Peaksview

SITE MANAGEMENT PLAN

Humboldt County

APNs:
216-082-002
216-082-006
WDID #: 1_12CC417448

Prepared By:

Mika Cook
Environmental Scientist

May 17, 2020

Owner/Contact: Kevin Peak

Project Name: Peaksview

Bell Springs Road
Harris, CA 95542

Purpose

This Site Management Plan (SMP) has been prepared on behalf of the Cannabis Cultivator at the Humboldt County properties identified as assessor parcel numbers 216-082-002 and 216-082-006, by agreement and in response to the State Water Resources Control Board Cannabis Cultivation Policy (Cannabis Policy), in congruence with Order WQ 2019-0001-DWQ General Waste Discharge Requirements for Discharges of Waste Associated with Cannabis Cultivation Activities (General Order). The General Order implements the Cannabis Policy requirements, specifically those requirements that address waste discharges associated with Cannabis cultivation activities.

Dischargers registered as Tier 1 or 2 Cannabis Cultivators are required to submit and implement a Site Management Plan describing how the cultivator is complying with the requirements and implementing the Best Practical Treatment or Control Measures (BPTC) listed in Attachment A of the General Order across the entire property where Commercial Cannabis Cultivation is/will be occurring. Dischargers previously registered under the North Coast Regional Water Board Order No. R1-2015-023 were required to complete a Water Resource Protection Plan (WRPP), outlining compliance with generally the same requirements.

This SMP is provided as an "Addendum" to the WRPP, completed by Pacific Watershed Associates (PWA), for compliance with the North Coast Regional Water Board Order No. R1-2015-0023, and last updated in February of 2019. The purpose of this "Addendum" is to provide updated information regarding site-specific conditions, as they have changed since the WRPP site visit was conducted on August 9, 2016.

Methods

This SMP has been developed by Environmental Scientist, Mika Cook. Mika holds a B.S. in Conservation Resource Studies from the University of California, Berkeley's College of Natural Resources. In addition, she has over three years of experience conducting field surveys in the Pacific Northwest.

The primary method used to develop this SMP was analysis of the attached WRPP (Exhibit C). The additional methods utilized to develop this SMP include both historical and client-substantiated data analysis.

The historical data analysis consisted of studying published USGS, USDA FSA, Humboldt County GIS, and ESRI maps. In addition, this client provided an updated Site Plan (Exhibit A), a Humboldt County Road Evaluation (Exhibit F), and a completed Lake and Streambed Alteration Agreement (LSAA) Notification with CDFW (Exhibit G), all analyzed for the purpose of this SMP. The client-substantiated component included an interview questionnaire, photographs (Exhibit H), and descriptions of site-specific conditions. The primary focus of this inquiry was to gain updated information, as it pertains to the features noted on the original WRPP as monitoring points, or locations requiring improvements. These areas include all access roads, vehicle parking areas, Waters of the State, stream crossings, drainage features, cultivation areas, associated facilities, buildings, disturbed areas, and all other relevant site features within the project area and surrounding areas

and their potential for discharges and related controllable water quality factors from the activities listed in the General Order.

Tier and Risk Designation

Tiers are defined by the amount of disturbed area. As defined in The General Order, Disturbed Area, or "Land Disturbance" includes areas where natural plant growth has been removed whether by physical, animal, or chemical means, or natural grade has been modified for any purpose. Land disturbance includes all activities whatsoever associated with developing or modifying land for cannabis cultivation related activities or access.

Tier 1 outdoor commercial cultivation activities disturb an area equal to or greater than 2,000 square feet and less than 1 acre (43,560 square feet). Tier 2 outdoor commercial cultivation activities disturb an area equal to or greater than 1 acre. Risk designation is based on the slope of disturbed areas and the proximity to a surface water body.

According to the Notice of Applicability issued by the State Water Resources Control Board for the discharger identified with WDID 1_12CC417448, the property will be processed as a Tier 2 High Risk site. As was reported in the Initial Enrollment, some portion of the disturbed area is within the setback requirements, no portion of the disturbed area is located on a slope greater than 30 percent, and the cannabis cultivation area is equal to or greater than one acre.

Addendum to Water Resource Protection Plan

The following list reflects the current conditions on the subject parcel, as they have changed since the WRPP was written, and as they relate to Standard Conditions 1-12 in the North Coast Regional Water Board Order No. R1-2015-0023.

1. Standard Condition 1: ***Site Maintenance, Erosion Control, and Drainage Features***

   All erosion and sediment-discharge related remediation activities that did not require a permit from additional government agencies (LSAA, 401, 404, etc.) have been completed (see photos attached in Exhibit H). Access Roads 4, 5, and 9, as identified in the WRPP, have been discontinued. The completed Humboldt County Road Evaluation (Exhibit F) and completed CDFW notification (Exhibit G) are also attached. Representatives from Timberland Resource Consultants (TRC) and CDFW are still in the process of negotiating the exact plan for maintaining and upgrading the 21 stream crossings on the subject parcel.

2. Standard Condition 2: ***Stream Crossing Maintenance***

Representatives from TRC and CDFW are still in the process of negotiating the exact plan for maintaining and upgrading the 21 stream crossings on the subject parcel. The completed CDFW Notification is attached (Exhibit G).

3. Standard Condition 3: ***Riparian and Wetland Protection and Management***

   The cultivation area identified as CA3 on the attached WRPP map (Exhibit B) has been eliminated and the area remediated. All potting soil and cultivation-related materials have been removed and the area is now revegetated with native grasses. See photographs attached in Exhibit H.

   According to the WRPP, "the western edge of GH1 was observed to be slightly within the 50-foot riparian setback of the Class III stream flowing through SC2 [...] Greenhouse #1 is designed to be a fully contained structure with a permanent concrete foundation that will contain and reuse irrigation water, nutrients, and planting medium. Aside from the footprint of the structure, minimal to no impacts to water quality from this greenhouse are expected."

4. Standard Condition 4: ***Spoils Management***

   Compliance with this standard condition was confirmed by PWA in the attached WRPP (Exhibit C).

5. Standard Condition 5: ***Water Storage and Use***

   Since the WRPP was completed, water meters have been installed recording irrigation and domestic water use, respectively.

   The well identified on the WRPP map (Exhibit B) as GW1 has not been permitted, to date.

