# Attachment C

# Field Inspection Report

| Name and Location of Facility Inspected | Inspection Date | Inspection Time |
|---|---|---|
| Telles Property<br>Trinity County APN 015-170-07<br>Douglas City, CA | April 9-10, 2015 | 13:30 |

| Names & Titles of On-Site Representatives | Contact Information | Notified of Inspection? No<br>Consent Provided? Administrative Warrant |
|---|---|---|
| Matthew Telles | **Address:** P.O. Box 4795<br>Arcata, CA 95518<br>**Phone:** 707-834-8311<br>**Email:** matttelles@hotmail.com | |
| Jace Richter | **Address:** PO Box 364<br>Bayside, CA 95524<br>**Phone:** 707-502-8049 | |
| Rama Zarcufsky (Not present at the time of inspection) | **Address:** PO Box 439<br>Arcata, CA 95518-0439<br>**Phone:** (707) 668-4220 | |
| Ralph Carmona, tenant | | |

**Inspector Name & Title**[1]

Erin Mustain, Senior Water Resource Control Engineer, State Water Board's Office of Enforcement

Kason Grady, Water Resource Control Engineer, North Coast Regional Water Board

Derek Magnuson, Engineering Geologist, North Coast Regional Water Board

**Attending Agency Representatives**

Michael Vella, Environmental Scientist, State Water Board's Division of Water Rights (DIV)

Scott Bauer, Senior Environmental Scientist, California Department of Fish and Wildlife (CDFW)

Peter Hedtke, Trinity County Building Department

Law enforcement personnel, CDFW Wardens (Little, Cardoza, Lynch) and Trinity County Sheriff's Office

**California Integrated Water Quality System (CIWQS) Inspection**
20339088

| Weather Conditions at the Time of the Inspection: | Facility Receiving Water Names: |
|---|---|
| Sunny and clear. | Unnamed tributaries to Indian Creek |

**Prepared By:** Erin Mustain on April 29, 2015

11/16/15

**Reviewed By:** Derek Magnuson on June 5, 2015
Diana Henrioulle de Gonzalez on November 14, 2015

**Foot Notes:**

1. All photographs were taken by Erin Mustain, except where labeled otherwise.

## I. Background

The property identified as Trinity County Assessor's Parcel No. 015-170-07 is located in the Indian Creek watershed. Indian Creek is tributary to the Middle Fork Trinity River and located in the Douglas City Hydrologic Subarea of the Upper Middle Trinity Hydrologic Area near Douglas City, California. The Middle Fork Trinity River is listed as impaired due to sediment pursuant to Clean Water Act section 303(d). On December 20, 2001, the United States Environmental Protection Agency approved a Total Maximum Daily Load (TMDL) for sediment that indicates "Cold Water Fishery" as a beneficial use currently impaired in the watershed. The TMDL also indicates that populations of several anadromous salmonid species present in the Trinity River and its tributaries are in severe decline. The population of coho salmon (Oncorhynchus kisutch) is listed as threatened under the federal Endangered Species Act. Habitat degradation, exacerbated by human activities, has contributed to a dramatic decline in the populations of coho, chinook, and steelhead from historical levels.

As part of the statewide pilot cannabis regulation and enforcement initiative, the Water Boards and the California Department of Fish and Wildlife (CDFW) are identifying sub-watersheds with critical resources that are or may be cumulatively adversely impacted as a result of cannabis cultivation. The Water Boards and CDFW will inspect private parcels with cannabis cultivation throughout target watersheds and evaluate site conditions, water use and storage features, and potential threats to water quality. The Water Boards and CDFW identified Indian Creek watershed as a high priority for watershed-wide inspections because of its valuable spawning habitat for juvenile salmonid. CDFW and Water Board staff reviewed satellite and aerial photographic imagery for parcels throughout the watershed and identified features of concern, which may be impacting water resources or violating Water Rights requirements, including greenhouses, outdoor cultivation areas, water diversions, and water storage features.

On April 8, 2015, Water Board staff obtained an inspection warrant from Trinity County Superior Court to inspect four specific properties in the Indian Creek watershed wherein staff believed there may be conditions of and/or threatened conditions of pollution or nuisance resulting from discharges of waste to waters of the State and of the United States resulting from the cultivation of marijuana and associated activities. On April 9 and 10, 2015, staff from the North Coast Regional Water Board, State Water Resource Control Board's Office of Enforcement and Division of Water Rights, CDFW, and the Trinity County Sheriff Office visited and inspected parcels within the watershed, including the four parcels identified in the inspection warrant. Additionally, Trinity County Building Department staff visited and inspected the Telles Property.

Inspection objectives for the water quality team members (Regional Water Board and Office of Enforcement staff) were to identify and inspect receiving waters and to review site characteristics, developed site features, cannabis cultivation sites and associated facilities, materials, equipment, structures, drainage features, and management practices in order to assess impacts or potential impacts to water quality and beneficial uses. In addition, water quality team members considered the relative potential for sites to be regulated through a general conditional waiver of waste discharge requirements order (Conditional Waiver). As the regulatory Conditional Waiver is draft at this time and subject to further change prior to Board consideration, this latter screening effort was conducted at a fairly coarse level.

## II. Site information

The subject parcel is located in Douglas City, CA approximately 0.5 miles north of Indian Creek Road and approximately 500 feet west of Mule Gulch Road. According to State Water Board data files in our Water Rights database, there are three unnamed tributaries on the parcel that drain into Mule Gulch, a tributary to Indian Creek and four unnamed tributaries that drain to an

unnamed tributary to Indian Creek. Indian Creek is a blue sinuous line running east-west and denoted as "Creek" in Figure 1. There is a system of private, unpaved roads that run through the parcel and which are visible from satellite imagery (see Figures 2 and 3). The parcel is 65 acres. Aerial imagery shows a significant amount of cleared area and bare soil due to grading work. Site terrain slopes from the north and central ridge to the southwest and southeast and the elevations range from 2700 feet above sea level in the southeastern corner of the parcel to 3600 feet above sea level in the north central (Figure 1[1]).

[1] Note that the values in Figure 1 are in meters and 1100 meters corresponds to 3609 ft.

