Water Resource Protection Plan for APN 223-032-04



Submitted to:

Chad Mussey PO Box 1932 Garberville, CA 95542

Prepared by:

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2-6-2017

Purpose

This Water Resource Protection Plan (WRPP) has been prepared on behalf of the property's Discharger, Chad Mussey, 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 reviewing soil maps (Web Soil Survey), and geologic maps (CGS, Geologic Data Map No. 2, 1977). The field component included identifying and accurately mapping all watercourses, wet areas, and wetlands that could be impacted by onsite activities within/on 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 1.8 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 1.8 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.

Identified Sites Requiring Remediation

Unique Map Point(s)	Map Point Description	Assocrated Standard Condition	Temporary BMP	Permanent BMP	Priority for Action	Time Schedule for Completion Completion of Permanent Data BMP
Degraded Road	Road	A 1 (a) (b)	N/A	Surface/outslope/inslope road	4	10/15/2018
A	Bare soils above Class III	A 1 (e), A 3 (b) (c)	N/A	Seed with native grass and appply rice mulch to a depth of 2"	1	10/13/2010
В	Crossing	A 2 (a)	N/A	Upgrade to 18" Culvert	î	10/15/2018
C	Crossing	A 2 (a)	N/A	Upgrade to 18" Culvert	3	10/15/2018
D	Inadequately stored spoils	A 4 (a)		Securly cover with visqueen Oct. 31- May 15		10/13/2018
E	Erosion of pond fill slope	A 6		Seed with native grass and appply rice mulch to a depth of 2"	1	
F	Unsecured cultivation-related waste	A 10		Collect and dispose of cultivation-related wastes	1	

Treatment Priority: The time frame for treatment of the site. (1) would indicate a very high priority with treatment being planned to occur immediately. (2) would indicate a high priority site with treatment to occur prior to the start of the winter period (Nov. 15). (3) would indicate a moderate priority with treatment being planned to occur within a year 1, or prior to the winter period (Nov. 15) of the 2nd season of operations. (4) would indicate 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).

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 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 December 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).

Inspection Personnel Contact Information:

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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.

Water Resource Protection Plan Assessment of Standard Conditions for APN 223-032-04

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.

Road assessment revealed inadequate surfacing and drainage with little to no outsloping on majority of roads (Map Point 'Degraded Road'). There is evidence of surface erosion and rutting on majority of roads (photos 1, 2, and 3). Upgrades to roads should remedy this issue. Roads are to be out sloped at 3-5% where feasible. Where outsloping is not feasible, an inside ditch shall be installed with adequate ditch relief.

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

Road assessment revealed that the majority of roads need outsloping.

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.

Road runoff does not drain onto any potentially unstable slopes or earthen fills.

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 disconnected¹, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams.

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 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)

The cleared/developed areas associated with cultivation are hydrologically disconnected. No evidence of sediment transportation to surface waters.

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.

Cultivation area #1 has disturbed and bare native soils (Photo 4 and 5). There is a Class III watercourse approximately 60 feet downhill from cultivation area. Although there is no evidence of sediment transportation to surface waters, soil is unstable and is capable of being transported downhill to the Class III watercourse. The disturbed area is to be seeded with native grass seed and covered with rice straw to a depth of 2" (Map Point A).

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

No stockpiled construction materials are stored in a location where they could be transported to receiving waters.

2. Stream Crossing Maintenance

- Culverts and stream crossings shall be sized to pass the expected 100-year peak streamflow.
- 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 feasible².
- 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 feasible³.

There are five total stream crossings, three on the shared road used by multiple other landowners, and two within the developed area used only by the landowner. Culvert #1 and #2 (Map Points B and C), installed by the landowner (Photo 6, 7, 8 & 9), drain a class III watercourse. Both culverts are undersized and are to be upgraded to 18" culverts to pass the expected 100-year peak streamflow. Upon installation, culverts are

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

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.

to be aligned with the stream grade and natural stream channel at the inlet and outlet. Culverts shall be periodically inspected for blockage and debris buildup. Inlets and outlets are to be cleared of any materials impeding natural flow of water.