6. Standard Condition 6: ***Irrigation Runoff***

   Compliance with this standard condition was confirmed by PWA in the attached WRPP (Exhibit C).

7. Standard Condition 7: ***Fertilizers and Soil Amendments***

   The cultivation area identified as CA3 on the attached WRPP map (Exhibit B) has been eliminated and the area remediated. All potting soil and cultivation-related materials have been removed and the area is now revegetated with native grasses. See photographs attached in Exhibit H.

8. Standard Condition 8: ***Pesticides and Herbicides***

According to the landowner, all pesticides and herbicides are properly stored, per manufacturers' recommendations, in a covered structure within secondary containment. Within this structure there are adequate quantities of absorbent pads designed for spill cleanup in the case a spill occurs.

9. Standard Condition 9: ***Petroleum Products and Other Chemicals***

   According to the landowner the 550 gallon diesel storage tank on site is now stored within secondary containment. All petroleum products (chainsaws, weed-eaters, etc.) and gas cans are also all stored in a covered structure within secondary containment, according to the landowner. Within this structure there are adequate quantities of absorbent pads designed for spill cleanup in the case a spill occurs.

10. Standard Condition 10: ***Cultivation-Related Wastes***

    All potting soil and cultivation-related materials have been removed for the area identified as CA3 on the attached WRPP map (Exhibit B) and the area is now revegetated with native grasses. See photographs attached in Exhibit H.

11. Standard Condition 11: ***Refuse and Human Waste***

    According to the landowner, portable toilets have been installed and are routinely maintained to adequately meet cultivation staff needs.

    According to the landowner, all improperly stored waste identified at and around the construction site that is identified as GH1 on the WRPP (Exhibit __) and elsewhere around the property has been cleaned up. See photographs attached in Exhibit H.

12. Standard Condition 12: ***Remediation/Cleanup/Restoration***

    Compliance with this standard condition was confirmed by PWA in the attached WRPP (Exhibit C).

Exhibits

A. Site Plan
B. WRPP Site Map
C. Water Resource Protection Plan (WRPP)
D. WRPP Appendix B: Monitoring Plan and Photo Log
E. WRPP Appendix C: Photo Documentation of Monitoring Points
F. Humboldt County Road Evaluation
G. Lake and Streambed Alteration Agreement (LSAA) Notification
H. Client-Provided Photographs of Updated Site Conditions
I. Statement of Contingent and Limiting Conditions

Exhibit A

Site Plan

Exhibit B

WRPP Site Map

PEAKSVIEW, MBC

SPECIAL PERMIT - MIXED LIGHT CULTIVATION

SPECIAL PERMIT - NURSERY

APN: 216-082-002

VICINITY MAP
NOT TO SCALE

DIRECTIONS TO SITE:
FROM EUREKA, CA
-SOUTHBOUND ON US-101 (APPROX. 65.9 MILES)
-TAKE EXIT 639B TOWARDS REDWAY
-TURN RIGHT ONTO REDWOOD DR (APPROX. .2 MILES)
-TURN RIGHT ONTO ALDERPOINT RD (APPROX. 8 MILES)
-TURN RIGHT ONTO BELL SPRINGS RD (APPROX. 1.3 MILES) TO SITE
-ADDITIONAL 1 MILE TO DRIVEWAY

Approximate Location of Gate (Entrance/Exit to Property) Through Parcels 216-082-010 & 216-082-006

PROJECT INFORMATION:

APPLICANT:
PEAKSVIEW, MBC
P.O. BOX 1951
REDWAY, CA 95560

PROPERTY OWNER:
KEVIN PEAK
P.O. BOX 1951
REDWAY, CA 95560

SITE ADDRESS:
APN: 216-082-002
HARRIS, CA 95542

TREES TO BE REMOVED = NONE

MIXED LIGHT CULTIVATION AREA = ±8,640 SQ. FT

EARTHWORK QUANTITIES = TBD

WATER = PRIVATE
SEWER = PRIVATE

PARCEL SIZE = ±132.71 ACRES

ZONING: = AE-B-5(160)
GENERAL PLAN DESIGNATION = P

BUILDING SETBACKS:

	AE	SRA
FRONT	30'	30'
SIDE	20'	30'
REAR	10'	30'

MAX. BLDG. HT. = NONE SPECIFIED

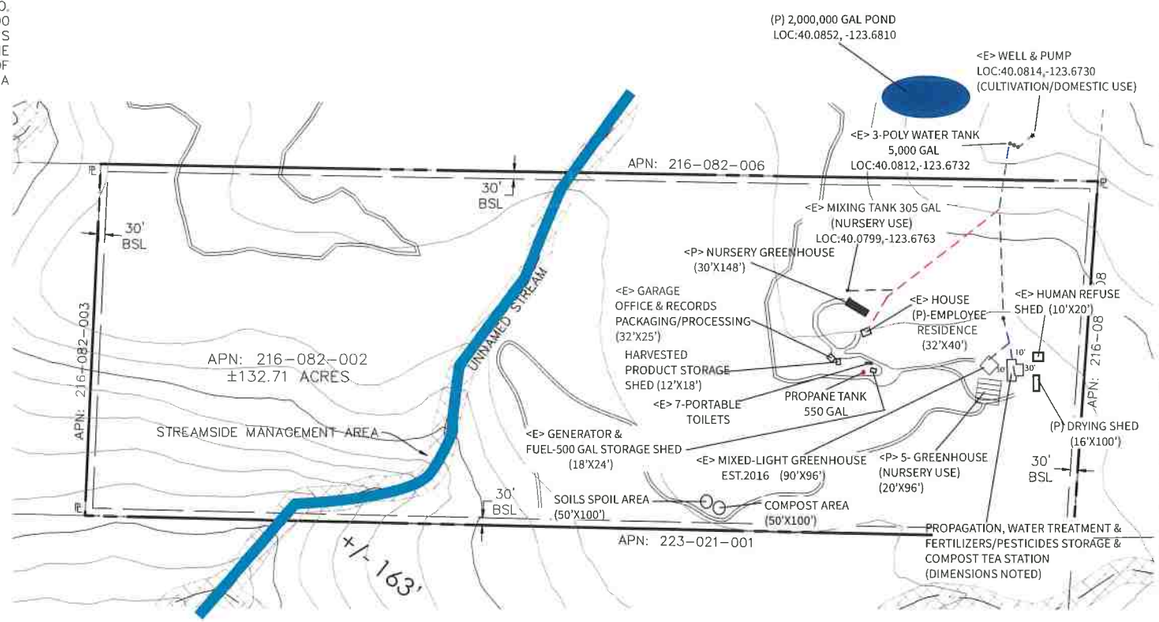
SRA AREA: = YES
IN COASTAL ZONE: = NO
IN 100 YR FLOOD ZONE: = NO