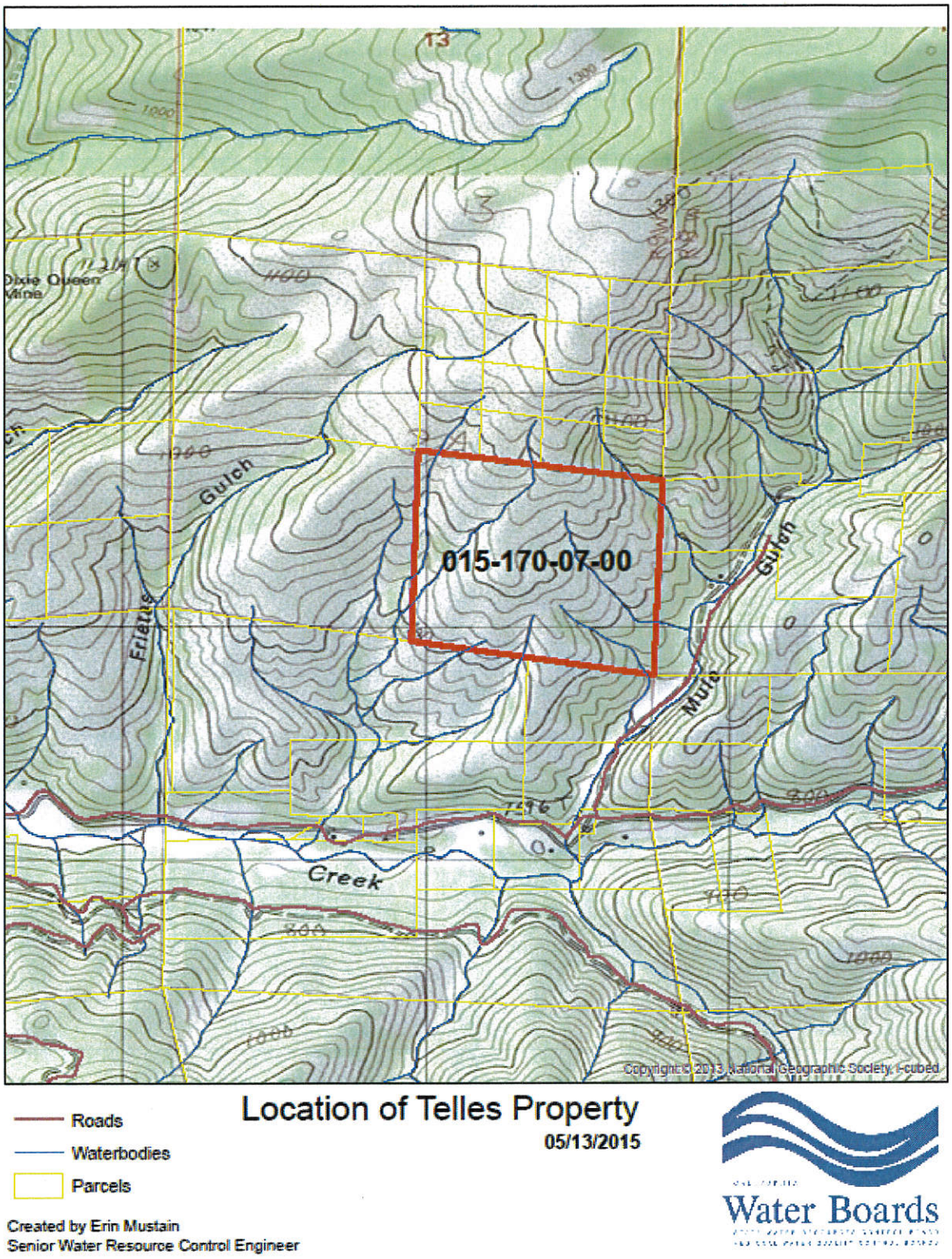
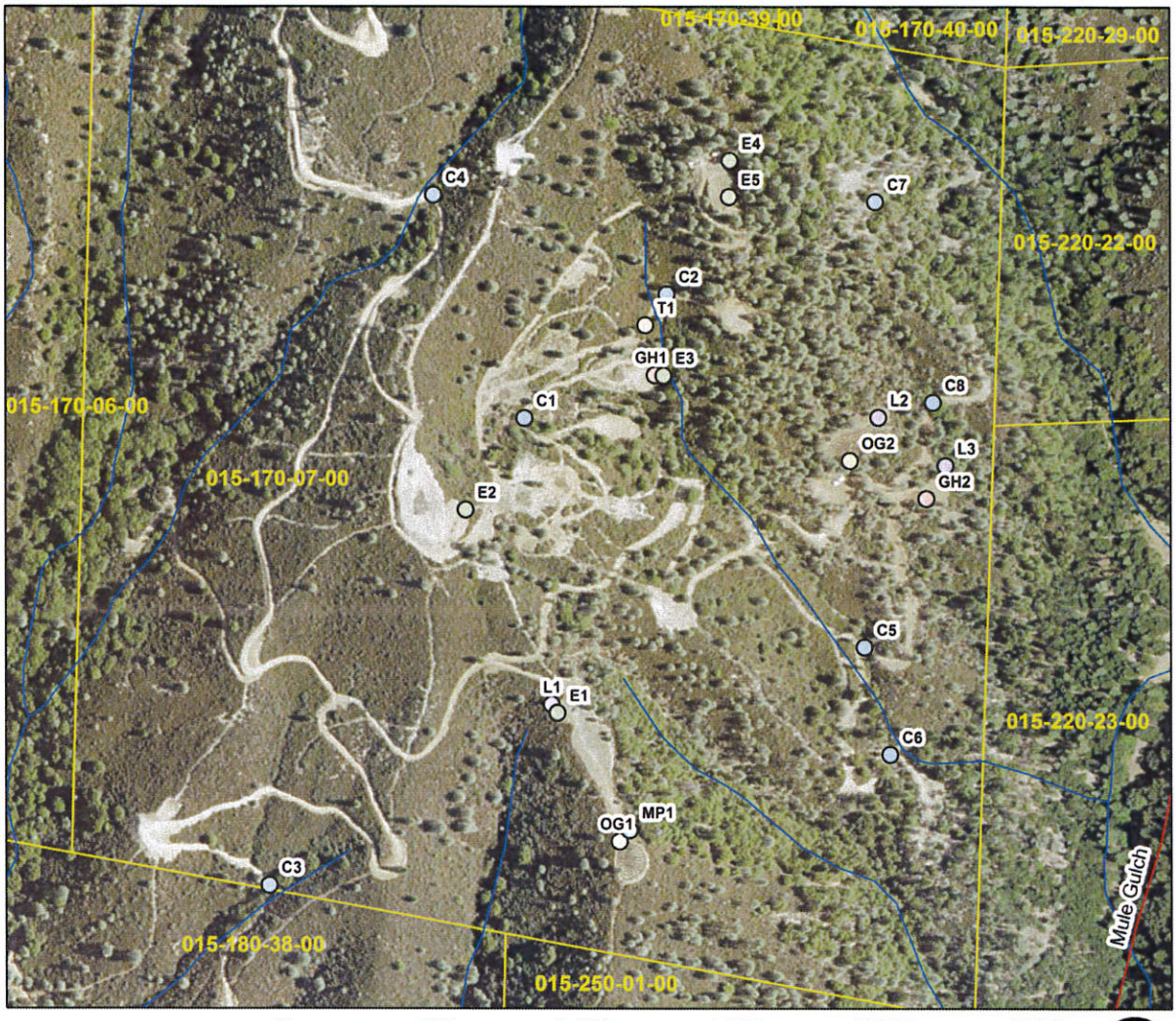



**Figure 1** - Location of APN 015-170-07)

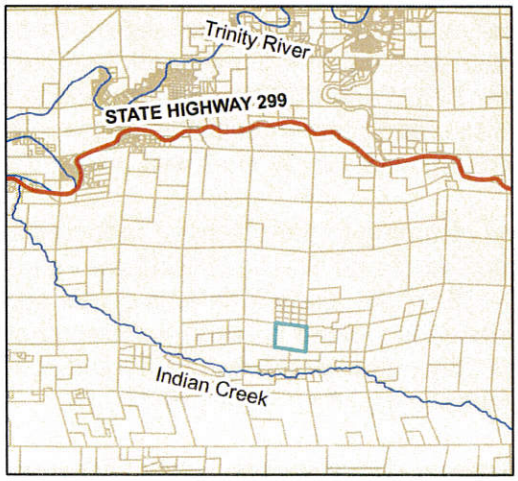



Map of Telles Property APN: 015-170-07

- Crossing
- Erosion
- Greenhouse
- Latrine
- Mulch Pile
- Outdoor Grow
- Water Tank
- Roads
- Waterbodies
- Parcels

California Water Boards
State Water Resources Control Board
Regional Water Quality Control Boards

Note: Data points are from GPS units taken by staff form the State Water Resources Control Board's Office of Enforcement, North Coast Region Water Quality Control Board and the California Department of Fish and Wildlife.




Created by Erin Mustain on 8/10/2015 and updated 11/9/2015.
Senior Water Resource Control Engineer

**Figure 2** – Site Diagram

**Figure 3** – Site Photo (Aerial Photo provided by CDFW prior to the inspection)

## III. Land Ownership and Site Residents

During the inspection on April 9, 2015, Warden Paul Cardoza and I interviewed Mr. Jace Richter who claimed that we were on his parcel and who did not consent to an inspection. However, CDFW wardens reviewed topographic maps and concluded that Mr. Richter's residence, outdoor cultivation area, and greenhouses are located on APN 015-170-07. He provided documentation that he had purchased land from Barnett "Barney" Brenner and Rincon Land Holding, Inc. under an owner-will-carry contract. On April 9, 2015, Lieutenant DeWayne Little interviewed a tenant on the property named Ralph Carmona. Mr. Carmona indicated that the larger parcel had been re-delineated among Mr. Telles, Mr. Richter, and Mr. Rama Zarcufsky. He also stated that the road work had been done by Clay Tucker. On April 10, 2015, I and other Water Board and CDFW staff returned to the large earthen pad where Mr. Matthew Telles has his trailer and outdoor cultivation area. Lieutenant Little and I interviewed Mr. Telles and he confirmed what Mr. Richter said the previous day.

Upon returning to the office, I conducted a records search and found that according to ParcelQuest and Westlaw, Matthew Telles owns the parcel for which we had a warrant, APN 015-170-07. Mr. Jace Richter is owner of APN 015-170-40, which is northeast though his residence is located on what the map shows as part of APN 015-170-07 (Figure 2). Rama Zarcufsky owns APN 015-170-39 and his greenhouse and equipment is located on what is currently mapped as APN 015-170-07.

However, I contacted the Trinity County Assessor's Office and asked if the parcel boundaries had been redrawn. Staff in the office confirmed that they had been redrawn, but that the databases, including ParcelQuest had not been updated at the time of inspection.