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 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.
- 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.

The cultivation areas and associated facilities are located greater than 50 feet from a Class III watercourse and greater than 100 feet from a Class I or Class II watercourse. Cultivation area #1 does not have sufficient buffers with native vegetation. There are bare and disturbed soils around the cultivation area. Area is to be seeded with native grass seed and rice mulch applied to a depth of 2" (Map Point A).

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 sidecast in any location where they can enter or be transported to surface waters.

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.

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.

A soil spoils pile (Map Point D) was found to be inadequately contained (Photo 10). Spoils pile is hydrologically disconnected. There is no evidence of sediment delivery to surface waters from spoils. The soil spoils are to be securely covered with visqueen tarp during the winter period (October 15th – May 15th).

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-12⁶ 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 rates⁷.
- 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.

A vertical well (Photo 11) provides water to 15 5,000 gallon poly storage tanks (Photo 12 and 13), one 3,000 gallon poly storage tank (Photo 14), two 2,500 gallon poly storage tanks (Photo 15), one 1,550 gallon poly storage tank (Photo 16). There are three ponds on the property. Pond 1 is fed by rainfall, sheet flow, and also supplemented by a pit well. Pond #1 has erosion on the fill slope (Photo 17). Fill slope is to be seeded with native grass seed and rice mulch applied to a depth of 2" (Map Point E). Pond 2 is filled by rainfall and sheet flow. Pond three is on the south side of the shared road. It is filled by rainfall and sheet flow. Water storage features are sited appropriately and containment failure seems improbable. There are no surface water diversions occurring on the property. Water is applied at agronomic rates, with no evidence of runoff from cultivation areas. Currently there are no other water conservation measures implemented. such as drip irrigation and applying straw to the top soil. It is recommended that straw mulch is

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

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.

applied to the top of the soil on each plant to minimize evaporation and conserve water, or install a drip irrigation system.

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 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.

Water is applied at an agronomic rate, and does not produce runoff. An inspection of the cultivation areas revealed no sign of runoff from overwatering. It is recommended that straw mulch is applied to the top of the soil on each plant to minimize evaporation and conserve water, or install a drip irrigation system.

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.

Fertilizers and amendments are stored in an appropriate chemical storage (Photo 18). Fertilizers are applied and used per packaging instructions.

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.

There are no pesticides or herbicides stored or administered on the property.

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.

There are multiple diesel storage tanks on the property. There is a building with a rocked floor containing four 1,000 gallon metal storage tanks, all with secondary containment (Photo 19). There is a 1,000 gallon metal diesel storage tank with secondary containment (Photo 20). Secondary containment is required for all petroleum tanks.

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 groundwaters.

Minimal amounts of cultivation related wastes were found throughout the property, mostly within the developed cultivation areas. One area on the

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

property (Map Point F) had empty soil bags blown down the hill and within 50 feet of a Class III watercourse. All cultivation related waste is to be collected and disposed of at an appropriate waste facility.

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.

Garbage and refuse is adequately contained and stored in a designated garbage storage (Photo 21) which is completely fenced in and latched to prevent its discharge.

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

Remediation measures are listed in the remediation table on page 4, and throughout the Water Resource Protection Plan.