PROJECT DESCRIPTION:

PEAK PROPERTY DEVELOPMENT IS PROPOSING TO PERMIT EXISTING MEDICAL CANNABIS CULTIVATION ACTIVITIES IN ACCORDANCE WITH THE COUNTY OF HUMBOLDT (COUNTY) COMMERCIAL MEDICAL MARIJUANA LAND USE ORDINANCE (CMMLUO), ORDINANCE NO. 2554. THE EXISTING OPERATION INCLUDES APPROXIMATELY 11,400 SQUARE FEET (SF) OF MIXED LIGHT MEDICAL CANNABIS CULTIVATION AREA. THE APPLICANT PROPOSES TO REDUCE THE SCALE OF CULTIVATION ACTIVITIES AND PERMIT 8,640 SF OF MIXED LIGHT CULTIVATION. THE APPLICANT ALSO PROPOSES A WHOLESALE COMMERCIAL NURSERY.

GENERAL NOTES:

1. DRAWING SCALE AS NOTED. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.
2. THIS IS NOT A BOUNDARY SURVEY. BOUNDARY INFORMATION DEPICTED HAS BEEN OBTAINED FROM HUMBOLDT COUNTY 2015 GIS DATA. MANHARD CONSULTING LTD. HAS NOT VERIFIED THIS PROPERTY BOUNDARY.
3. THERE ARE NO NEARBY SCHOOLS, SCHOOL BUS STOPS, PLACES OF WORSHIP, PUBLIC PARKS OR TRIBAL RESOURCES WITHIN 600 FEET OF THE CULTIVATION AREA.
4. THERE ARE NO RESIDENCES ON ADJOINING PARCELS WITHIN 300 FEET OF THE PROPOSED CULTIVATION AREAS.
5. ANY EXISTING DEVELOPMENT CONSTRUCTED WITHOUT THE BENEFIT OF COUNTY REVIEW WILL BE SUBJECT TO THE HUMBOLDT COUNTY BUILDING DEPARTMENT UPON APPROVAL OF THE SPECIAL PERMIT.



LEGEND:

- DOMESTIC IRRIGATION LINE
- IRRIGATION LINE
- CLASS I WATERCOURSE
- CLASS II WATERCOURSE
- CLASS III WATERCOURSE
- COMMERCIAL BUILDING

RECEIVED
DEC 11 2020
Humboldt County
Building Division

PLOT PLAN
22x34 SHEET: 1"=300'
11x17 SHEET: 1"=600'
0 150 300 600

NORTH

SHEET INDEX:

C0 – ZONING PLOT PLAN, VICINITY MAP, & PROJECT NOTES
C1 – EXISTING AND PROPOSED PLOT PLAN

DRAWN BY | REVISIONS | DATE

Manhard CONSULTING LTD
517 3rd Street, Suite 6, Eureka, CA 95501 ph:707.444.8800 fx:707.444.8801 manhard.com
Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

PEAKSVIEW, MBC
HARRIS, CA 95542/APN: 216-082-002
CUP PLOT PLAN, VICINITY MAP AND PROJECT NOTES

PROJ. MGR.: POW
PROJ. ASSOC.: SL
DRAWN BY: TJS
DATE: 10-31-16
SCALE: AS SHOWN

SHEET
C0
PEA.HACA01

© 2016 ALL RIGHTS RESERVED

June 5, 2017 - 14:17 Dwg Name: P:\Peaksview\Work Files\Plans\Drawings\Main Set\PEA.HACA01-CUP-02.dwg Updated By: aPool

