

Water Resource Protection Plan

APN 522-026-007

Submitted to:

Tanja Baker

PO BOX 1643

Willow Creek, CA 95573

Prepared by:

Timberland Resource Consultants

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08-3-2016

Purpose

This Water Resource Protection Plan (WRPP) has been prepared on behalf of the property owner, Tanja Baker, for the Humboldt County identified as parcel number 522-026-007 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, stream flow 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.

Methods (Cont.)

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

The property assessed is a 205 acre parcel located in Willow Creek, Ca. The parcel consists of mixed conifer, deciduous second growth thickets, surrounded by montane grasslands. This property has an elevation range of approximately 3600-3900 feet. The slope averages 5-12%, however most of the roads and cultivation areas are completely flat. The property has three cultivation areas. The first cultivation site is part of a recent 3 acre conversion clear cut, with 99 plants dispersed throughout the native vegetation. The second cultivation site has three greenhouses along with a small storage shed, and a well. The third cultivation site is an established cut pad with 99 full term plants. Based on field observation there is one Class III stream on the property. The roads on the property are approximately 12 feet in width with slopes ranging from 0-10%. There is one road leading to an adjacent property that has been decommissioned and winterized. There were minimal problems with the roads as they were recently, within the past year, professionally resurfaced with numerous rolling dips, packed rock, with a well-established crown to the road surface. The road conditions were exceptional. There are no full time residences on this property. The outdoor cultivation areas are laid out in a way that works with the natural topography of the land which results in minimal disturbance to the associated ecosystem. The property is located between Supply Creek and Minor Creek. Supply Creek is approximately 850 feet from the property and over 1 mile from Minor Creek. There is one Class III on the property which is approximately 300 feet from the nearest cultivation site. This Class III drains into Supply Creek. Supply Creek drains into Trinity River. The property is located in the SE ¼ of Section 19 Township 7N Range 4E of the Lord-Ellis Summit 7.5 minute Quad Map. Access to the property is from US HWY 299 to Old 3 Creek Road.

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. 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 in the summer of 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☒

Compliant Standard Conditions Summary

During our assessment, the property and associated facilities were found to be in compliance with many of the Standard Conditions. All cultivation areas are beyond the preferred distance of 200 feet to adjacent watercourses or water bodies. At no point on the property assessed were any spoils found to be placed or treated outside the guidelines of the Standard Conditions. Soils that were found were appropriately covered by tarps, top and bottom, and will be used this season. At no point on the property assessed were any cultivation related wastes found to be placed or treated outside the guidelines of the Standard Conditions. There are currently no systems to deal with human waste on the property, currently the workers use a pit toilet located on the adjacent property. This property currently draws all of their water from a well with 9,750 gallons of water storage tanks dispersed on the property. For the current operations on the property there is an ample supply of and storage of water from the well on the property. There are no surface water diversions at this time. No irrigation runoff was present during inspection, nor was there evidence that it had occurred in the past. Fertilizers and amendments are stored appropriately in a small shed adjacent to the greenhouses. Fertilizers are used as a supplement at less than 1/2 dosage guidelines provided by the manufacturer. There was a minimal amount of fuel storage on the property equating to a few small portable fuel containers, properly stored in a shed. In its current condition, this property does not pose a significant risk to water quality due to the lack of watercourses on or near

the property. During our field survey we only found one road section that needed erosion control mitigation measures.

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 not hydrologically connected¹, 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.

Road Point 1 – Road surface runoff is not being collected adequately and running down the road contributing to erosion issues further down the road. Evidence of minor rilling is apparent. A rolling dip or water bar will be installed at this location to minimize sedimentation and surface erosion of this road section. (See figure 36 & 40)

Road Point 2: Alternate view of road erosion. Water is running down the middle of the road. The mitigation measures will improve the longevity of the road and reduce sediment delivery

¹ 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)

in heavy storm events. We recommend a drainage feature between road point 1 and 2. The drainage feature recommended would be a rolling dip or water bar to get water off the road then a small ditch to direct the flow to the adjacent woodlands.

Road Point 3: A rolling dip is installed at this location to direct road runoff off of the road. Owner will monitor and maintain the rolling dip so that road runoff is adequately diverted.

2. Stream Crossing Maintenance

- a. Culverts and stream crossings shall be sized to pass the expected 100-year peak stream flow.
- b. Culverts and stream crossings shall be designed and maintained to address debris associated with the expected 100-year peak stream flow.
- 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.²
- 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.³

There are no stream crossings on the property. This standard condition is being met at this time.

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 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 alternative⁴ conditions on enrollment, including site-specific riparian buffers and other BMPs beyond those identified in water resource protection plans to ensure water quality protection.

² 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.

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

⁴ 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. 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, stream bank stabilization, and flood peak attenuation and flood water storage.

All cultivation areas are beyond the preferred distance of 200 feet to adjacent watercourses or water bodies. Supply Creek is approximately 850 feet from the property and over 1 mile from Minor Creek. There is one Class III on the property which is approximately 300 feet from the nearest cultivation site. This Class III drains into Supply Creek. Supply Creek drains into Trinity River. This standard condition is being met at this time.