I also obtained additional information from Warden Brendan Lynch who contacted Barnett Brenner of Rincon Land Holding LLC on the phone. Mr. Brenner stated that he once owned three adjacent parcels between Frietas Gulch and Mule Gulch in the Indian Creek watershed.

The three parcels were identified by Trinity County Assessor's Parcel Number 015-170-07, 015-170-39, and 015-170-40 and were 160 acres, 10 acres and 10 acres, respectively. In 2013, Brenner changed the three parcel boundaries via a lot line adjustment, which changed the sizes to 60 acres, 70 acres and 50 acres, respectively. According to the Trinity County Assessor's Office, whenever a lot line adjustment is made, the new parcel boundaries are not updated on any of the county parcel maps to reflect the new boundaries. Rincon Land Holding LLC then sold the three parcels to Matthew Telles (December 2013), Rama Zarkufsky (December 2013), and Jace Richter (April 2014), respectively.

**Inspection Observations**

At approximately 13:50, Water Board staff began the inspecting the site to identify any impacts to water quality. This report will focus on water quality issues that Derek Magnuson, Kason Grady, and I observed and documented.

Staff began by walking along the road (Photo 1) between the latrine (L1) and the outdoor cultivation area (OG1) and taking measurements of slope and fill length along the top of the large graded pad's fill slope (Photo 2). The slope around the graded path was steep, consistently measuring between 30 and 40 degrees (Attachment 4). The soil was bare throughout the pad and loose along the fill slopes. On the west side of the pad, we observed rills of varying size and erosion (Photo 3 and 39). Also, on the west side of the pad, there was an area that had erosion, likely due to runoff flow down the slope as it was not near the grow pad. At one location on the west side of the pad was a gully with a width ranging from 2 feet to 4 feet and its depth ranging from 1 feet to 1.5 feet (Photo 4).

Just north of OG1, staff noted a large, exposed pile of potting soil or mulch (hereafter, mulch pile or MP1) (Photo 5). My colleagues, Kason Grady and Derek Magnuson took measurements of the pile. We took a conservative estimate, measuring the mass as a rectangular prism, and found the average length, width, and depth to be 40', 10', and 2' respectively. This equates to a volume of 30 $yd^3$ or 12 pickup trucks full. A full-size standard pickup truck holds only 2.5 $yd^3$ when filled to the top of its bed[2].

In addition to the mulch pile, I observed a small amount of miscellaneous garbage, including an empty fertilizer container near the grow area. Near the trailer, I observed more fertilizer and fuel containers (Photos 6 and 7). My colleagues, found fertilizer containers near the water tank (Photo 8).

We observed a latrine (L1) with exposed chemicals on the northwest corner of the graded pad, near its edge (Photo 9).

After making these observations, we got in our vehicles to drive to the other graded clearing. As we were still on APN 015-170-07, we noted the condition of the road, which generally featured loose sidecast soil and slash, as well as occasional spoils piles along on its downhill edge (Photo 10), nearly sheer cut slopes with no erosion control (Photos 10 and 11) and rilling and rutting throughout (Photo 12).

The other large, graded pad did not appear to be actively used (Photos 13 and 14). There were no plants or equipment for planting. On the eastern side of the pad, we observed erosion (E2) (Photos 15 and 16).

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[2] Source: Soil Building Systems, *Pickup Truck Capacities:* http://www.soilbuildingsystems.com/tools/pickuptruckcapacities.

On the part of the property, which I now understand is part of APN 015-170-40, where Jace Richter has his residence, his greenhouse (GH2) and his outdoor cultivation area (OG2), it is more heavily vegetated. The clearings are much smaller. However, there is still a lot of loose, bare soil (Photos 17 and 18). The roads are poor with unstabilized, steep side slopes and there were spoils placed on the edge of the road (Photos 19 through 21). I did not observe any crossings or watercourses cutting through the road. However, my colleague Scott Bauer of the CDFW took measurements and geographical locations of several crossings onsite and these are included in Figure 2.

On the property there is an existing latrine (L2) near OG2 (Photo 22) and there was a hole for what Mr. Richter said would be a latrine (L3) near the greenhouse (GH2) (Photo 23). There was also a small pile of soil amendment near the greenhouse (Photo 24). I observed bags of fertilizer on the ground near the outdoor cultivation area (Photo 25). However, they didn't appear to be open. I also observed erosion on the northern slope where the ground was cut to create the clearing for the outdoor cultivation area (Photo 26). The erosion is indicative of an unstable slope configuration. The side slopes of the clearing were cut so steep that large pieces of soil are starting to break off.

While I was inspecting Mr. Richter's portion of the property, my colleague Derek Magnuson and Kason Grady were inspecting Mr. Rama Zarcufsky's portion. My colleagues noted a watercourse channel without a proper crossing (C1) (Photo 27). From the photo and other photos we obtained, we can come up with an estimate of less than 1 cubic yard of fill placed in the channel. Around the greenhouse (GH1), they observed bare soil that had rills and forming (Photo 28). The eastern edge of the greenhouse was located approximately 20 feet upgradient from a watercourse. There was garbage, open fertilizer bags, and a white substance on the soil and in the rills and gullies draining toward the channel (Photo 29). The white substance may be vermiculite. There was uncontained potting soil strewn about the area (Photo 30). Staff also observed an actual discharge (Photos 31 and 32). Photo 31 was taken from the creek bed and shows the side slope with fill covering the vegetation (E3) and extending toward the creek bed. Photo 32 shows loose, dark-colored sediment which represents the downgradient continuation of the fill shown in Photo 31; indicative of sediment transport into the stream from the upgradient cleared area. Staff observed more sidecast soil, slash, and evidence of erosion near the water tank (T1) and more containers of fertilizer (Photo 33). The tank is upgradient, approximately 50 feet from the watercourse.

Along the road on the way to a clearing on Mr. Zarcufsky's portion of the property, staff noted another channel without a proper crossing (C2) (Photos 34). They measured the dimensions of the fill over the watercourse and estimated its volume to be between 6 and 7 cubic yards. Staff noted rills forming in the road continuing east from the crossing (Photo 35). Northeast of crossing C2 is another cleared area with an upper and lower pad; with what once was an outdoor cultivation area on the lower pad and a residence (trailer) on the upper pad. They observed evidence of slumping at E4 (Photo 36) and tension cracks along the edges of the upper and lower fill slopes at E5 (Photo 37). On the upper pad, there was some chemical spilled on the bare soil (Photo 38).

On the way back to the Telles portion of the property, Mr. Grady and Mr. Magnuson observed the grow pad on the Telles portion from a distance and its evidence of erosion along its fill side slopes (Photo 39).

On April 10th, we documented more features of concern on the access road within the western side of the property (Photo 40 through 41). We also noted another channel without a proper crossing along the southern boundary of the property (C3) (Photos 43). The crossing featured an undersized culvert consisting of an approximately 36-foot long, 8-inch diameter corrugated

plastic pipe. We observed recent sediment deposition on the upstream side of the culvert and rilling on the fill slope on the downstream side of the crossing, which are indicative of improper crossing function. They measured the dimensions of the fill over the watercourse and conservatively estimated its volume to be 4 cubic yards.

## IV. Photos

Photo 1

Photo 2 (Magnuson)

Photo 3 (Magnuson)

Photo 4 (Magnuson)

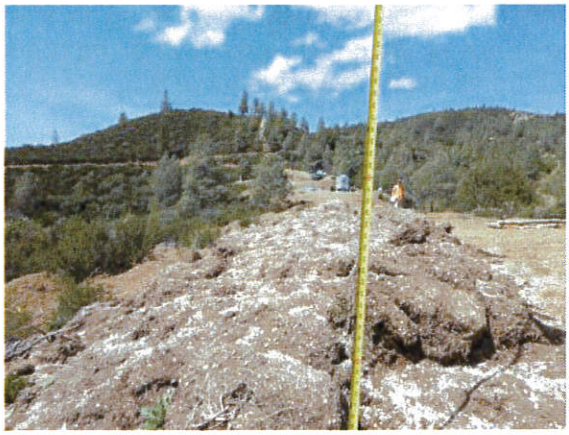

Photo 5 (Grady)


Photo 6

Photo 7

Photo 8 (Grady)

Photo 9 (Grady)

Photo 10 (Magnuson)


Photo 11 (Magnuson)


Photo 12 (Magnuson)


Photo 13 (Magnuson)


Photo 14 (Magnuson)


Photo 15 (Magnuson)


Photo 16 (Magnuson)

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24


Photo 25

Photo 26

Photo 27 (Grady)

Photo 28 (Grady)

Photo 29 (Grady)

Photo 30 (Grady)

Photo 31-Taken from the creek (Grady)