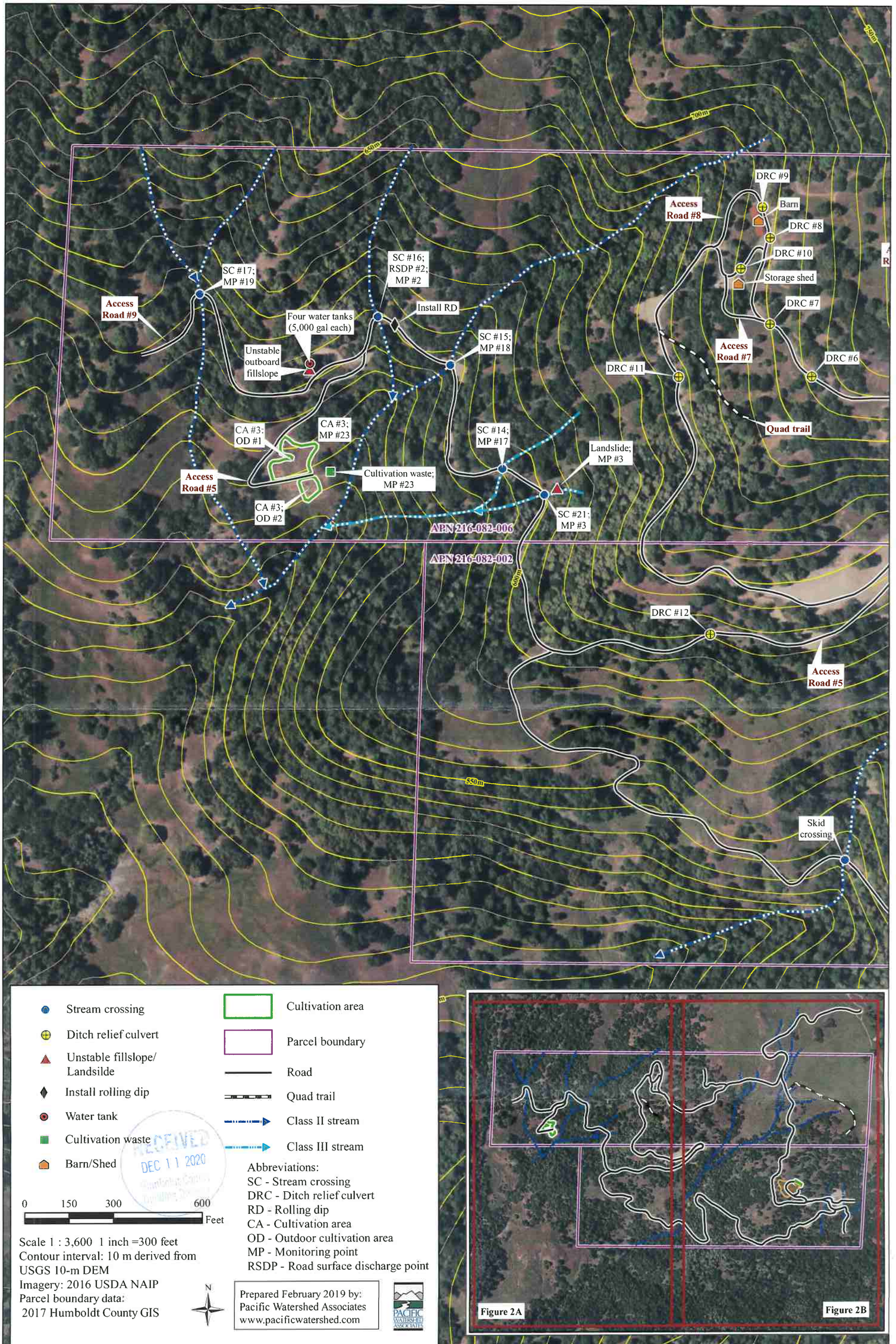


Figure 2A. Site map for WDID #1B16938CHUM, APNs 216-082-006 and 216-082-002, located on Bell Springs Road, Harris, Humboldt County, California.

P:\GIS\5166

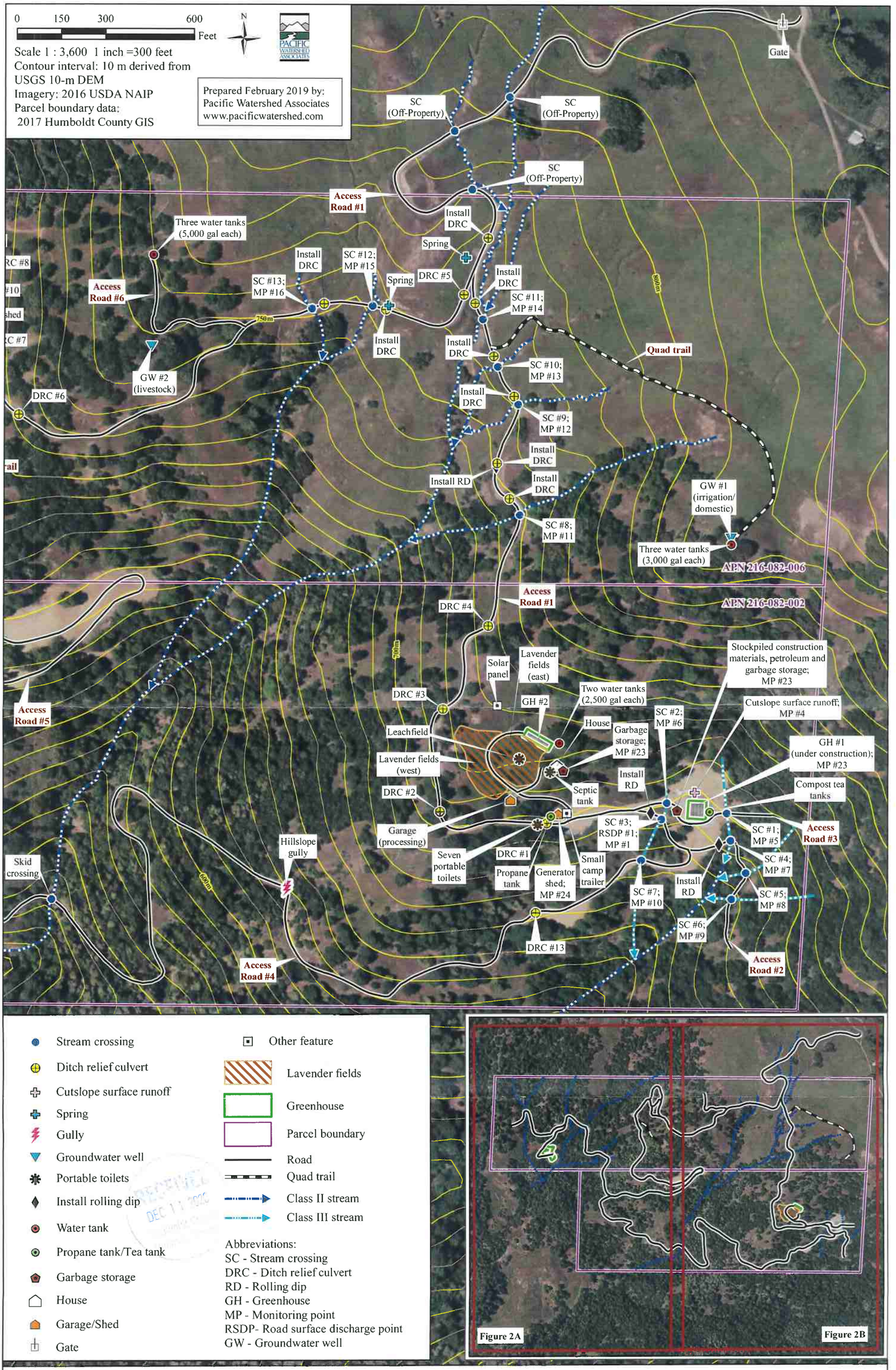


Figure 2B. Site map for WDID #1B16938CHUM, APNs 216-082-006 and 216-082-002, located on Bell Springs Road, Harris, Humboldt County, California.