4. Spoils Management

- a. Spoils⁵ 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 side cast in any location where they can enter or be transported to surface waters.

There was one small spoils pile. Current status is, no immediate threat to waterway infiltration. Soils that were found are appropriately covered by tarps, top and bottom, and will be used this season. This standard condition is being met at this time.

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, in stream flow requirements and/or needs in the watershed, defined at the scale of a HUC-12⁶ watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.

⁵ 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.

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

- 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.⁷
- 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.

All water used on the property is sourced from a permitted well located near the second cultivation site. The well pump is powered by a generator that delivers water to storage tanks near the cultivation sites. The landowner has approximately 21,280 square feet of cultivation area. There are no surface water diversions. The well water does not require any treatment and produces adequate volumes of water throughout the year. The total water storage consists of 9710 gallons. The landowner will be installing a water meter this year to better document his usage. There is no need to alter the water usage at this time. This standard condition is being met at this time.

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 tail water by constructing off-stream retention basins, and active (pumping) and or passive (gravity) tail water recapture/redistribution systems. Care shall be taken to ensure that irrigation tail water is not discharged towards or impounded over unstable features or landslides.

⁷ "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.

There are currently no signs of irrigation runoff on the property. Water resources are being used at standard agronomic rates. This standard condition is being met at this time.

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

The landowner uses multiple fertilizers and amendments. Fertilizers and amendments are stored appropriately inside the generator shed at the second cultivation site and in the living or storage trailers. Fertilizers used are Age Old Bloom (5-10-5), Age Old Grow (12-6-6), Maxsea Grow (16-16-16). Amendments used are Greensand (0-0-3), Oyster shells, and Bone meal (1-13-0). Fertilizers and amendments are used at manufacturers recommended rates or half that amount. The soil medium used is Royal Gold Mendo Mix. Fertilizers and soil amendments are 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. This standard condition is being met at this time.

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 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 landowner states that he does not use pesticides or herbicides. Pesticides and herbicides are placed, used, and stored in a manner that ensures that they will not enter or be released into surface or ground waters. This standard condition is being met at this time.

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.

Fuel is stored onsite in portable fuel containers. These containers are stored in the shed on the second cultivation site. This is the extent of all fuels and chemicals on the property. This standard condition is being met at this time.

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 stored⁸ 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 groundwater.

At no point on the property assessed were any cultivation related wastes found to be placed or treated outside the guidelines of the Standard Conditions. Cultivation-related wastes are stored on site in a location that will not enter, migrate, leach, or be blown into surface waters. This standard condition is being met at this time.

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.

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

- 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.

Map Point 1: All trash is collected in a full size utility trailer and taken to the dump regularly; at the time of our survey we found one large pile of garbage. To prevent this garbage from being blown or transferred to a waterway we recommend better containment and cleanup of this site.

This condition is currently not being met.

Regarding human waste, there are no full time residences on this property, this property is simply checked on and there are a minimal amount of workers. There is no evidence of systems to manage human waste. The individual that leases the property says that workers use a pit toilet that is adjacent to the property, a property he owns. To meet this standard condition we recommend that the un-permitted pit toilet be inspected and approved by a licensed professional to ensure that any septic system installed in the County meets all current County and State standards relative to minimum setbacks associated with the protection of all residents' and the environment's health. For compliance we do not require the pit toilet to be permitted just that it be inspected and approved that it is in a permissible state. Waste water disposal on the property does not threaten surface or groundwater and did not appear to be creating a nuisance on the property. See Appendix B. Item 142 of the Order.

This condition is currently not being met.

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

Mitigation measures are listed in the Water Resource Protection Plan and also noted above in the document. This standard condition is being met at this time.