Photo 32 (Grady)

Photo 33 (Grady)

Photo 34 (Grady)

Photo 35 (Grady)

Photo 36 (Magnuson)

Photo 37 (Magnuson)

Photo 38 (Grady)

Photo 39 (Magnuson)

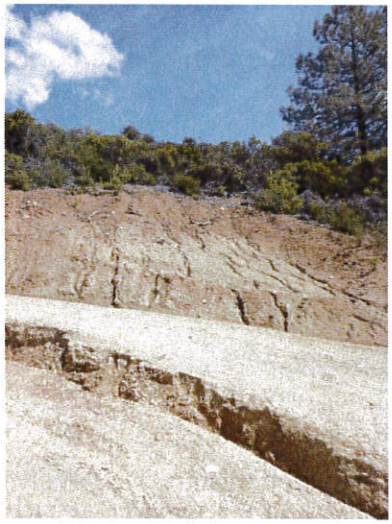

Photo 40 (Magnuson)

Photo 40 (Magnuson)

Photo 41 (Magnuson)

Photo 42 (Magnuson)

## V. Discussion of site conditions and threats to water quality

1. General Site Characteristics

   A major concern throughout the site is the road system. There is no surfacing; the soil is loose and there is evidence of rutting throughout. Roads are not hydrologically disconnected and in places do not have properly constructed crossings. The cut slopes are generally unstable and bare.

2. Specific Features

   a. Roads

   The Road system is extensive and because of the amount of road surface, the rate of runoff has increased significantly. There is much less vegetation (to intercept the rainwater and encourage infiltration) and natural undulations (to slow flow down). The lack of crossings in places threatens to and already has resulted in transported sediment. There is evidence of rutting, gullying, and erosion throughout the site. Cut slopes are often nearly sheer and have not been stabilized. Much better roads than these (paved and out-sloped) have failed on much less steep roads (<20% gradient). Additionally, the lack of drainage on the road will exacerbate the transport of sediment to nearby tributaries. Spoils from road construction have been placed on the edge of the roads in places. I'm comfortable concluding that in a major, extended rain event, sediment transport is inevitable and there is a strong potential for mass wasting.

b. Developed areas

As noted above, the developed area around the Telles grow area had some bare soil with small rills and gullies present on the perimeter slopes. The developed area around the Richter grow area had more significant gullying and erosion. The Zarcufsky site showed erosion, sediment transport, and actual discharge to the channel.

c. Stream Crossings

Where crossings were needed, the road was bulldozed through the channels.

d. Spoils

Waste potting soil was placed in locations where it may be transported downslope during storm events. In several locations, road spoils was placed on the edge of the road where it likely will be transported downslope in a storm event.

e. Irrigation Runoff

Staff did not observe irrigation.

f. Fertilizers/Pesticides/Petroleum/Other Chemicals

Staff observed fertilizer containers and bags at several locations throughout the site. Staff observed a few gas cans and motor oil containers in three locations. Staff did not observe any pesticide containers. An unknown, white substance was spilled on the ground at the Zarcufsky outdoor cultivation area.

g. Refuse/Garbage

Staff observed small amounts garbage on the ground at several locations through the site.

h. Human Waste

Staff observed latrines at the Telles, Richter, and Zarcufsky areas.

## VI. Summary of violations & recommendations.

1. Violations

a. Greater than 1 acre of disturbed soil without filing a notice of intent for coverage under the Construction General Stormwater Permit.

b. Violation of the Clean Water Act associated with the placement of fill material in a stream without obtaining 404 and 401 permits.

c. Actual discharge of sediment into waters of the state.

d. Threatened discharge of sediment to surface waters at crossings without culverts, from eroded areas, from inadequately stabilized spoils, and from exposed soil throughout the parcel.

e. Potential discharge of fertilizer and soil amendments from poor housekeeping practices.

2. Recommendations

Recommendation 1: Hydrologically disconnect and improve the surface and drainage of roads throughout the parcel by consulting a California licensed professional to redesign and resurface roads and install crossings. Roads should be redesigned to prevent high runoff velocities, erosion, and sediment transport to receiving waters. The roads should be continuously maintained to prevent erosion.

Recommendation 2: Vegetate or otherwise cover and protect the surface of any bare soil to prevent sediment entrainment and transport and delivery by stormwater runoff to surface waters. Stabilize slopes throughout the parcel. This can be accomplished through a variety of means: using mulch and plants; using an erosion control blanket, fiber mat, or netting; or terracing, placing riprap, grading to reduce steepness, or installing a retaining wall.

Recommendation 3: Store or dispose of fertilizers, fuels, and refuse in an enclosed area to prevent contact with rainfall or runoff, and transport/delivery to surface waters. Ensure that all spoils are properly stabilized.

Note: Work involving placement of fill in a watercourse (i.e., installing a culvert) requires a permit from the Regional Water Board, the Army Corps of Engineers and from the Department of Fish and Wildlife. Work involving an area greater than 1 acre, regardless of the distance from a watercourse, requires coverage under the Construction General Stormwater Permit.

## ENFORCEMENT DISCRETION

The observations in this report will be assessed for violations of the California Water Code. The Regional Water Board and the State Water Board reserve the rights to take any enforcement action authorized by law.

| **Name and Location of Facility Inspected** | **Facility Permit** | **Inspection Date** | **Inspection Time** |
|---|---|---|---|
| Indian Creek Watershed<br>Mansor Shokohi Property<br>Trinity County APN 015-170-04<br>about 5 miles southwest of Douglas City. | N/A | April 9, 2015 | |

| **Names & Titles of On-Site Representatives** | **Contact Information** | **Notified of Inspection?** |
|---|---|---|
| None present | | ☑ **NO** |
| **Property Owner(s)**<br>Mansor Shokohi | **Mailing Address**<br>1798 Walnut St., Berkeley, CA 94709 | **Consent[1] Provided?**<br>Administrative Warrant |

**Water Quality Inspector Name(s) & Title(s)**
Stormer Feiler, Environmental Scientist (ES), NCRWQCB
Justin Smith, Water Resource Control Engineer (WRCE), NCRWQCB

**Attending Agency Representatives**
Tobi Freeney ES Senior Specialist, Department of Fish and Wildlife (DFW)
Steve Crowl Warden DFW
Paul Cardoza, Warden DFW
Melky Calderon, WRCE, State Water Resources Control Board (SWRCB) Office of Enforcement (OE)
Samuel Cole, WRCE, SWRCB Division of Water Rights, (DIV)

**California Integrated Water Quality System (CIWQS) Inspection**
**WDID No. 1A15042CNTR**

| **Weather Conditions at the Time of the Inspection:** | **Facility Receiving Water Names:** |
|---|---|
| Sunny and clear. | Johnson Gulch, Frietas Gulch tributary to Indian Creek tributary to the Trinity River |

**Prepared By:** Stormer Feiler on June 3, 2015

**Reviewed By:** Diana Henrioulle on July 24, 2015

**Notes:**

1. On April 8, 2015, the Water Boards obtained an administrative warrant to inspect properties in the Indian Creek watershed, including APN 015-170-04, where known cannabis cultivation activities were occurring.

**Background**

The property identified as Trinity County Assessor's Parcel No. 015-170-04 is located in the Indian Creek watershed. Indian Creek is tributary to the Middle Fork Trinity River and located in the Douglas City Hydrologic Subarea of the Upper Middle Trinity Hydrologic Area near Douglas City, California. The subject parcel is located in the CAL Water Watershed (version 2.2) 1106.310402 Lower Indian Creek watershed. The Middle Fork Trinity River is listed as impaired due to sediment pursuant to Clean Water Act section 303(d). On December 20, 2001, the United States Environmental Protection Agency approved a Total Maximum Daily Load (TMDL) for sediment that indicates "Cold Water Fishery" as a beneficial use currently impaired in the watershed. The TMDL also indicates that populations of several anadromous salmonid species present in the Trinity River and its tributaries are in severe decline. The population of coho salmon (Oncorhynchus kisutch) is listed as threatened under the federal Endangered Species Act. Habitat degradation, exacerbated by human activities, has contributed to a dramatic decline in the populations of coho, chinook, and steelhead from historical levels.

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**Site information**

The subject parcel is located in the Indian Creek watershed in Trinity County. Figure 1 below shows the location of the subject parcel in the watershed. The parcel is accessed via unnamed unimproved dirt roads, which originate on Indian Creek Road. The parcel is 160 acres, roughly square.

Aerial imagery shows, and inspection observations confirm, that the parcel is forested in parts, with a dominant composition of brushy vegetation. Site terrain generally slopes from north to south, with elevations ranging from 3300 to 3600 feet above sea level. Slopes vary from moderate to steep.

