent streamflow from diverting down the ditch line. For extra protection in this sketch, riprap armor has been placed at the critical dip outfall and extending downslope to the stream channel. This is only required or suggested on stream crossings where the culvert is highly likely to plug and the crossing NI overtopped. The dip at the hinge line is usually sufficient to limit erosional damage during an overtopping event. Road surface and ditch runoff is disconnected from the stream crossing by installing a rolling dip and ditch relief culvert just up-road from the crossing (A) (Keller and Sherar, 2003).

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## BMP: Permanent Culvert Crossing (Cont.)



**FIGURE 155.** Proper culvert installation involves correct culvert orientation, setting the pipe slightly below the bed of the original stream, and backfilling and compacting the fill as it is placed over the culvert. Installing the inlet too low in the stream (A) can lead to culvert plugging, yet if set too high (B) flow can undercut the inlet. If the culvert is placed too high in the fill (C), flow at the outfall will erode the fill. Placed correctly (D), the culvert is set slightly below the original stream grade and protected with armor at the inlet and outlet. Culverts installed in fish-bearing stream channels must be inset into the streambed sufficiently (>25% embedded) to have a natural gravel bottom throughout the culvert (Modified from: MDSL, 1991).