Appendices

Photos Maps Culvert Sizing

Photos:

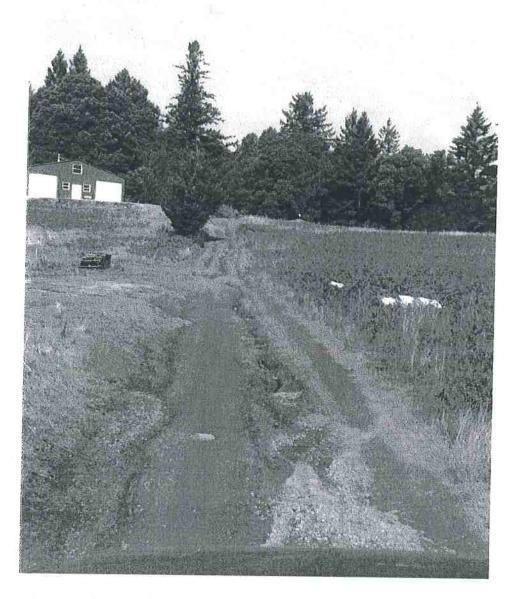


Photo 1: Evidence of surface erosion and rutting on road. Photo date 11-11-16

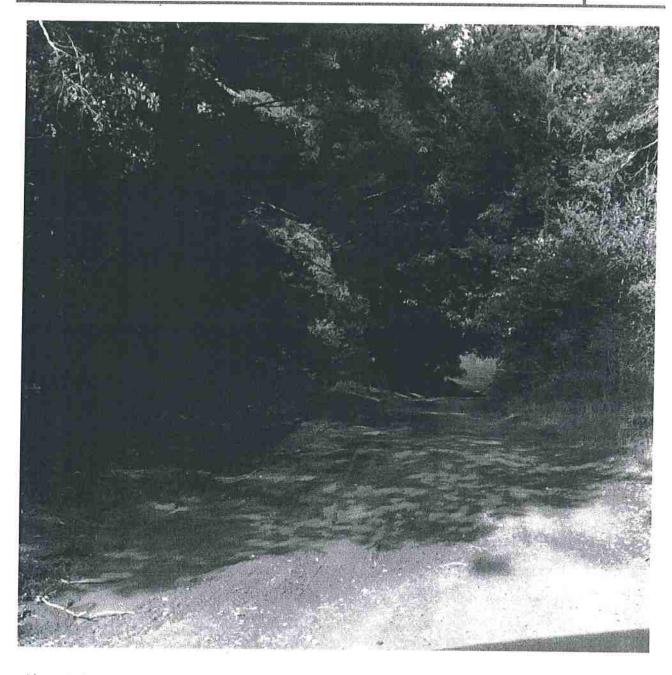


Photo 2: Inadequate water drainage features on road. Photo date 11-11-16

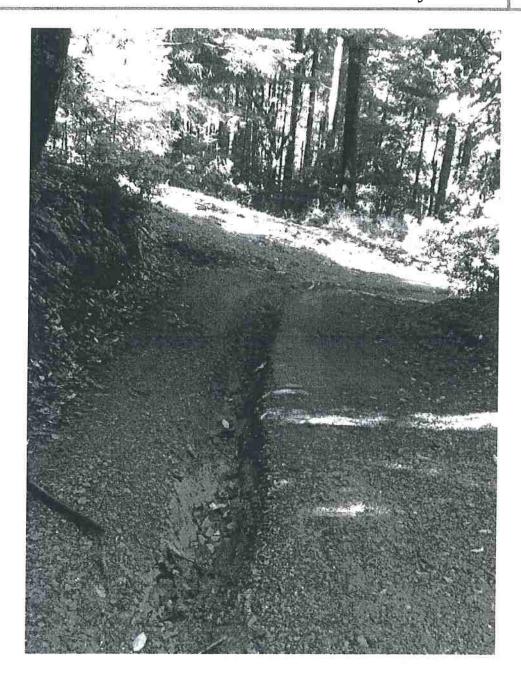


Photo 3: Degraded road with significant rutting. Photo date 1-24-17

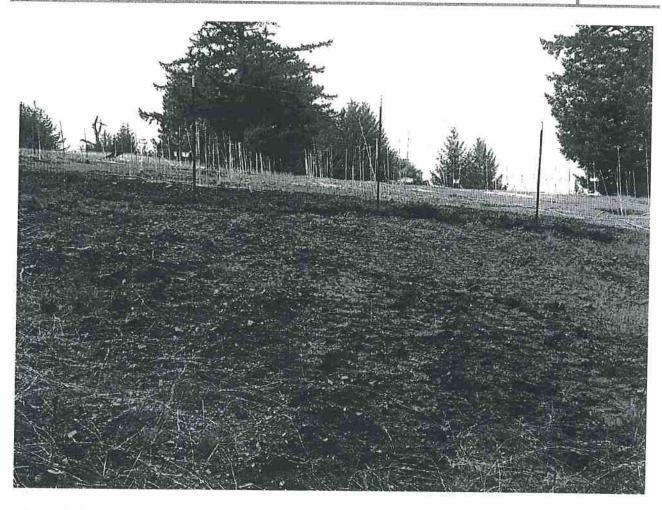


Photo 4: Cultivation area #1 with bare soils requiring seed and mulch. Photo date 11-11-16



Photo 5: Disturbed native soils at cultivation area #1 requiring seed and mulch. Photo date 11-11-16