**Orientation**

Development on this parcel includes roads, a residence, greenhouse, shed, well, and water storage tanks. The structures are new and well maintained.

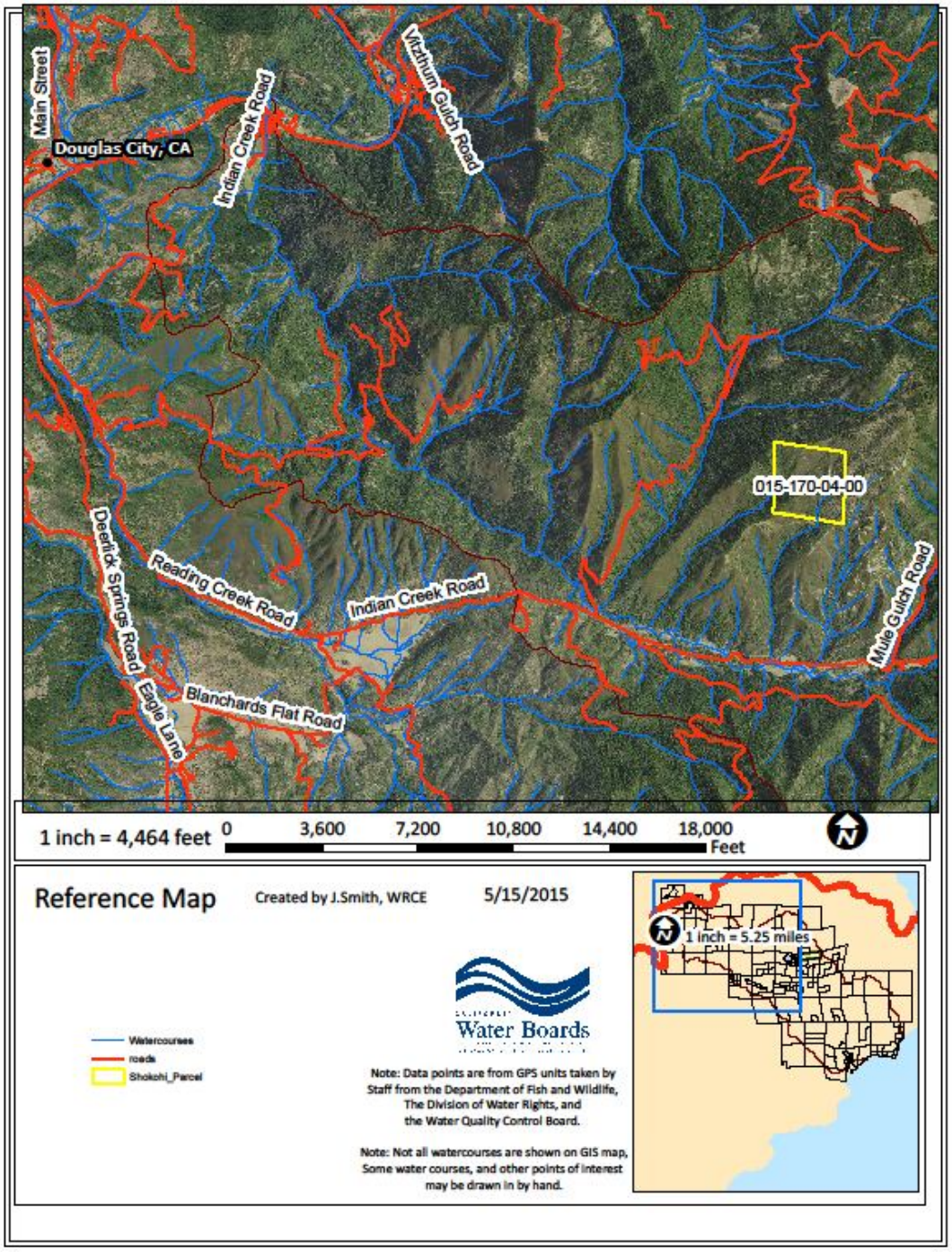


Figure 1: General Location Map

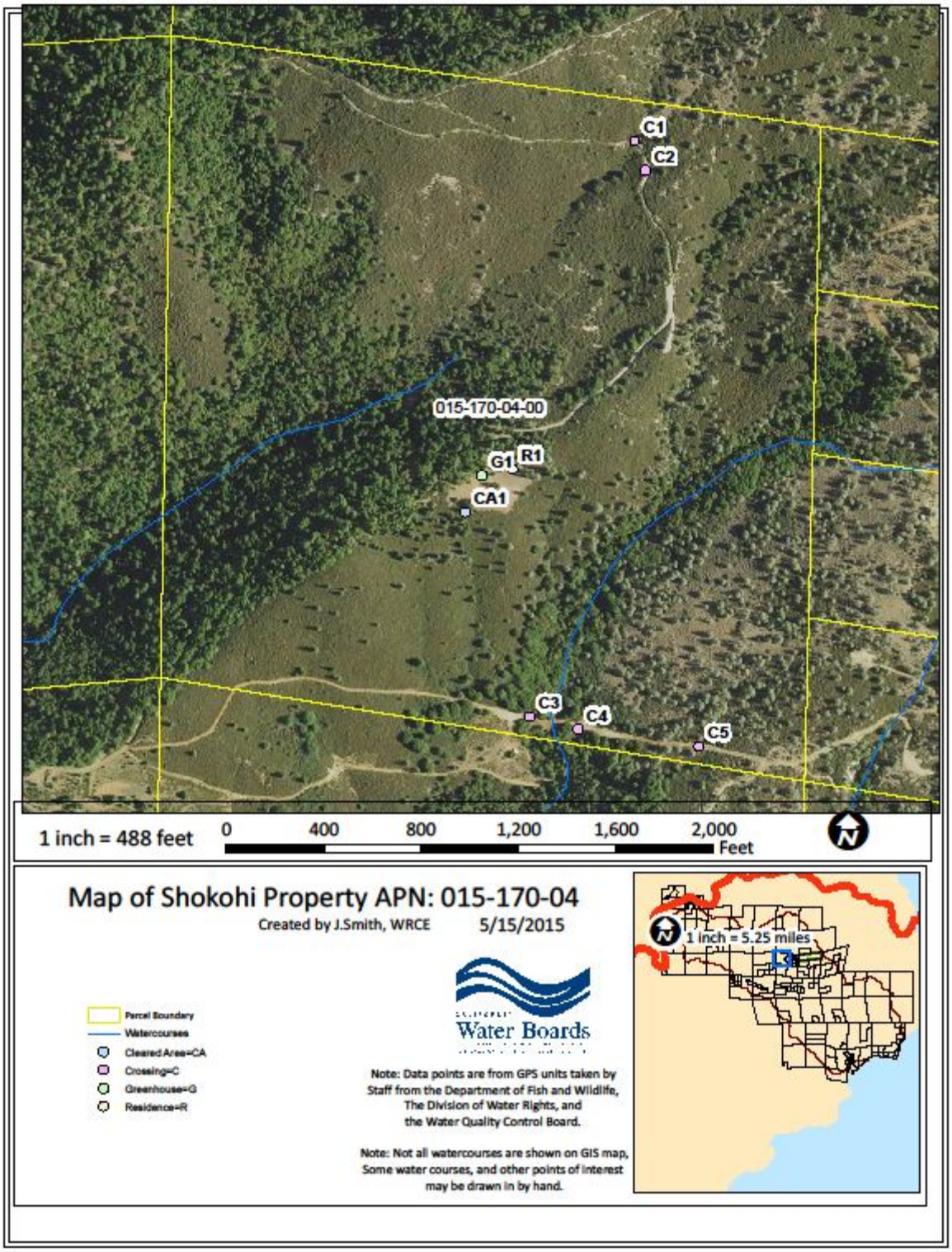


**Figure 2 –** Google Earth 2012 aerial including inspection points and parcel boundaries. This map and the points identified are used as a basis for discussion in this report. The points are identified using the Division of Water Rights GIS data collected in the field.

**Inspection Observations**

The majority of the parcel is undeveloped. The points of interest in Figure 2 above and discussed below are located on/at developed areas and roads. The inspection team collected measurements reported herein, and the narrative describes my inspection observations.

Crossing 1 (Inspection point C1)

Inspection point C1 is located along a dirt road, and identifies a location where the road crosses an ephemeral, Class III[1] watercourse. The crossing appeared to have been constructed by placing brushy vegetation into the stream channel and spreading soil over the vegetation to create a road surface. There was no apparent culvert or other drainage structure installed within the brush/earthen fill prism.