P:\GIS\5166

Exhibit C

Water Resource Protection Plan

Water Resource Protection Plan (WRPP)

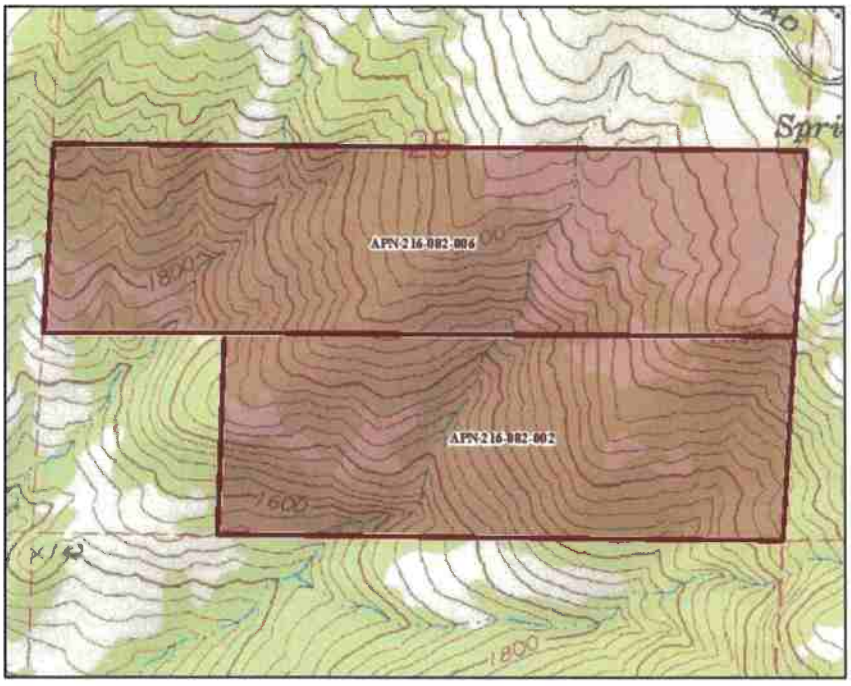
for

APN 216-082-002 and 216-082-006

RECEIVED
DEC 11 2020

Located on
Bell Springs Road
Harris, California

February, 2019



Prepared for:
WDID #1B16938CHUM
Bell Springs Road
Harris, California

Prepared by:
Jack Skeahan, Staff Geologist, jacks@pacificwatershed.com
Thomas H Leroy, C.E.G. #2593, toml@pacificwatershed.com
Pacific Watershed Associates Inc.
P.O. Box 4433, Arcata, CA 95518
(707) 839-5130

TABLE OF CONTENTS

1.0 PROJECT SUMMARY 3
2.0 CERTIFICATIONS, LIMITATIONS AND CONDITIONS 3
3.0 INTRODUCTION 7
4.0 STANDARD CONDITIONS CHECKLIST FOR APNS 216-082-002 AND 216-082-006 AS OF 8/9/2016 AND 11/9/2016 7
4.1 STANDARD CONDITION #1. SITE MAINTENANCE, EROSION CONTROL AND DRAINAGE FEATURES 8
4.2 STANDARD CONDITION #2. STREAM CROSSING MAINTENANCE 11
TABLE 4.2. STREAM CROSSING CULVERT SIZING AND ADDITIONAL OBSERVATIONS AND TREATMENT RECOMMENDATIONS 13
4.3 STANDARD CONDITION #3. RIPARIAN AND WETLAND PROTECTION AND MANAGEMENT 17
4.4 STANDARD CONDITION #4. SPOILS MANAGEMENT 20
4.5 STANDARD CONDITION #5. WATER STORAGE AND USE 21
4.6 STANDARD CONDITION #6. IRRIGATION RUNOFF 25
4.7 STANDARD CONDITION #7. FERTILIZERS AND SOIL AMENDMENTS 26
4.8 STANDARD CONDITION #8. PESTICIDES/HERBICIDES 27
4.9 STANDARD CONDITION #9. PETROLEUM PRODUCTS AND OTHER CHEMICALS 28
4.10 STANDARD CONDITION #10. CULTIVATION-RELATED WASTES 30
4.11 STANDARD CONDITION #11. REFUSE AND HUMAN WASTE 31
4.12 STANDARD CONDITION #12. REMEDIATION/CLEANUP/RESTORATION 32
5.0 TABLE 1. PRIORITIZED CORRECTIVE ACTIONS AND SCHEDULE TO REACH FULL COMPLIANCE 34
7.0 MONITORING AND INSPECTION PLAN 43
8.0 WATER USE PLAN 44
9.0 LIST OF CHEMICALS 46
10.0 LANDOWNER/LESSEE CERTIFICATION/SIGNATURES 47

LIST OF FIGURES

Figure 1. General Location Map
Figure 2A and 2B. Site Map

LIST OF TABLES

Table 4.2. Stream Crossing Culvert Sizing and Additional Observations and Treatment Recommendations
Table 1. Features Needing Improvement or Action Items (Prioritized implementation schedule for corrective actions)

LIST OF APPENDICES

Appendix A. Best Management Practices (BMPs) – NCRWQCB
Appendix B. Monitoring Plan and Photo Logs
Appendix C. Photo Documentation of Monitoring Points
Appendix D1, D2, D3. Water Use Plan and Log Forms
Appendix E. Fertilizer and Amendment Use Plan and Log Forms
Appendix F. Pesticide, Herbicide, and Fungicide Use Plan and Log Forms
Appendix G. Hazardous Materials Storage Guidelines
Appendix H. Typical Drawings

Water Resource Protection Plan (WRPP)
APN 216-082-002 and 216-082-006
Bell Springs Road
Harris, California

1.0 PROJECT SUMMARY

This report documents Pacific Watershed Associate's (PWA)[1] Water Resource Protection Plan (WRPP) for APNs 216-082-002 and 216-082-006 located on Bell Springs Road, Harris, California as shown on Figure 1. This property is located approximately 6.2 miles east of Garberville, Humboldt County, CA, and hereinafter is referred to as the "Project Site." Based on either site conditions and/or total cultivation area, this Project Site falls within **Tier 2** of the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023, Waiver of Waste Discharge and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects ("Order"). Properties that fall into Tier 2 of the Order are required to develop a WRPP. Therefore, as required, this WRPP has been developed for you based on site inspections made by PWA on your property. PWA's recommendations for any remediation or corrective actions are a result of water quality requirements under the Order, including Best Management Practices (BMPs) designed to meet those requirements (Appendix A). This WRPP documents the findings of a site visit conducted on August 9, 2016 by PWA Certified Engineering Geologist Tom Leroy and Staff Geologist Jack Skeahan, a second site visit conducted on November 9, 2016 by Staff Geologists Courtney Sundberg and Jack Skeahan, and subsequent communications with the client.

2.0 CERTIFICATIONS, LIMITATIONS AND CONDITIONS

This WRPP has been prepared by, and under the responsible charge of a California licensed geologist or certified licensed professional in erosion and sediment control at PWA and all information herein, including treatment recommendations, are based on observations, data and information collected by PWA staff.