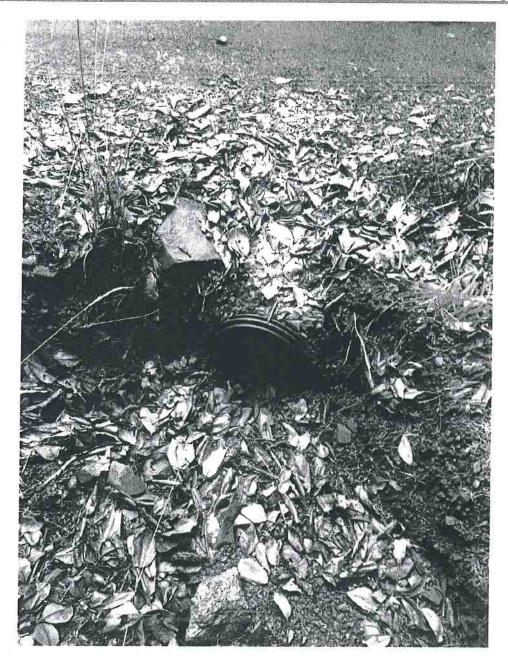


Photo 6: Crossing #1 inlet. Photo date 11-11-16

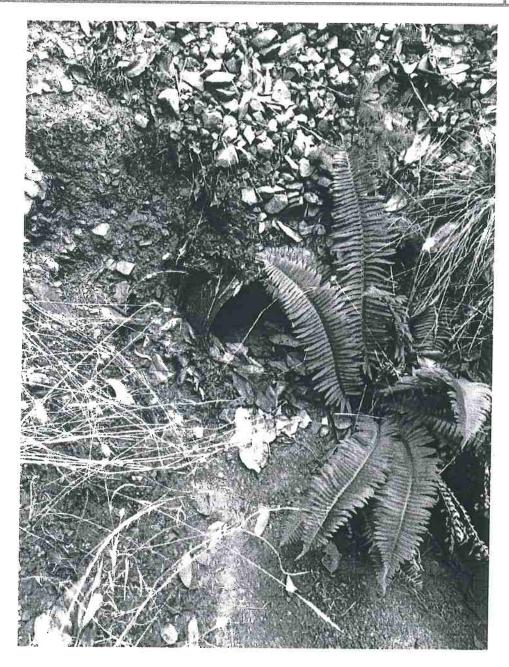


Photo 7: Crossing #1 outlet. Photo date 11-11-16

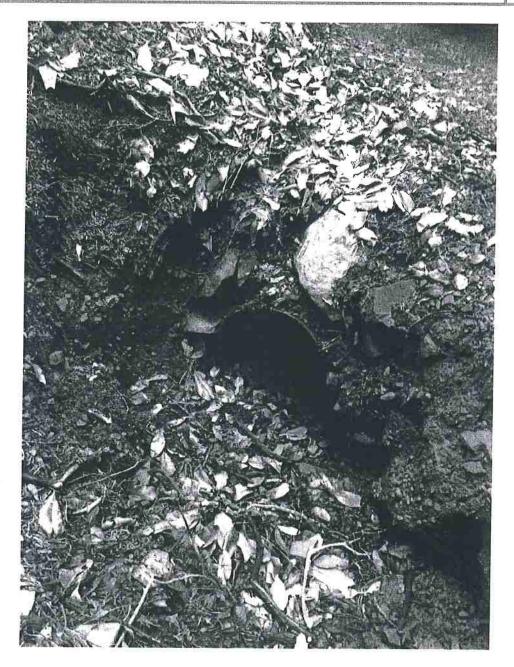


Photo 8: Crossing #2 inlet. Photo date 11-11-16



Photo 9: Crossing #2 outlet. Photo date 11-11-16

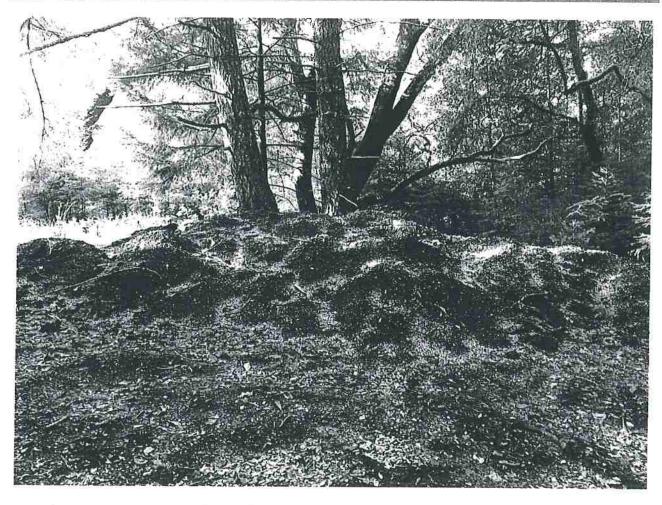