Figure 1: Cultivation site #1 July 25th 2016

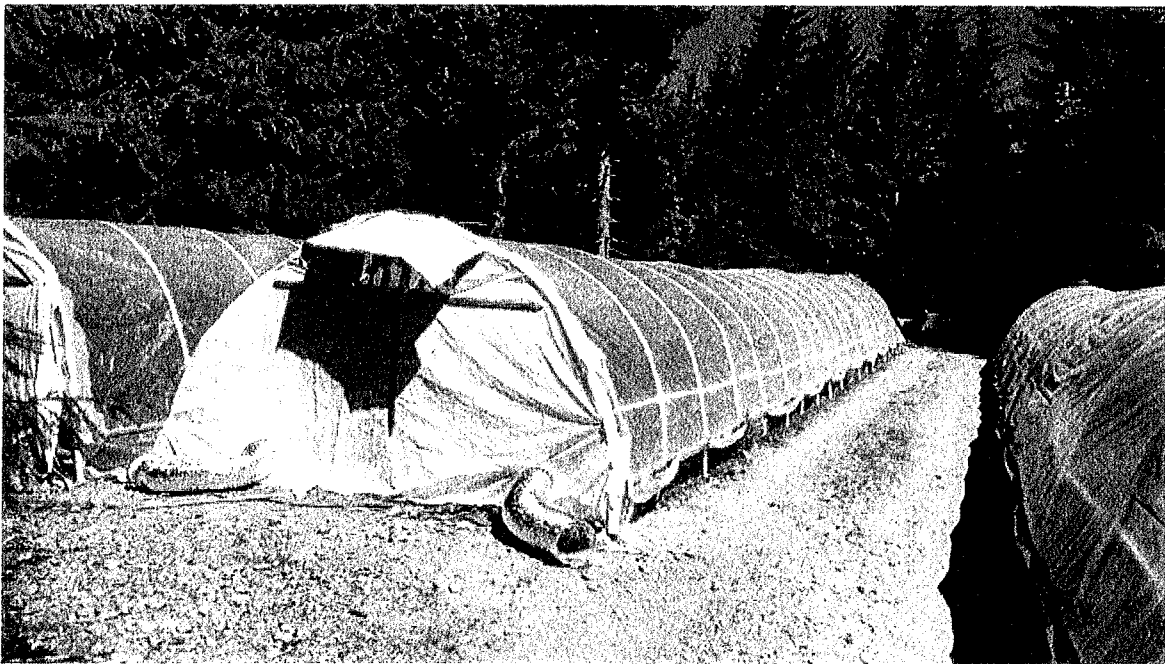
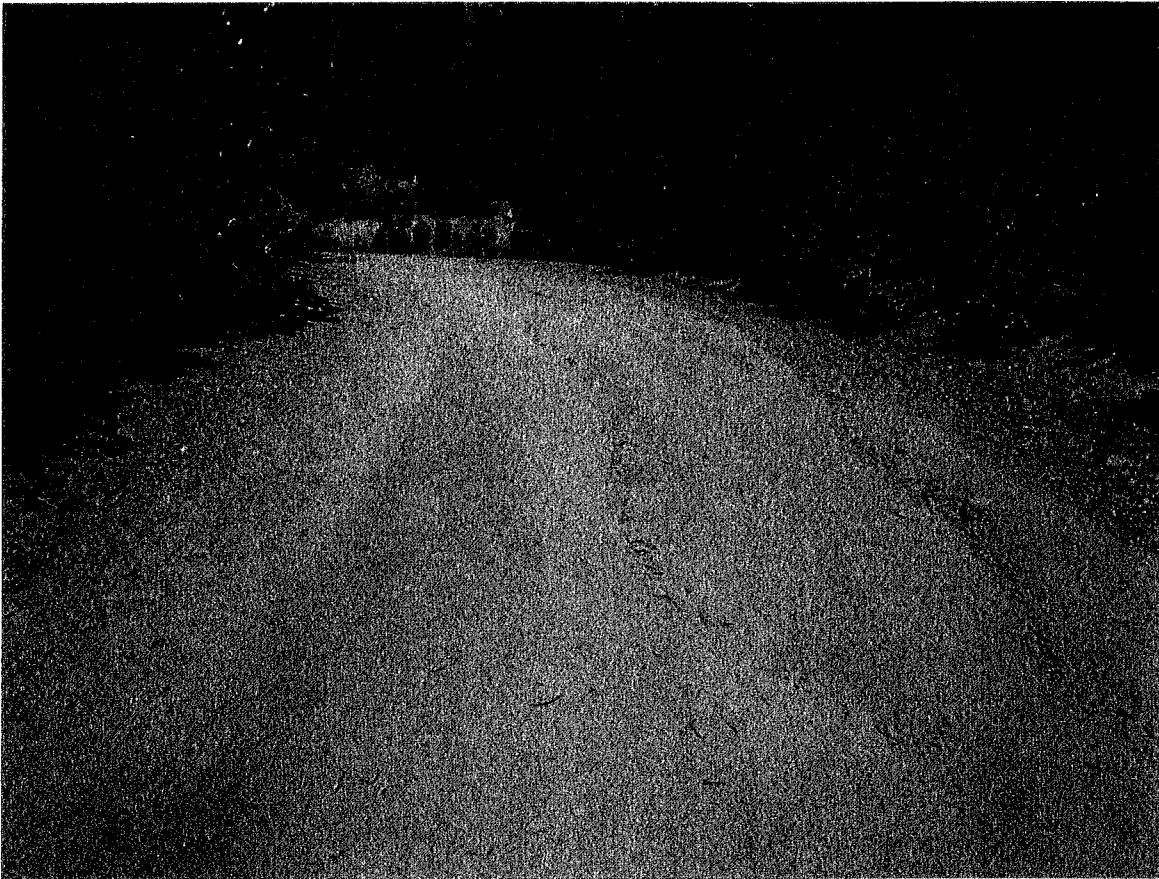


Figure 2: Cultivation Site #2 July 25th 2016



Figure 3: Cultivation Site #3 July 25th 2016



Road Point 1: Evidence of minor surface erosion. Recommended mitigation measure includes implementation of water bar or rolling dip to prevent further erosion. (See figure 36 & 40) July 25th 2016



Road point 2: Alternate view of road erosion. Water is running down the middle of the road. We recommend a water bar or rolling dip be implemented to divert surface water off the roadway. The mitigation measures will improve the longevity of the road and reduce sediment delivery in heavy storm events.(See figure 36 & 40) July 25th 2016



Road Point 3: A rolling dip is installed at this location to direct road runoff off of the road. Owner will monitor and maintain the rolling dip so that road runoff is adequately diverted.