This WRPP has been prepared to: 1) describe the general conditions of the property at the time of our inspection; 2) summarize the site conditions and how they relate to the NCRWQCB twelve (12) Standard Conditions of the Order; 3) provide recommendations for remediation and/or correction of existing or potential water quality threats or impacts; and 4) recommend work to be conducted on this property to meet the 12 Standard Conditions of the Order. The analysis and recommendations submitted in this WRPP are based on PWA's evaluation of the Project Site and your activities which fall under the Order.

In this WRPP we have described the current conditions of the property and any water resource and water quality risk factors we observed at the time of our site inspection. PWA is not responsible for problems or issues we did not observe on our site inspection, or for changes that have naturally occurred or been made to the property after our site review. The interpretations and conclusions presented in this WRPP are based on a reconnaissance level site investigation of inherently limited

[1] PWA is an approved Third Party Program for the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023, Waiver of Waste Discharge and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects ("Order").

scope. Observations are qualitative, or semi-quantitative, and confined to surface expressions of limited extent and artificial exposures of subsurface materials. Interpretations of problematic geologic, geomorphic or hydrologic features such as unstable hillslopes, erosional processes and water quality threats are based on the information available at the time of our inspection and on the nature and distribution of existing features we observed on the property.

We have also included recommendations for remediation and/or correction that are based on these observations. The recommendations included in this WRPP are professional opinions derived in accordance with current standards of professional practice, and are valid as of the date of field inspection. No other warranty, expressed or implied, is made. Furthermore, to ensure proper applicability to existing conditions, the information and recommendations contained in this report shall be regularly reevaluated and it is the responsibility of the landowner and/or lessee operating under the Order to ensure that no recommendations are inappropriately applied to conditions on the property that have changed since the recommendations were developed.

If site conditions have changed for any reason, the site should be reevaluated and the WRPP revised and updated as required. These conditions include any changes in land management activities or property conditions that have occurred since our site visit (regardless of what they are, how they occurred or who performed them). Similarly, if the landowner/lessee uses portions of this property not identified or covered under the current WRPP, this Water Resource Protection Plan will need to be updated with the new information, including possible additions or changes to the recommended remedial or corrective actions and BMPs (Appendix A).

If the property owner has enrolled their property under the Order, they are responsible for complying with all the requirements thereunder, regardless of who is operating or cultivating on that property. If the property is being formally or informally leased to an operator, and the lessee has enrolled under the Order, then the lessee is responsible for complying with the Order's requirements, including the WRPP and related recommendations and requirements. If the lease expires or the lessee is not otherwise available or does not respond to information requests by the NCRWQCB or PWA, then the landowner automatically assumes responsibility under the Order for the requirements therein and for all related penalties or actions brought by the NCRWQCB.

If at any time in the future the property is to transfer ownership, it is the responsibility of the current owner, or their representatives, to ensure that the information and recommendations contained herein are called to the attention of any future owner or agent for the property. Unless this WRPP is modified by the NCRWQCB, or another approved Third Party Program representative, the findings and recommendations contained in this WRPP shall be utilized as a tool while implementing the recommendations made within this WRPP. Necessary steps shall be taken to see that contractor(s) and subcontractor(s) carry out such recommendations in the field in accordance with the most current WRPP and BMP standards.

As a Third Party Program, PWA will be responsible for the data, interpretations and recommendations developed by PWA, but will not be responsible for the interpretation by others of that information, for implementation of corrective actions by others, or for additional or modified work arising out of those plans, interpretations and recommendations. PWA assumes no liability for the performance of other workers or suppliers while following PWA's recommendations in the WRPP, unless PWA is under contract to perform or oversee those

activities. Additionally, PWA is not responsible for changes in applicable or appropriate standards beyond our control, such as those arising from changes in legislation or regulations, or the broadening of knowledge which may invalidate or alter any of our findings or recommended actions.

Any WRPP plan review or construction management services that may be needed or identified in the recommendations sections of this report are separate tasks from the preparation of this WRPP, and are not a part of the contract under which this WRPP was prepared. If requested, additional PWA field inspections, surveys, WRPP revisions/updates, project layout, design, permitting, construction oversight/management, or other related services arising from tasks described and recommended in the WRPP may be performed under separate agreements requiring advance notice and contracting.

PWA's services consist of professional opinions and recommendations made in accordance with generally accepted principles and practices. No warranty, expressed or implied, or merchantability or fitness, is made or intended in connection with our work, by the proposal for consulting or other services, or by the furnishing of oral or written reports or findings. If the client desires assurances against project failures, they shall obtain appropriate insurance through their own insurance broker or guarantor.

This WRPP is considered a living document and shall be updated at least annually, or sooner if conditions have changed or land management actions have been undertaken after our site inspection. As an official part of the Waiver Program, this WRPP (including all its text, appendices, maps and photos) shall remain onsite and available for NCRWQCB staff to inspect and review upon request.

Prepared by:

Jack Skeahan
Staff Geologist
Pacific Watershed Associates, Inc.
P.O. Box 4433, Arcata, California 95518