Photo 10: Inadequately contained soil spoils pile. Photo date 11-11-16

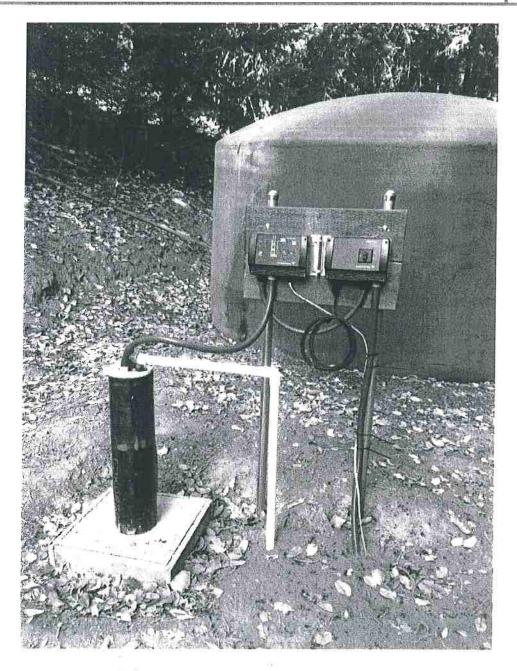


Photo 11: Vertical well. Photo date 8-29-16

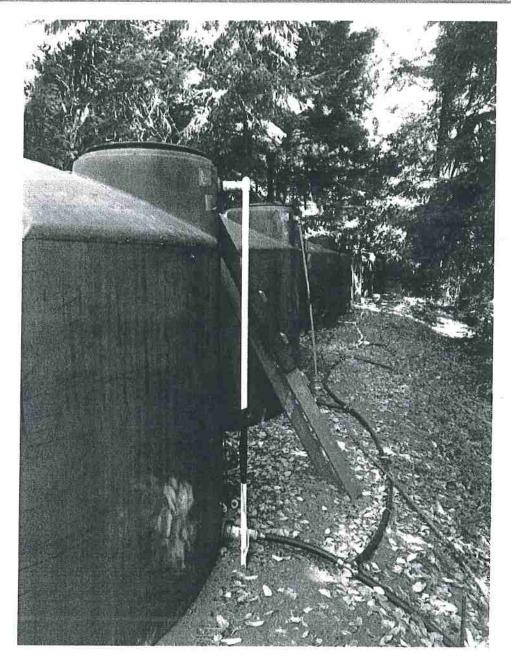


Photo 12: Ten 5,000 gallons poly storage tanks. Photo date 8-29-16

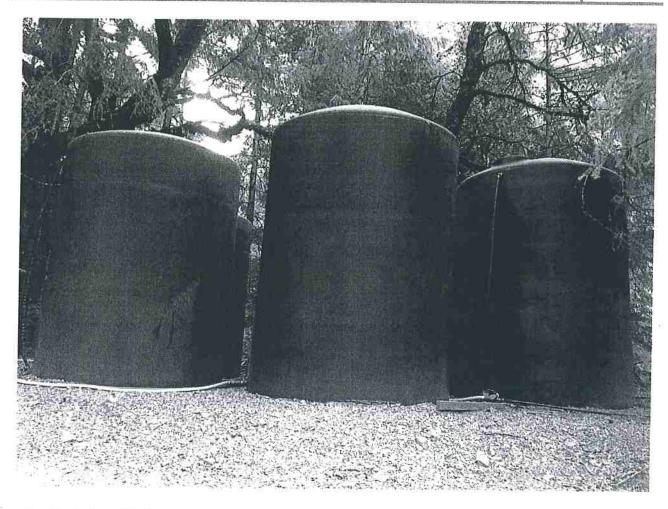


Photo 13: Five 5,000 gallon poly water tanks, one obstructed from this view. Photo date 8-29-16