Figure 4: Evidence of compliant spoils storage. July 25th 2016

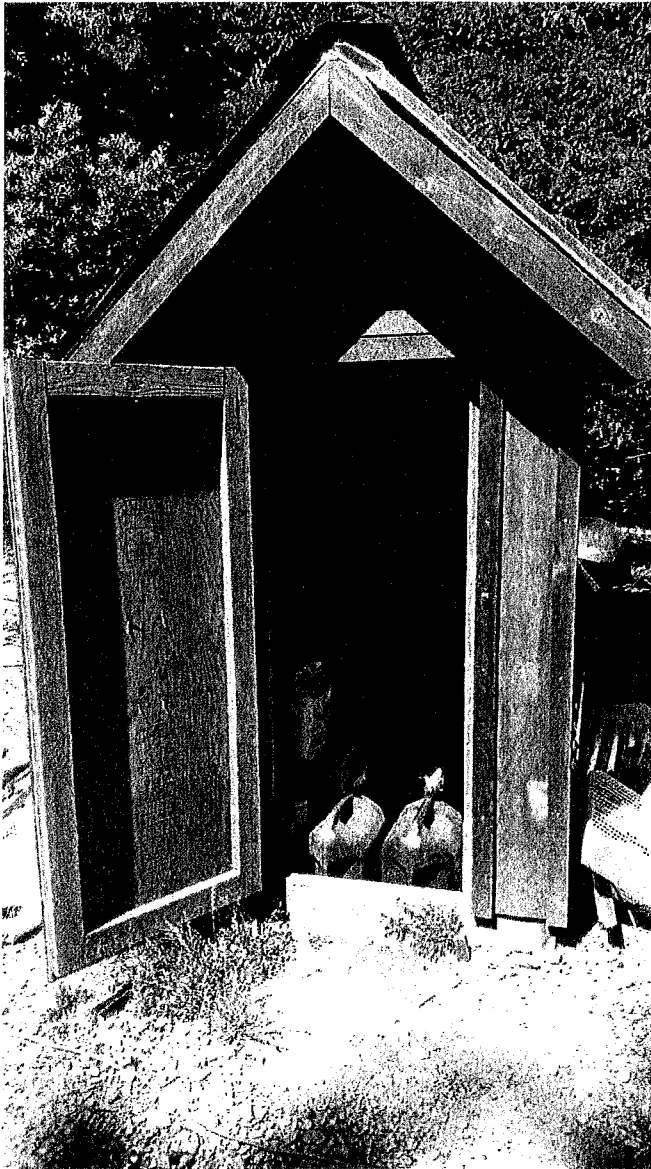
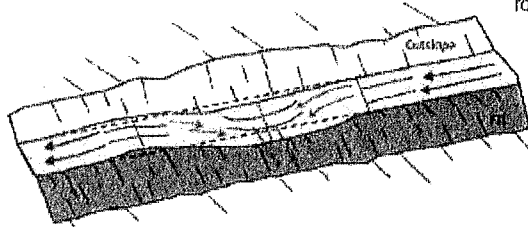


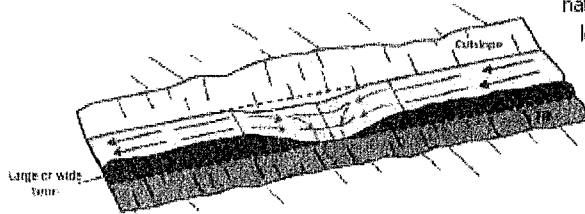
Figure 5: Evidence of compliant fuel and fertilizer storage. July 25th 2016

**Type 1 Rolling Dip
(Standard)**



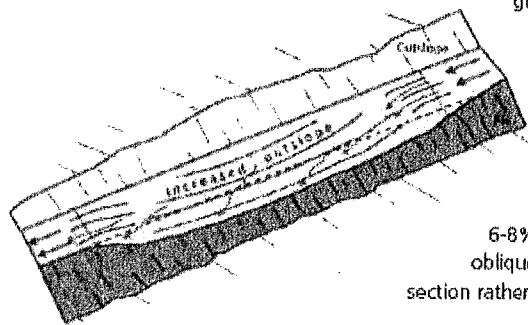
Type 1 rolling dips are used where road grades are less than about 12-14% and road runoff is not confined by a large through cut or berm. The axis of the dip should be perpendicular to the road alignment and sloped at 3-4% across the road tread. Steep roads will have longer and more abrupt dip dimensions to develop reverse grade through the dip axis. The road tread and/or the dip outlet can be rocked to protect against erosion, if needed.