I measured the road fills at this location, and estimate that there are about 5 cubic yards[2] of erodible earthen materials left in the road surface and perched at the outlet where discharge will continue with rainfall. The winter has eroded an estimated 1 cubic yard from the road surface including the earthen materials and woody debris placed in the stream. The crossing upon initial construction likely contained approximately 6 yds$^3$ or earthen fill and woody debris.


Image 1 shows crossing 1 (C1). Note the earthen fill in the stream channel and perched along the road at the outlet. (Stitch of photos 8925, 8926, 8927, and 8928)

[1] California Forest Practice Rules define a Class III watercourse as a watercourse with no aquatic life present, and that shows evidence of being capable of transporting sediment to Class I and Class II waters during high water flow conditions after completion of timber operations.

[2] 2.2 yds$^3$ in the 10' of road fill in the crossing, and 2.6 yds$^3$ perched along the 18' of road edge above the stream at the outlet. Average depth of fill was 2'; average width of channel was approximately 2 feet. Fill was deeper at the outlet.


Image 2 shows the stream channel downstream of the road at C1 (note the brush covered with earthen fills in the stream). (Photo 8935)

Crossing 2 (Inspection point C2)

Inspection point C2 is located along the same road as C1, and is also a location where the road crosses a Class III stream without the benefit of a culvert or other properly designed structure. In this case, material placed in the stream channel appears to be earthen material only, rather than including any brushy or woody material. I estimate that there is approximately <1 yard$^3$ within or at a location where it can enter the stream channel. Minor erosion was visible on the road surface. I did not observe a defined channel downslope, however, I observed evidence of older road fills perched down slope of the existing road grade with an erosional channel through the fills leading to what I assume is the natural channel further in the brush. I did not climb through the dense brush very far. This is a very minor crossing in terms of fill and impacts, but does constitute earthen fills placed into a seasonal stream channel.


Image 3 - the road surface at point C2. Note that this crossing shows little effect from the winter rains. This stream is near the ridge top and likely is influenced by large storms but not minor rain events. (Stitch of photos 8936, 8937)

Residence and Greenhouse

The residence, greenhouse and associated development were well sited to minimize potential for impacts to water quality. The greenhouse was constructed to allow for growing crops under light deprived conditions, making it possible to have multiple harvests within one growing season. Growing multiple crops in a year increases water usage. The greenhouse held 96 grow bags, 4 feet in diameter, as counted by Justin Smith. Housekeeping was adequate with the exception of the pallet with bags of bone meal stored in a location where bears could access the pallet and eat the bone meal.


Image 4 shows the interior of the greenhouse; note the tarps above the pots that are designed to open and close electronically. (Stitch of Photos 8948-8950)


Image 5 shows the pallet of bone meal bags with bear damage. (Photo 8967)

Image 6 shows bear tracks near the pallet of bone meal. (Photo 8963)

Image 7 shows the area around the shed. (Photo 8958)

Crossing 3 (C3)

Crossing 3 is a blown out stream crossing on a large Class 2 stream named Frietas Gulch on USGS topographic maps. The crossing is on a road providing access to a trailer on a neighboring parcel to the southeast. The road also extends to the parcel of land to the east.

The inspection team continued east along the segment of road beyond the blown out crossing and observed additional water quality concerns. Specifically, an approximately 910 foot long segment[3] of this road is constructed straight up a hill and is both insloped and through cut. The earthen materials used in road construction are base materials from surrounding slopes comprised of rock, and fines with some clays intermixed. The fine materials in the soil matrix appear to be highly erodible. Runoff from this road segment drains into the streams at crossings C3, C4, and C5.

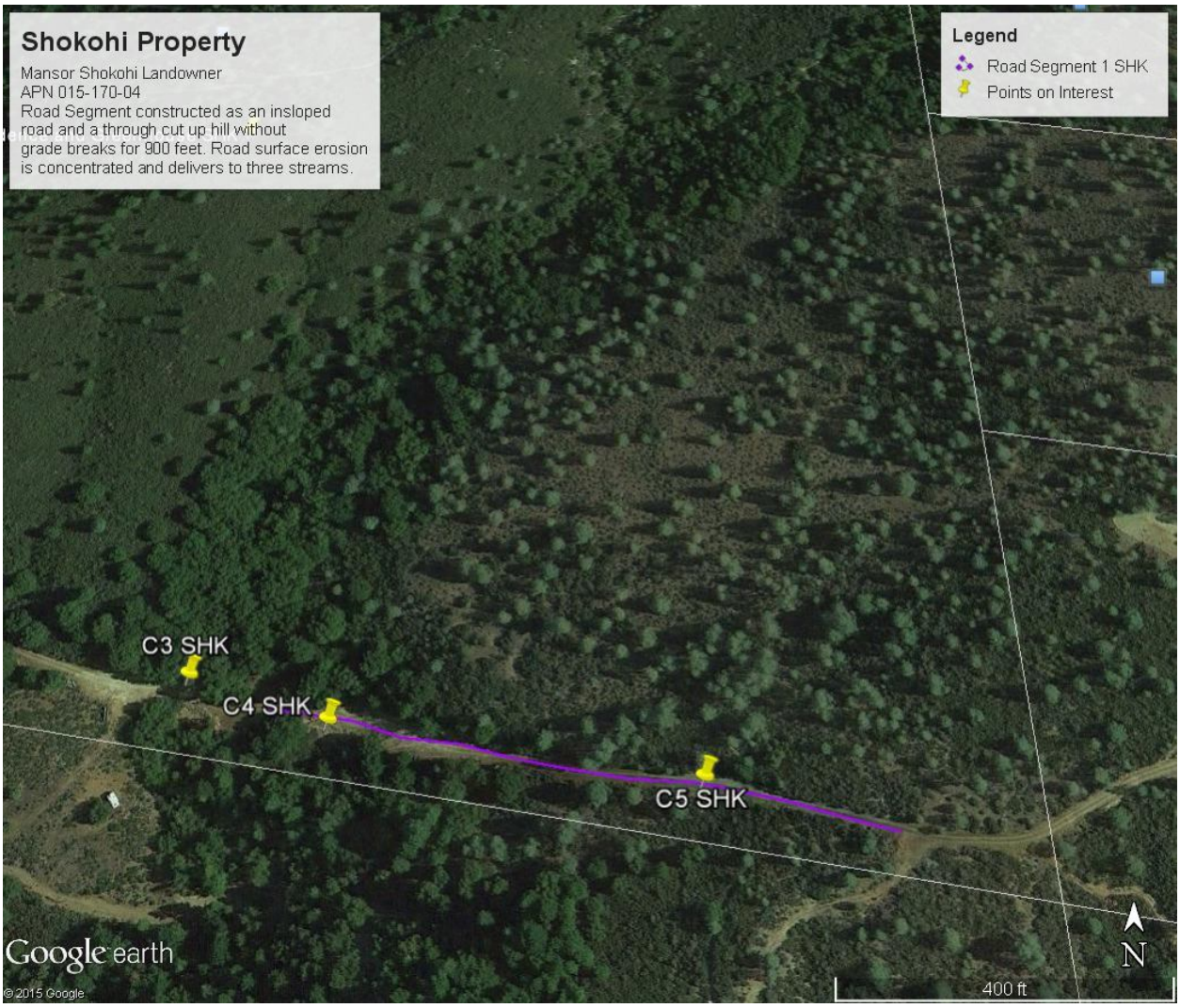


Figure 3 – shows the road segment with crossings C3, C4, and C5; the purple line shows the approximate portion of the road that drains from east to west to streams at C5, C4, and C3.

Crossing C3 is a blown out stream crossing on a Large Class II[4] watercourse. DFW representatives advised other members of the inspection team that the crossing had been replaced pursuant to a

[3] http://www.daftlogic.com/projects-google-maps-distance-calculator.htm

[4] California Forest Practice Rules define a Class II watercourse as 1) a watercourse capable of supporting non-fish aquatic species, or 2) a watercourse within 1000 feet of a watercourse that seasonally or always has fish present. The definition excludes Class III watercourses from the exception. A large Class II watercourse is subset of the Class II watercourse definition used to identify streams that require greater protection. These watercourses are defined as 1) those that are blue line streams on a USGS Topographic map and 2) have surface flows in July 15 of an average water year; additional field verification is also generally required.