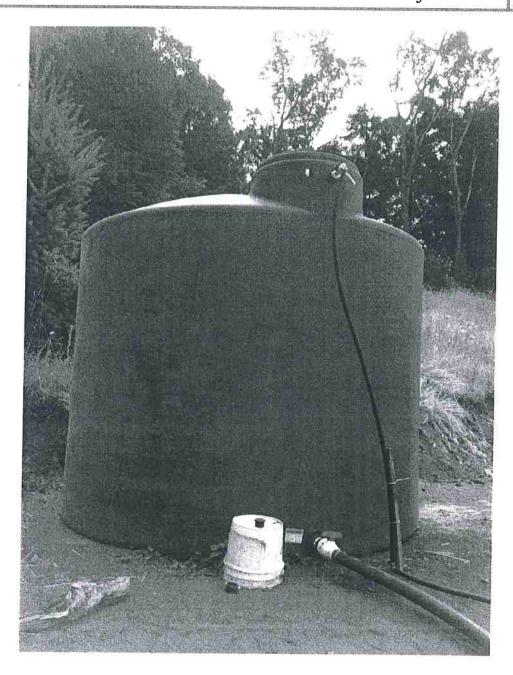


Photo 14: One 3,000 gallon poly water tank. Photo date 8-29-16

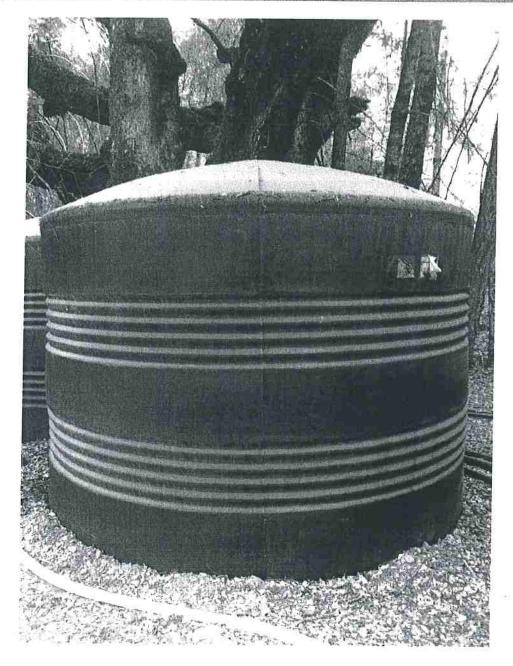


Photo 15: Two 2,500 gallon poly water tanks. Photo date 8-29-16

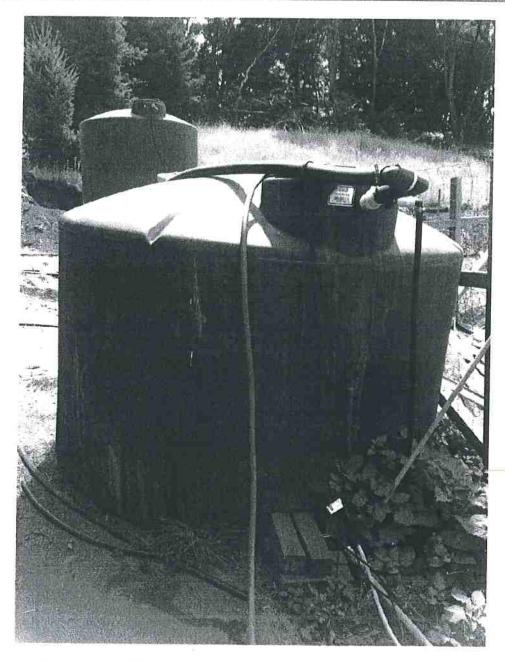