**Type 2 Rolling Dip
(Through-cut or thick berm road reaches)**



Type 2 rolling dips are constructed on roads up to 12-14% grade where there is a through cut up to 3 feet tall, or a wide or tall berm that otherwise blocks road drainage. The berm or native through cut material should be removed for the length of the dip, or at least through the axis of the dip, to the extent needed to provide for uninterrupted drainage onto the adjacent slope. The berm and slope material can be excavated and endhauled, or the material can be sidecast onto native slopes up to 45%, provided it will not enter a stream.

**Type 3 Rolling Dip
(Steep road grade)**



Type 3 rolling dips are utilized where road grades are steeper than about 12% and it is not feasible to develop a reverse grade that will also allow passage of the design vehicle (steep road grades require more abrupt grade reversals that some vehicles may not be able to traverse without bottoming out).

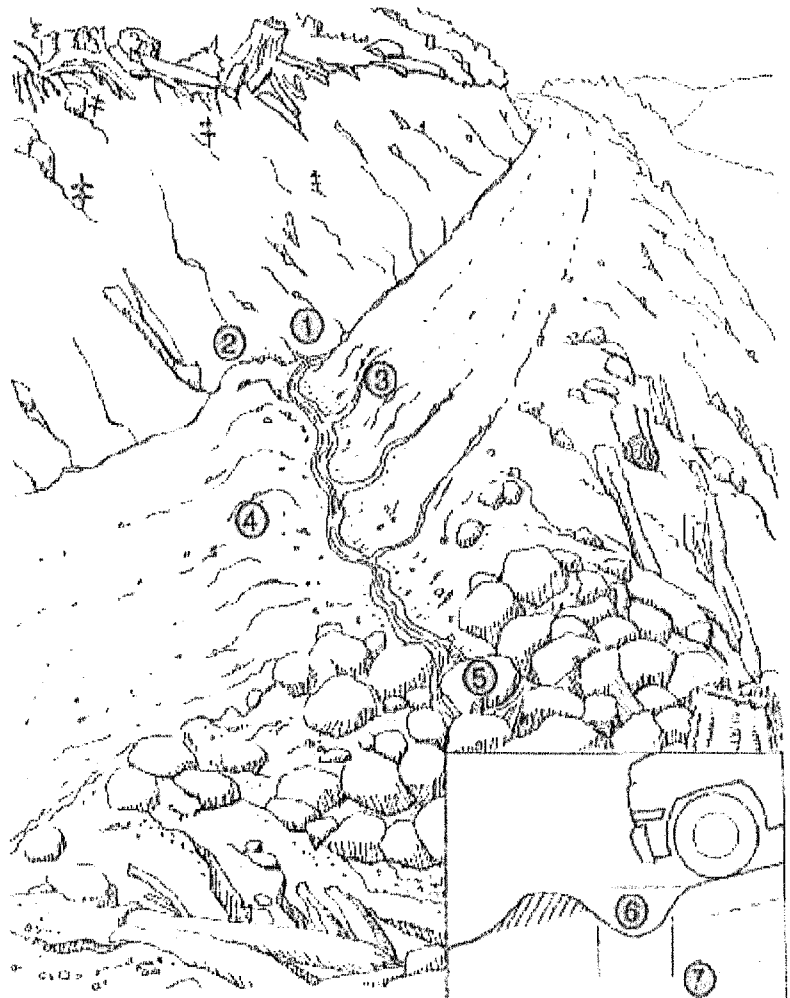
Instead of relying on the dip's grade reversal to turn runoff off the roadbed, the road is built with an exaggerated outslope of 6-8% across the dip axis. Road runoff is deflected obliquely across the dip axis and is shed off the outsloped section rather than continuing down the steep road grade.

FIGURE 36. Rolling dip types

HANDBOOK FOR FOREST, RANCH AND RURAL ROADS

FIGURE 40. Waterbars are constructed on unsurfaced forest and ranch roads that will have little or no traffic during the wet season. The waterbar should be extended to the cutbank to intercept all ditch flow (1) and extend beyond the shoulder of the road. A berm (2) must block and prevent ditch flow from continuing down the road during flood flows. The excavated waterbar (3) should be constructed to be self-cleaning, typically with a 30° skew to the road alignment with the excavated material bermed on the downhill grade of the road (4). Water should always be discharged onto the downhill side on a stable slope protected by vegetation. Rock (shown in the figure) should not be necessary if waterbars are spaced close enough to prevent serious erosion. (5) The cross ditch depth (6) and width (7) must allow vehicle cross-over without destroying the function of the drain. Several alternate types of waterbars are possible, including one that drains only the road surface (not the ditch), and one that drains the road surface into the inside ditch (BCMF, 1991).

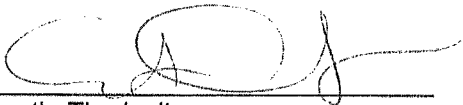
HANDECOX FOR FOREST, RANCH, AND RURAL ROADS



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

Prepared by Timberland Resource Consultant

1. This Water Resource Protection Plan has been prepared for the property within APN 522-026-007 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. 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.