1600 agreement issued by the DFW to an individual named Clay Tucker. The 1600 agreement indicated that work at this crossing included installing a 54" arched culvert with an angle iron attached to the culvert base. Based on observations in the field, the 54" culvert proposed, and installed at this location was undersized. I observed that the natural stream channel was more than 54 inches wide. I then took three measurements of bank full stream width upstream of the crossing, and calculated an average width of 11.8 feet,[5] or approximately 142 inches at bank full, more than 2.5 times wider than the 54" culvert width. A standard approach to evaluating culvert sizing in the field is to see whether the diameter or span of the culvert is at least as wide as the natural bank full channel. By that metric, the culvert was significantly undersized, and based on observations in the field, the 54" culvert clearly failed to pass instream flows and debris. This resulted in significant amounts of sediment delivery to downstream receiving waters. I observed sediment deposits in the stream channel at and downstream of Crossing 3. The entire culvert was buried by deposition except for a segment of the culvert that had washed downstream. The culvert did not appear to have been installed correctly; an arched culvert would require a foundation; there was no foundation or means of anchoring the culvert in stream visible on the washed out segment.

1600 Agreement Review (1600-2011-0164-R1)

In the office, I cursorily reviewed the DFW 1600 Agreement for the culvert replacement, and found that the agreement, on page 3, misrepresents the amount of fill to be involved in the project. The agreement states that 70 yds$^3$ of fill would be used; I calculate that over 1000 yds$^3$ of fill was required. The agreement stipulates angled footers will be installed on the 54" half round culvert; I saw no evidence in the field to support that angled footers were installed on the culvert. The Agreement states a 50-foot culvert will be installed; the stream crossing fills were placed on and affected 64 feet of stream channel, indicating that the applicant proposed to install a crossing too short to accommodate the road fill. Taking this into consideration, it appears that the contents of the agreement misrepresent the scope and magnitude of the culvert installation project that occurred at crossing C3, and that planning and design for the culvert replacement project were not adequate.

The agreement was issued to and signed by Mr. Clay Tucker as the responsible party for the scope of work under the title of "easement holder" in the agreement.

1600 Application Review (1600-2011-0164)

After reviewing the 1600 agreement for the project, I requested from DFW a copy of the application for the agreement. Information provided in the application differs from observations made in the field, and due to these discrepancies, and because the application is signed and certified as a true and correct description, I include below the following information from the 1600 application.

Project applicant:
Clay Tucker[6]

P.O. Box 494250
Redding, CA 96049

Residence Address:
4695 Nantucket Drive,

[5] 11'+12.5'+12'=35.5'/3=11.8' natural stream bank full width as determined by measuring upstream of the failed crossing.

[6] Clay Tucker is also the Agent for Independence Corporate Offices, which is a corporation established in 2005 registered with the state under entity number C2570752 located in Redding Ca. at the same P.O. Box as provided above for Mr. Tucker

The Application characterizes the project as an emergency repair of an existing drainage crossing located on Frietas Gulch, proposing to replace an existing 18-inch culvert with a 54-inch arched half round culvert installed on angle footers using Pacific Corrugated standard specifications for backfill and installation and ASTM specification A798. As stated in this report above, Frietas Gulch is a stream with an average bank-full width of 12 feet at the crossing location. The Application also describes the work as occurring on an access road easement that is the access for the applicant's property. Clay Tucker identified himself as an easement holder and adjacent landowner, and signed and certified in the Application that he is the responsible party for the work.

Information provided in the application and certified by Mr. Tucker as being true and correct includes the following:

- A 54-inch arched culvert is adequate to carry storm flows and debris of Frietas Gulch on an annual basis.
- Mr. Tucker signs the application as the easement holder for the road affected by the stream crossing.
- No work will occur in the wetted portion of the stream channel.
- Compaction of fill materials will be at 90%.
- The bottomless culvert crossing and outfall structure will be properly aligned above the stream High Water Mark, will be otherwise designed, sized, installed, and maintained year around to assure resistance to washout and erosion of the stream bed, stream banks, and/or fill.
- The culvert installation will result in water flow that is neither impeded nor impounded at the pipe inlet, nor accelerated downstream of the crossing structure.
- The drainage repairs will be in an area 50 feet in length, 6 feet wide along the drainage and less than 70 cubic yards of fill will be used in the filling and grading of the stream crossing site.
- No fill will be placed below the ordinary high water mark and streambed.

Based on observations in the field, it appears that the above statements, included in Mr. Tucker's application for the 1600 agreement were untrue.

Mr. Tucker's application did not include any calculations or information to demonstrate how he had determined appropriate culvert size. His application includes a map figure which appears to provide information about the watershed area used in designing/sizing the culvert. Written at the top of the figure is "220-acre watershed."

Taking into consideration the need to size the culvert to accommodate 100 year flows, and given the potential for rain on snow events in the subject watershed, I used the USGS Magnitude and Frequency Method for estimating 100 year flood discharge. This method indicates that the stream likely has a 145 cfs discharge during a heavy winter rain. Using the Federal Highway Association Culvert Capacity and Inlet Control Nomograph for a projecting culvert inlet, a design flow of 145 cfs, and a headwall to diameter ratio of 0.67, I determined that the culvert should be at least 90 inches in diameter, nearly twice the diameter of the culvert that Mr. Tucker proposed and installed.

As noted above, field observations show that the Frietas Gulch bankfull width is nearly 12 feet; a 90-inch culvert will be within the high water line of the 12' stream channel.

Accordingly, I confirmed the following: 1) the watershed area Mr. Tucker used to size his proposed culvert appears to underestimate the actual stream flows at bankfull; 2) the proposed 54 inch

culvert could not have been installed above the high water mark, as described; 3) the 54 inch culvert installation likely impeded water flow at the pipe inlet and resulted in forced velocities at

the outlet, as a 54 inch culvert attempted to carry 145 cfs or more of flow; and 4) it was necessary to place fill in the stream channel in order to install the 54-inch culvert. While I cannot determine whether the earthen materials used in the stream crossing were, indeed, compacted to the 90% standard specified in the application, I observed that the failure plane of the fill slopes was characterized by tension cracks, appearing to suggest that fill materials had not been adequately compacted. Finally, the culvert installation required in excess of 1000 yds³ of fill, which far exceeds the 70 yds³ Mr. Tucker specifies in the 1600 application. The entire installation failed, leading to the delivery of over 500 yds³ of earthen fill to Frietas Gulch and tributaries downstream.

The methods used to calculate voids and the potential erosion at C3 are described below.

**Discharge volumes:**
The equation used to calculate eroded volumes from the stream at C3 is (B1+B2)/2 x L x D - B1 and B2 are an average of the width of fill at stream level and the width of fill at the top of the fill cavity. This is the volume of a three dimensional trapezoid.

**Void Measurement at Crossing 3:**
Channel Width: Base 1 (B1) + Base 2 (B2)/2
Base 1(Channel width at the stream base of the void): 108"+64"+76"=248/3=82.66"/12"= 6.33'
Base 2 (Channel width at the top of the void): 20'+29'+27'+18'=94'/4=23.5'
**B1 + B2 =** 6.33'+23.5'=29.83/2=14.915'
14.915' = the void width used to determine the volume of erosion

Stream length was measured with a 200-foot tape at 64' through the stream crossing
Length= 64'

Depth of fill was averaged using a stadia road and 200-foot tape.
11.6+13+13+9.1= 46.7'/4=11.675' depth

DxLxW=V/27=yds³x201.974=Gallons of discharge
11.675' x 64' x 14.915' =11,144.488 ft³/27=**412.758 yds³** x 201.974=**83,366.384 gallons**

The volume above describes the materials eroded from the crossing location. The volume described below is additive to this amount and describes the amount of earthen material and debris discharged in the stream channel at the crossing.

Base 1 is the width of the installed culvert (54") 4.5'
Base 2 is the same as Base 1 above= (6.33')

I estimated the depth of fill deposited in the channel over the top of the 54" culvert at 4' and then added half of 54 to this number because the culvert is buried in the channel and provides the indicator of channel bottom for establishing the stream channel depth/grade when the culvert was installed; therefore, the estimated depth is: 27" + 48" = 75" or 6.25'.

The affected stream length is the same as above - 64'.

Volume of a Trapezoid Equation: (B1+B2/2) x L x W = V
(6.25' + 6.33'= 12.58'/2)= 6.29 x 64' x 6.25' = 2516 ft³/27=**93.185 yds³** x 201.974 = **18,820.984 gallons**

**Total Volume of Discharge**
83,366.384 + 18,820.984= **102,187.368 gallons** or

412.758 $yds^3$ + 93.185 $yds^3$ = **505.943 $yds^3$**

This is likely a very conservative estimate of the sediment discharge at Crossing 3.