Photo 16: One 1,550 gallon poly storage tank. Photo date 8-29-16

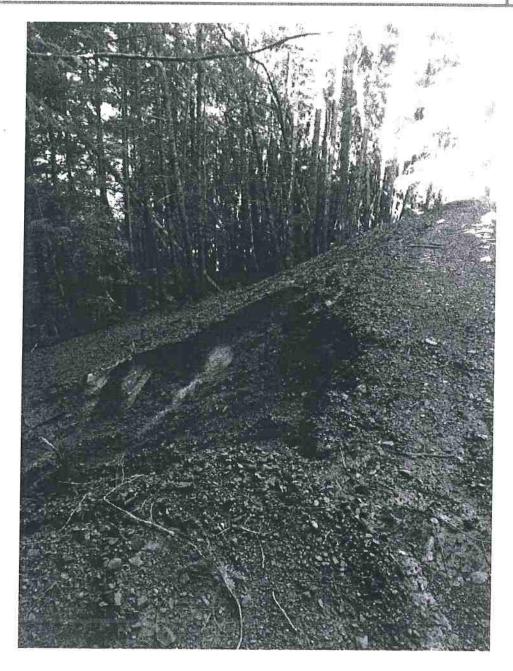


Photo 17: Erosion on fill slope of pond #1. Photo date 1-24-17

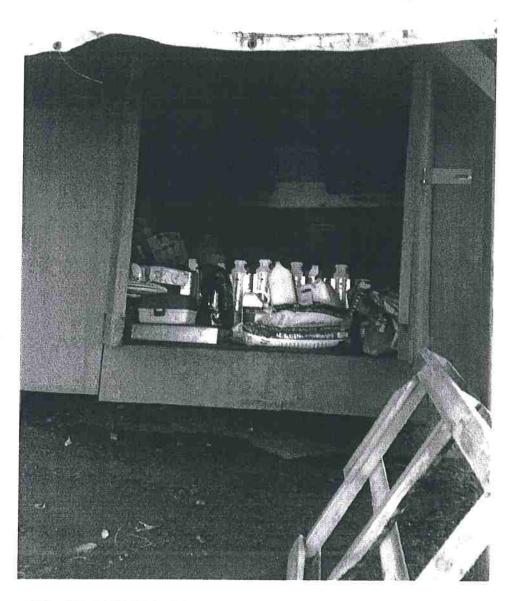


Photo 18: Chemical storage. Photo date 1-24-17

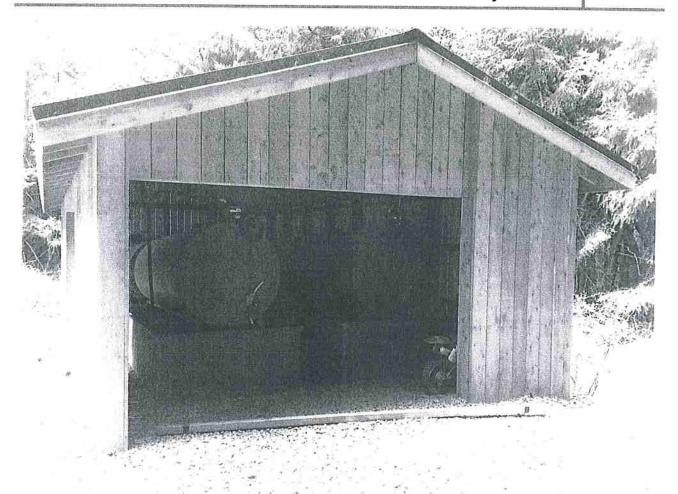