Austin Theriault
Timberland Resource Consultants

Water Resource Protection Plan

180102111205TRC105

0 1000
feet

1 in : 700 ft



Property
Boundary



Cultivation
Sites



Greenhouse



Map Points



Road Point



Well



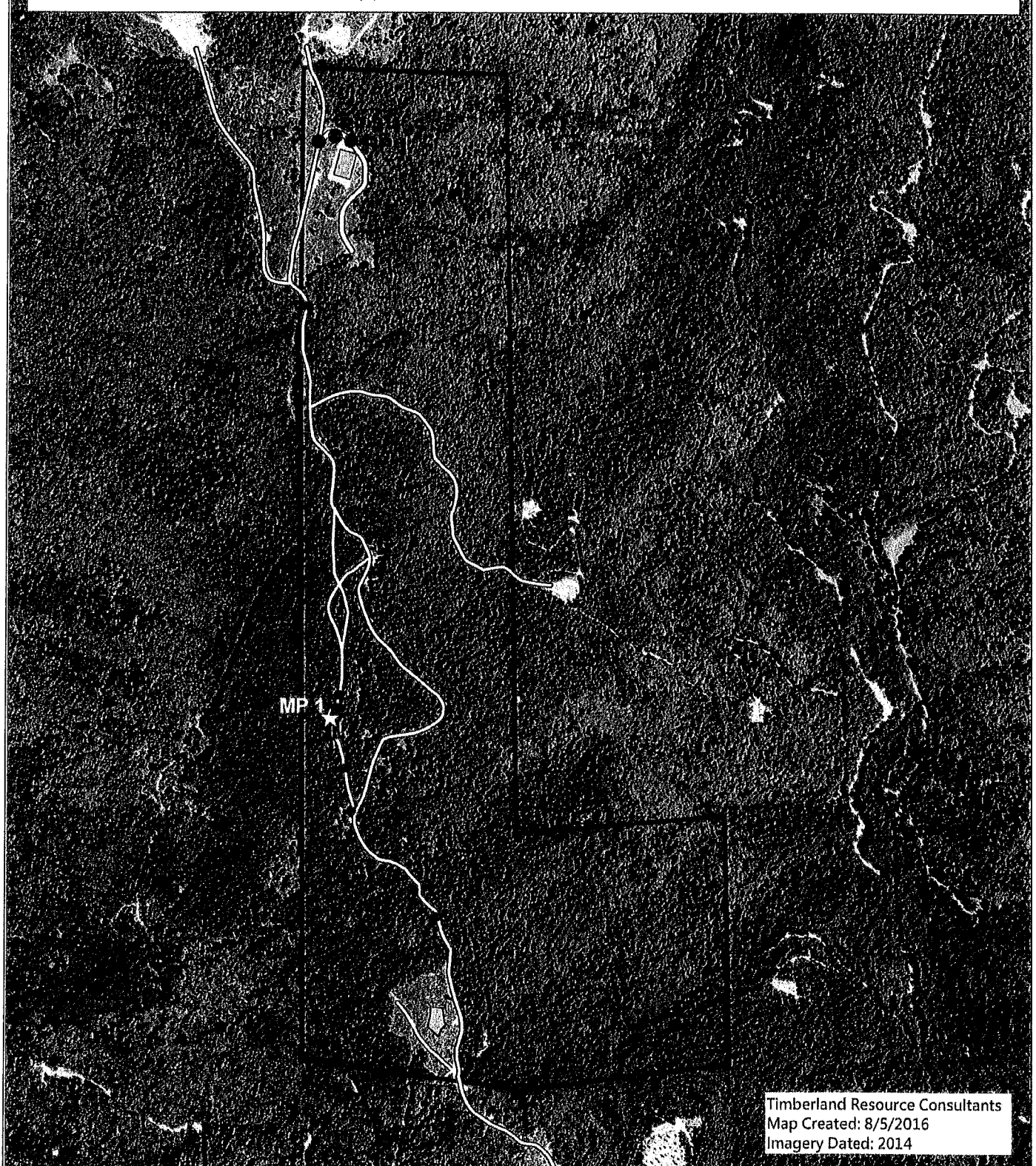
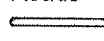
Water Tanks