The volume estimate above does not account for the amount of sediment that remains perched above the stream on both banks that is likely to continue to fail, due to factors including slope steepness, rainfall energy, and surface runoff cumulative effects. The estimated volume of these remaining materials, the "threatened delivery" is derived by treating the crossing as a rectangle on each side and using a .3 multiplier, based on best professional judgment, to determine the erodible volume remaining. Right bank and left bank are identified by looking upstream.

Right Bank:
Length:64'
Depth: 11.7'
Width: 30'
64' x 11.7' x 30' = 22,464 $ft^3$ x .3 = 6,739.2 $ft^3$/27 = **249.6 $yds^3$**

Left Bank
Length:64'
Depth: 14.5'
Width: 30'
64' x 14.5' x 30' = 27,840 $ft^3$ x .3 =8,352 $ft^3$/27 = **309 $yds^3$**

Crossing 3 potential delivery remaining is estimated at **558 $yds^3$ overall.**


Image 9 shows Crossing 3 and the eroded fills looking downstream. (Photos 8971, 8972, 8973, 8974, 8975, 8976 composite)


Image 10 shows Crossing 3 looking upstream; note the erosion control fabric displaced on the side slopes of the crossing from fill failures, and the culvert buried in the foreground.
(Photo 8980)


Image 11 shows the stream looking downstream from the outlet of Crossing 3. Note the sediment deposited in the foreground and the mass erosion instream around the trees likely increasing the channel margins. (Stitch of Photos 8988-8989)

Image 12 shows another sediment deposit downstream of Crossing 3. (Photo 8990)


Image 13 shows a section of the 54" culvert torn out and displaced downstream from Crossing 3. Note that there does not appear to be any evidence to indicate the culvert was installed with a flange of angle iron as specified in the 1600 application, and as would at minimum be required to maintain the culvert in the stream if it were sized adequately. (Photo 8988 cropped)


Image 14 shows Crossing 3 as viewed from above looking east. Note the tension cracks expanding back from the failure edge. These earthen fills will continue to erode with wind and weathering events; any material that erodes here will fall into the stream. The extent of tension cracks can indicate the rate of compaction. Soils lacking compaction often crack more and further back from the edge. (Stitch image of Photos 8995 -8996)

Road Segment from C3 to C5 (purple line on Figure 3)

As mentioned above, this road segment is poorly sited, designed, and constructed. The road delivers sediment to streams during each runoff event. Sediment from the road was visible in the streams below the C4 and C5 culvert outlets. The road is on an average 26% slope. The underlying soils are of a fine-grained composition with varying levels of colloidal materials and rock intermixed, which may increase the potential for erosion of the road surface, stream crossing fills and the potential for sediment transport. Due to the way this road is built, it acts as a stream, concentrating all surface drainage straight down the road surface, discharging a portion or all of the runoff at watercourse crossing(s) along the road. Because surface flows are concentrated, the road surface erodes into rills and gullies, which further exacerbate and increase flow concentration resulting in additional erosion and sediment delivery. Given the siting, this road cannot be adequately improved or upgraded to correct the drainage and erosion issues. As noted in the recommendations below, this road segment and all associated Crossings (3, 4, and 5) should be decommissioned, slopes stabilized and replanted with native vegetation suitable to survive the site conditions.

Image 15 = Road segment 1 – shows the erosion on road surface. (Photo 9018)

Image 16 – Crossing C4 outlet – note evidence of runoff and erosion over the side of the road at this location. (Photo 9006)

Image 17 – Road segment 1 – shows erosion on the road surface looking east toward the through cut. (Photo 9043)


Image 18 – Road segment 1 – a closer view of the through cut at the top of the ridge that starts the concentration of flows and encourages road surface erosion. (Photo 9044)


Image 19 – Crossing C5 inlet. C5 is a 6-7 inch flex pipe, undersized for this crossing. The inspection team excavated the inlet in order to photograph the pipe. (Photo 9040)

Crossing 4 (C4 SHK)
Crossing 4 is a 40-foot long, 24-inch diameter culvert; the road width over the culvert is 16 feet. The culvert is holding some sediment in the outlet. The culvert may be adequately sized. However, as discussed above, the road is not conducive to long term usage and is likely a significant contributor of sediment to the watershed. Decommissioning the road, per recommendation below will include removal of this culvert and restoration of the watercourse in the vicinity of the stream crossing.

**Discussion reviewing waiver criteria and conditions**

A. Roads
Road Segment 1 including Crossings 3, 4, and 5 identified in Figure 3 requires decommissioning; this is a road that should never have been built. There are no permitted crossings in place at C1 and C2. Roads should be assessed for opportunities to out slope and reduce concentrated surface flows.

B. Developed areas
The developed area associated with the home and green house site are not a threat to water quality.

C. Crossings
As discussed above, the inspection team observed improper stream crossings and road drainage issues.

D. Riparian/Wetland Protection and management
Significant instream impacts have occurred due to the failure of Crossing 3 in a large Class II watercourse. This resulted in approximately 506 $yds^3$ of instream sediment delivery, which is damaging to the stream system. Road construction practices are a problem as is mentioned above and in the conclusion.

E. Spoils
The team did not observe road construction or cultivation related spoils representing water quality problems.

F. Water Storage/Use
Staff observed a well and a water storage tank on the property.

G. Irrigation Runoff
Staff did not observe evidence of irrigation runoff.

H. Fertilizers/Pesticides/Petroleum/Other Chemicals
Potting soils and soil amendments were out in the open near the green house. A bear had shredded bags and eaten bone meal stored on a pallet near the greenhouse. These materials should be stored where wildlife cannot access and create trash or debris.

I. Refuse/Garbage
The site was relatively clean with the exception of the bone meal discussed above.

J. Human Waste

Staff did not observe any evidence suggesting improper handling/disposal of human waste.

**Summary of violations**

A. Violations

1. Water Code- unauthorized discharge of waste associated with constructing roads across watercourses; unregulated discharge caused by undersized culverts and concentrated road surface drainage leading to instream erosion and sediment discharges to streams.

2. Clean Water Act- violations of Section 301 due to a failure to comply with Section 404 and section 401 associated with installation of undersized culverts and constructing roads across streams.

3. Basin Plan – violations of the Basin Plan's Action Plan for Logging, Construction, and Associated Activities prohibitions 1 and 2, associated with constructing roads across watercourses, construction of undersized, unpermitted culverts, and stream crossing failures.

**Recommendations**

1. Staff recommend that the landowner retain a California licensed professional engineer or geologist, with appropriate experience, to inventory/assess roads and stream crossings, identify each controllable sediment source, assess each identified source, assess existing culvert(s) to determine whether they are adequately sized and installed, and any other feature meeting the criteria described below under the definition of a controllable sediment source. The inventory should propose mitigation and an implementation schedule for each source area. The plan should also include specific designs, mitigation, and construction standards for the following: 1) decommissioning Road Segment 1 and stream Crossings 3, 4, and 5, as discussed in this report and identified in Figures 2 and 3; 2) removal of fill and either restoration of stream channels at crossings C1 and C2, or replacement of stream crossings with appropriately sized and designed crossing structures; and 3) an assessment of road surfaces for areas that can be outsloped.

**Controllable Sediment Source**

"Controllable Sediment Source" means sites or locations within the Project area that meet all the following conditions:

1. is discharging or has the potential to discharge sediment to waters of the state in violation of the Water Quality Control Management Plan for the North Coast Region (Basin Plan) or adopted TMDL or TMDL Implementation Plans.
2. was caused or affected by human activity, and
3. may feasibly and reasonably respond to prevention and minimization management measures.

An inventory should include the following:

- A brief description of the methods used to conduct the inventory
- A description of each site. The information provided should be sufficient to determine why this is a site and understand current conditions
- A topographic map at a scale of 1:12000 or more (e.g. 1:6000) with no more than 80 foot contours.

- A narrative description of the site specific management measure proposed to remedy the problem including sufficient design and construction standards to evaluate effectiveness of proposed remedy. (Design and construction standards may include, but are not limited to, diagrams, minimum rock size, and/or performance standards as needed to effectively implement).
- Priority for repair and a time schedule for the repairs should also be included. Priority should be identified by considering the estimated deliverable sediment volume of a site, the potential for immediate or delayed failure, and the sensitivity of receiving waters. In general, assign the highest priority to sites with large sediment volumes with an imminent risk of failure into waters that support domestic water supplies, or fish. The time schedule should schedule work based upon potential for site failure and site priority.

**ENFORCEMENT DISCRETION**

The observations in this report will be assessed for violations of the California Water Code. The Regional Water Board and the State Water Board reserve the rights to take any enforcement action authorized by law.