Photo 19: Petroleum storage. Photo date 8-29-16

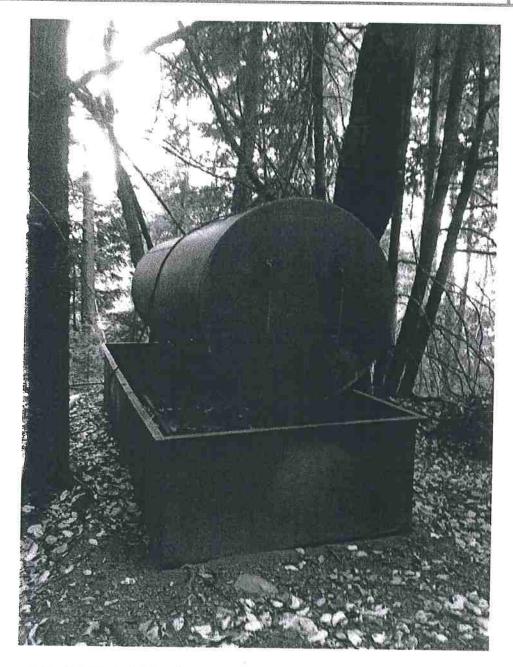


Photo 20: Diesel storage tank with secondary containment. Photo date 8-29-16

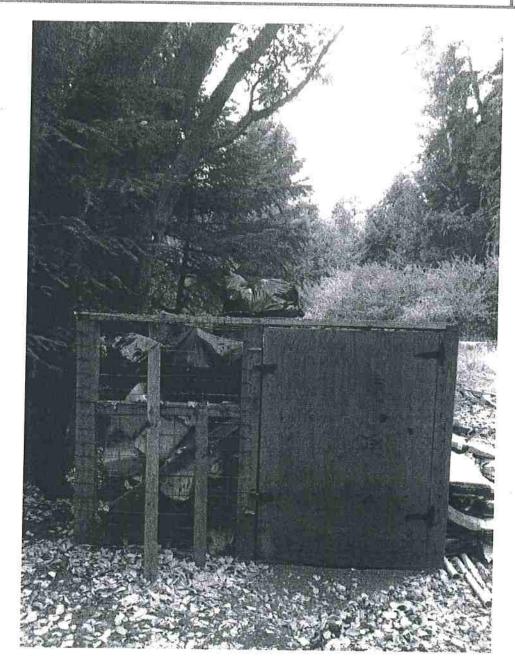


Photo 21: Garbage storage. Photo date 8-29-16