Watercourses



Roads



Timberland Resource Consultants
Map Created: 8/5/2016
Imagery Dated: 2014

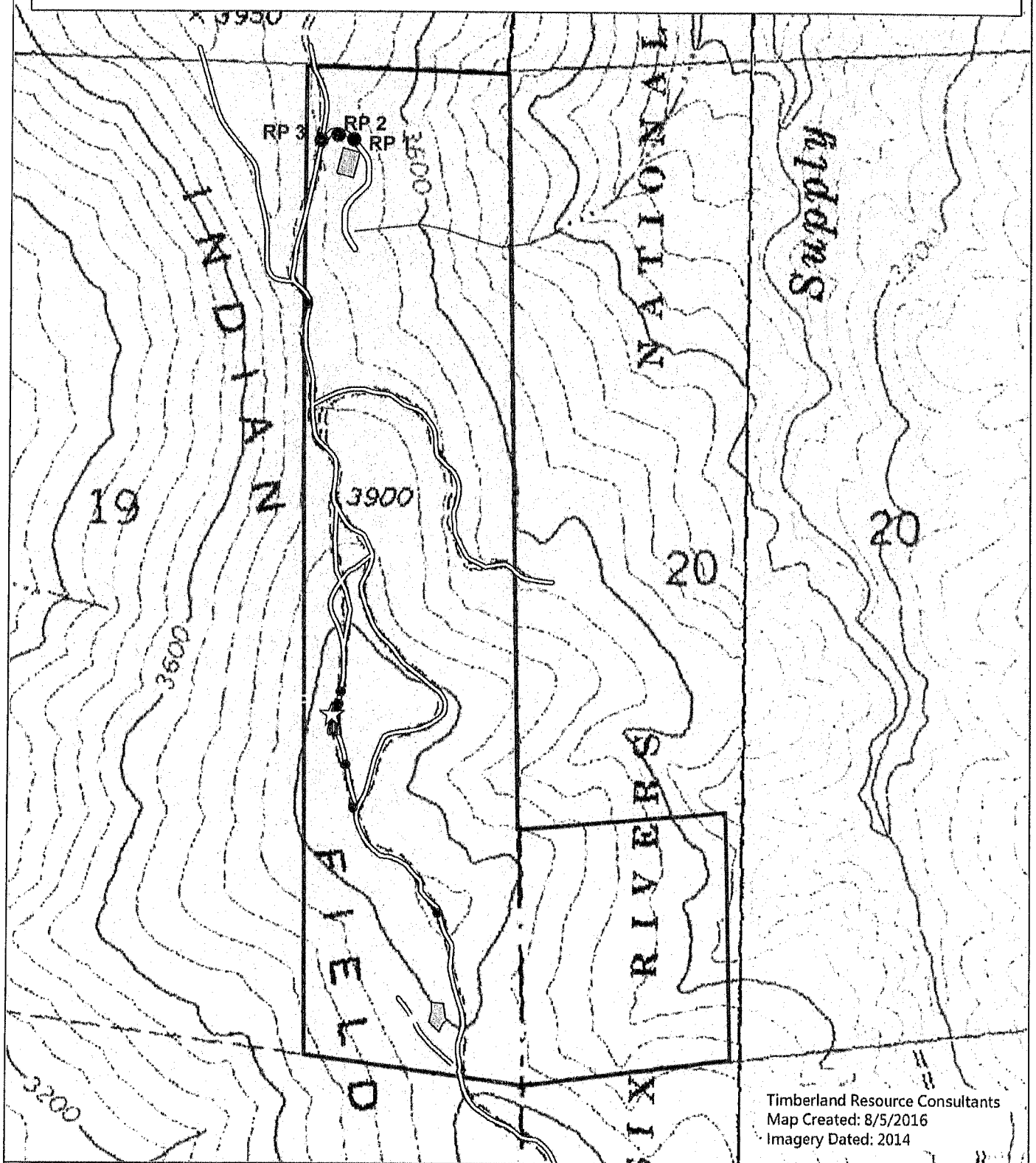
Water Resource Protection Plan

180102111205TRC105

0 1000
feet
1 in : 700 ft



Property Boundary	Cultivation Sites	Greenhouse	Map Points	Road Point	Well	Water Tanks	Watercourses	Roads