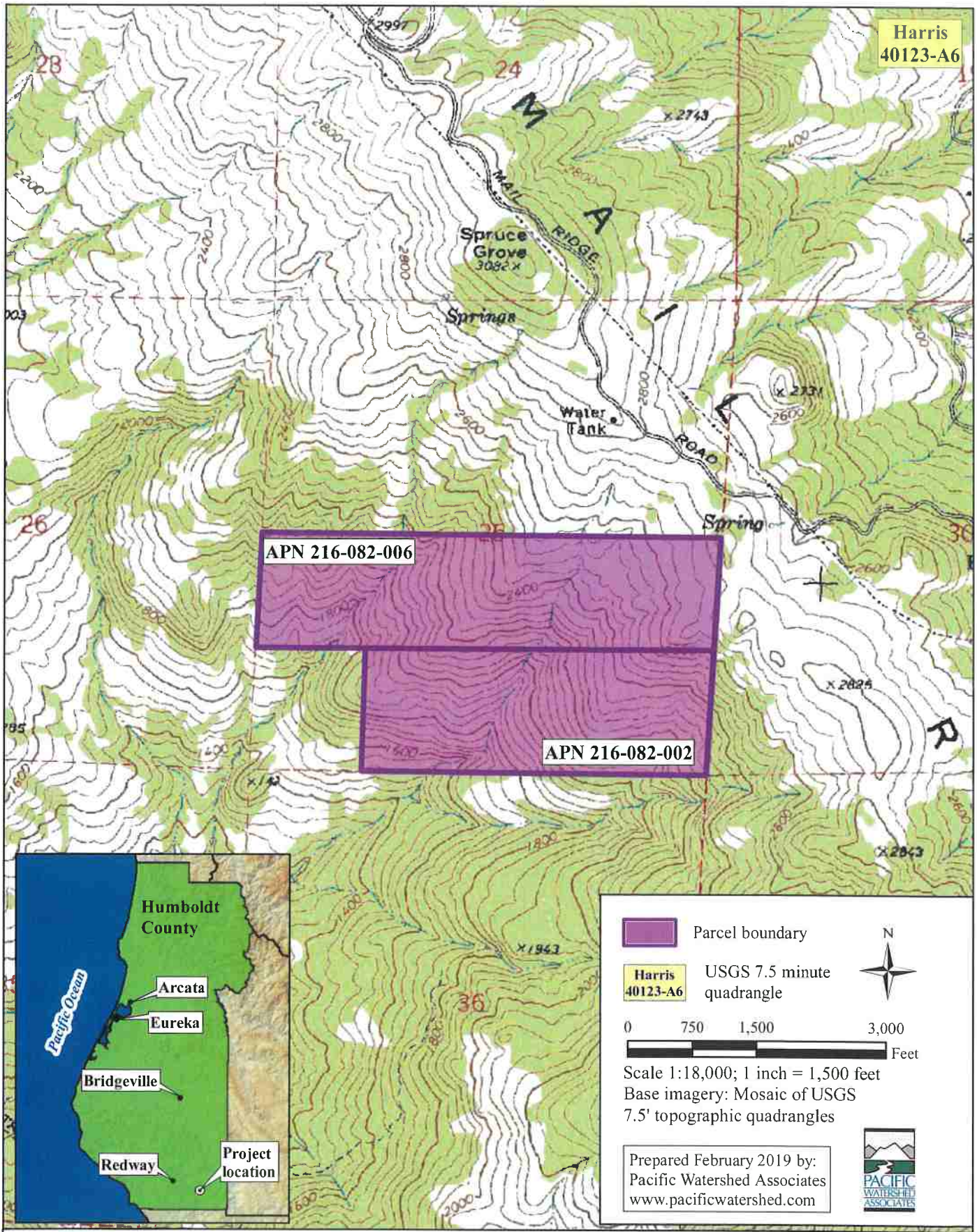


Figure 1. Location map for WDID #1B16938CHUM, APNs 216-082-006 and 216-082-002, located on Bell Springs Road, Harris, Humboldt County, California.

P:\GIS\5166

3.0 INTRODUCTION

This Water Resources Protection Plan (WRPP) summarizes the results of Pacific Watershed Associate's (PWA) site visits and subsequent analysis and documentation of site conditions on APNs 216-082-002 and 216-082-006 located on Bell Springs Road, Harris, California, as shown on Figure 1 and hereinafter referred to as the "Project Site." The WRPP describes and addresses the required elements and compliance with the 12 Standard Conditions established by the North Coast Regional Water Quality Control Board's (NCRWQCB) Order No. 2015-0023 to protect water quality from cannabis cultivation and related activities (Order). PWA has identified certain areas where the Project Site does not fully meet all 12 of the Standard Conditions of the Order. Section 4, below, identifies and discusses each of the 12 Standard Conditions as related to your property with regard to compliance with the NCRWQCB's Order.

The WRPP contains the following required sections:

1. Legible map (Figure 2A and 2B) depicting the required site elements and features associated with the 12 Standard Conditions of the Order;
2. Description of current site conditions, compliance with the 12 Standard Conditions, and prioritized remediation or corrective actions needed to bring the site into compliance with the requirements of the Order;
3. A monitoring and inspection plan to ensure BMPs used to protect and prevent impacts to water quality are being implemented as recommended by PWA (implementation monitoring), and that they are effective (effectiveness monitoring);
4. A water use plan, including water sources, water use and storage rights documentation, monthly water use documentation (quantity), and water conservation measures that are employed to prevent adverse impacts to water quality and water quantity in the watershed;
5. List of fertilizers and chemicals stored and used onsite, including a log of the frequency and quantity of these materials used.

4.0 STANDARD CONDITIONS CHECKLIST FOR APNs 216-082-002 and 216-082-006 as of 8/9/2016 and 11/9/2016

The NCRWQCB has developed a set of 12 Standard Conditions that shall be followed and implemented to protect and improve water quality as required under the NCRWQCB's Order. For a property to become compliant with the Order, all 12 Standard Conditions must be fully satisfied.

The following section details the specific requirements listed and described in the Order for each of the 12 Standard Conditions. Each Standard Condition has from 1 to 6 sub-requirements (*listed in italic type*), each of which must be satisfied to protect water quality and comply with the Order. The checklist developed by PWA for your property indicates: 1) whether the Standard Condition or Standard Condition sub-requirement was adequately met as of the date of PWA's field inspection, 2) PWA's observations and comments related to the Standard Condition or Standard Condition sub-requirement, 3) whether a relevant photo has been taken and included in the WRPP, and 4) recommended corrective or remedial actions that need additional work to meet the requirements of the Order.

In Section 5 of this WRPP, PWA has provided a summary prioritized list (Table 1) of the recommended treatments and actions to be implemented by you to meet the requirements of the Order. PWA will consult with you to review the WRPP document and findings, and to set a preliminary schedule for implementation of the recommended measures for achieving compliance with the Order. Please note that some of the PWA recommended actions are based on regulatory requirements and deadlines, while others can be scheduled to fit the needs of both you and your property.

4.1 Standard Condition #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.*

Meets condition? No

Observations/Comments: Approximately 3.62 miles of road was inspected on the Project Site, comprised of upper and mid-slope access roads and two quad trails. The majority of roads exhibit surface erosion issues caused by a lack of road drainage structures and inadequate maintenance. Multiple roads on the Project Site have ruts and gullies with sediment delivery to surface waters due to hydrologically connected road segments lacking adequate drainage features such as outsloping, berm removal, rolling dips and ditch relief culverts (DRC). Minor gullying has also been observed on other roads on the Project Site however sediment delivery to surface waters was not observed at those locations. Two gullies in the outboard fillslope to the right of Stream Crossing #13 (SC #13) appear to have been caused by diversion of the stream at SC #13 and/or concentrated road runoff from the left road approach to this location. The easternmost portion of Access Road #4 has been recently reopened although the majority of this road remains lightly vegetated and is not currently in use.