Timberland Resource Consultants
Map Created: 8/5/2016
Imagery Dated: 2014

Water Resource Protection Plan

180102111205TRC105

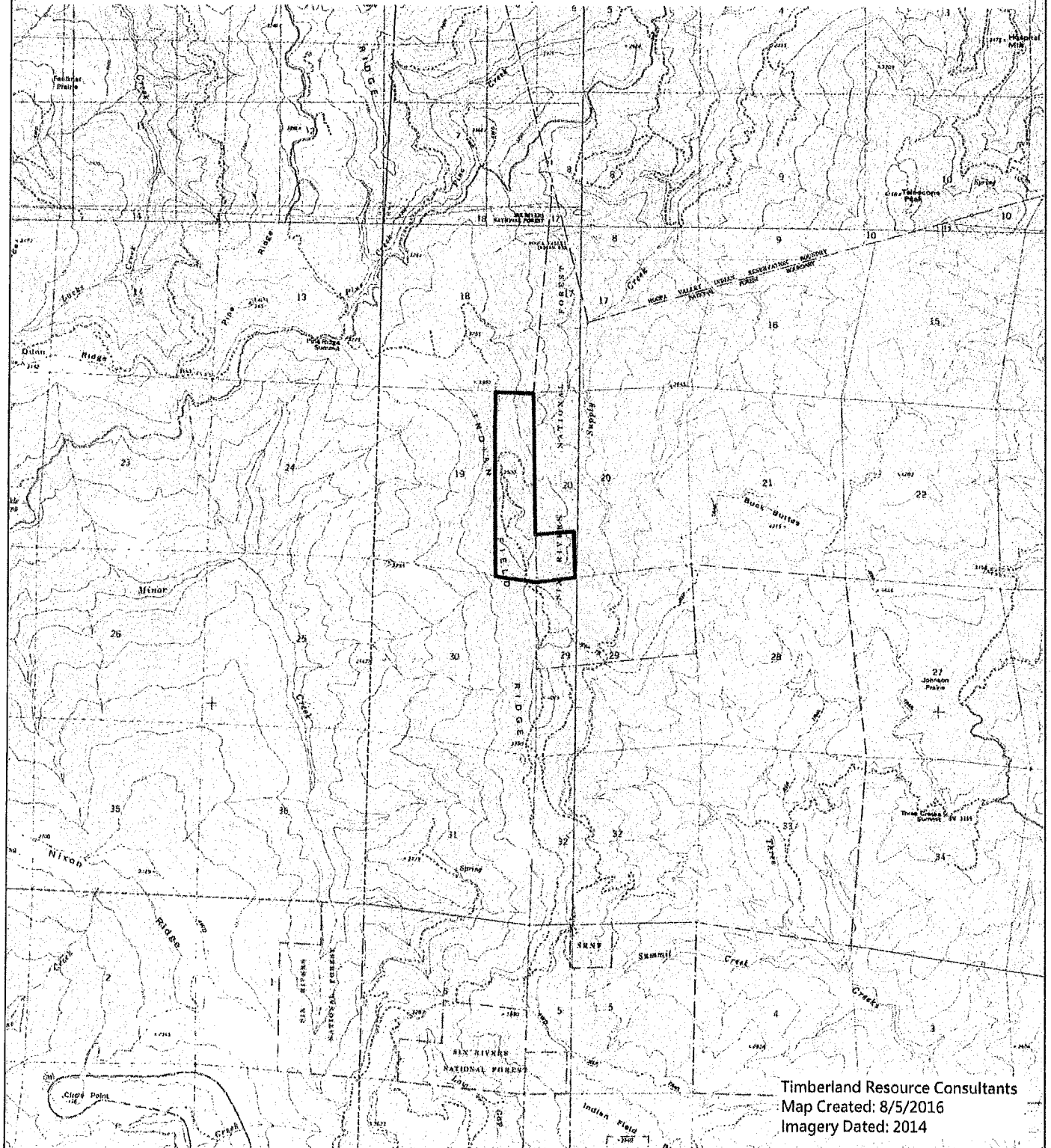
Property
Boundary



0 1
miles

1 in : 4000 ft

Property is located in the SE ¼ of
Section 19 Township 7N Range 4E
of the Lord-Ellis Summit 7.5 minute
Quad Map.



Timberland Resource Consultants
Map Created: 8/5/2016
Imagery Dated: 2014



WRPP - Mitigation Report

180102111205TRC105

Unique Point	UTM 10 NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
RP 1	436058 4537298	Seasonal	X	X		A.1.a.	Prior to 11/15/17 pending approval of applicable permits	
Current Condition: Poor road drainage resulting in minor rilling and erosion of the road.						Prescribed BMP: A water bar or rolling dip below the erosion to prevent future sedimentation and erosion of the road.		
Unique Point	UTM 10 NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
RP 2	436086 4537288	Seasonal	X	X		A.1.a.; A.1.b	Prior to 11/15/17 pending approval of applicable permits	
Current Condition: Surface erosion is occurring immediately after an existing rolling dip.						Prescribed BMP: Owner will place a water bar above the rilling and maintain the rolling dip at the bottom so that water is adequately diverted.		
Unique Point	UTM 10 NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
RP 3	436028 4537287	Seasonal		X		A.1.a.; A.1.b	Prior to 11/15/17 pending approval of applicable permits	
Current Condition: A water bar is installed at this location to direct road runoff off of the road.						Prescribed BMP: Owner will monitor and maintain the water bar so that road runoff is adequately diverted.		
Unique Point	UTM 10 NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
MP 1	436055 4536254	Seasonal	X	X		A.11.c	Prior to 11/15/16 pending approval of applicable permits	
Current Condition: Trash is being collected in one area and is not adequately contained. Owner assured us he regularly takes trash to the dump. No immediate threat to any waterway.						Prescribed BMP: We recommend that this collection of trash be properly disposed of and that future piles of trash be contained better to minimize the chance of it being blown away,		
Unique Point	UTM 10 NAD 83	Road Type	Mitigation Planned	Monitor	1600	Standard Conditions	Treatment Priority	Date Completed
NA	NA	NA	X			A.11.a	Prior to 11/15/17 pending approval of applicable permits	
Current Condition: Regarding human waste, there are no full time residences on this property, this property is simply checked on and there are a minimal amount of workers. There is no evidence of systems to manage human waste. The individual that leases the property says that workers use a pit toilet that is adjacent to the property, a property he owns.						Prescribed BMP: To meet this standard condition we recommend that the un-permitted pit toilet be inspected and approved by a licensed professional to ensure that any septic system installed in the County meets all current County and State standards relative to minimum setbacks associated with the protection of all residents' and the environment's health. For compliance we do not require the pit toilet to be permitted just that it be inspected and approved that it is in a permissible state.		