Photos: MP #1: Photo 1a. MP #2: Photo 2a.

Corrective or remedial actions needed: Multiple roads on the Project Site require the installation of road drainage structures to disconnect road surface and inboard ditch runoff along stream crossing approaches and at other locations where road surface runoff is being delivered to stream channels. See Figure 2A and 2B for proposed road drainage feature installation locations ("Install DRC" and "Install RD"). Proposed stream crossing upgrade treatments at SC #13 and road drainage feature installation for the associated left road approach is intended to disconnect flow to the two outboard fillslope gullies to the left of SC #13. These gullies should be monitored on a regular basis before and after upgrade treatments are implemented to ensure surface flow is disconnected and future sediment delivery is not occurring. Location references to left and right are when facing downstream or downslope. If desired, PWA can provide specific on-the-ground flagging for the equipment operator that identifies the location of needed rolling dips and ditch relief culverts on the access roads.

The installation of DRCs and/or rolling dips is intended to disconnect concentrated surface and inboard ditch runoff that results in sediment delivery to surface waters. Ensure that the construction and outlet location of the DRCs and rolling dips allow dispersal and infiltration of collected road runoff. Install additional DRCs and/or rolling dips with adequate spacing intervals at any location where concentrated road runoff and gullying is observed.

PWA also recommends installing water bars at 75 to 100 foot spacing intervals prior to each winter season on Access Road #4, both of the quad trails and any other seasonal roads where the potential for sediment delivery to surface waters exists. Typical drawings included in Appendix H will provide guidance for proper road drainage feature construction.

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.*

Meets condition? No
Observations: See Standard Condition 4.1a observations and comments, above.
Photos: See Standard Condition 4.1a Monitoring Points and photos, above.
Corrective or remedial actions needed: See Standard Condition 4.1a corrective actions, above.

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.*

Meets condition? No
Observations/Comments: Concentrated road surface runoff was not observed to drain toward any existing or potentially unstable slopes or earthen fills.

- The diverted stream flow from SC #5 flows slightly beyond SC #6 and discharges on the unstable outboard fill on the left side of the stream crossing (Figure 2B). This stream diversion is addressed in Standard Condition 4.2f, below.
- A streamside landslide feature was observed upstream of SC #21 and the Class III stream at this location flows along the left lateral scarp before reaching the road (Figure 2A). The landslide feature upslope of SC #21 may need to be treated in conjunction with upgrading of the stream crossing, as it has the potential for sediment delivery if left untreated.
- A slumping outboard fillslope was observed near the four 5,000-gallon water tanks upslope of CA #3. Although these unstable hillslope features were not observed to be related to road drainage, they should be monitored to ensure the potential threat to surface waters does not occur.

Photos: MP #3: Photo 3a and 3b.
Corrective or remedial actions needed: Correct the stream diversion at SC #5 (see Standard Condition 4.2f, below). Monitor the landslide feature upslope of SC #21 and the slumping outboard fillslope near the four 5,000-gallon water tanks upslope of CA #3. Implement appropriate BMPs such as drainage ditches/French drains to collect and convey flow away from unstable fillslopes and applying straw mulch, native erosion control seed and fiber rolls to protect from raindrop impact, concentrated runoff. Appropriate BMPs should be installed as necessary to prevent sediment delivery to surface waters (see Appendix A). The unstable hillslope material upslope of SC #21 should be excavated and a stream channel constructed to ensure stream flow reaches the crossing and potential sediment delivery from this location is mitigated.

d) *Roads, clearings, fill prisms, and terraced areas (cleared/developed areas with the potential for sediment erosion and transport) shall be maintained so that they are hydrologically disconnected, as feasible, from surface waters, including wetlands, ephemeral, intermittent and perennial streams.*

Meets condition? No

Observations: The graded cutslope surface directly upslope of Greenhouse #1 (GH #1; Figure 2B) and the outboard fillslope below the greenhouse exhibited surface erosion and sediment delivery to surface waters at the time of our site inspection (Figure 2B). Although the graded cutslope surface had been mulched with straw at the time of the Project Site inspections, fine grained sediment was observed to flow to an inboard ditch where this material was delivered to both SC #1 and SC #2. The outboard edge of the graded pad and outboard fillslope have had straw wattles installed, however surface erosion and sediment delivery was still occurring. Also see Standard Condition 4.1a observations and comments, above.

Photos: MP #4: Photo 4a – 4d. Also see Standard Condition 4.1a Monitoring Points and photos, above.

Corrective or remedial actions needed: If slope erosion is continuing at this time, PWA recommends installing multiple erosion control features at the cleared cutslope and outboard fillslope located at GH #1. Straw wattles oriented horizontally with regular six foot vertical spacing intervals should be installed on the cleared cutslope surface to slow runoff and entrain fine grained sediment. The existing straw wattles on the outboard fillslope should be properly maintained and additional straw wattles installed as needed to properly control surface erosion and entrain sediment. Additional straw mulch should be applied to all these bare soil surfaces and native erosion control seed should be spread to protect against further surface erosion and speed up the revegetation process. Until surface erosion from the cutslope and outboard fillslope surfaces is controlled and adequate vegetation has been established, straw wattles and/or sediment traps may be needed at the inboard ditch and road surface discharge locations to mitigate delivery of fine grained sediment to SC #1, SC #2 and SC #3. Also see Standard Condition 4.1a corrective actions, above.

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.*

Meets condition? No

Observations/Comments: Multiple DRCs exist on the Project Site. Regular maintenance, such as cleaning of culvert inlets, armor placement or downspout installation, has not been performed at some of these DRCs although sediment delivery at these locations was not observed. Road pad and terrace surfaces at multiple locations show evidence of erosion and sediment delivery to surface waters. Also see Standard Condition 4.1a observations and comments, above.

Photos: See Standard Condition 4.1a, 4.1c and 4.1d Monitoring Points and photos, above.

Corrective or remedial actions needed: See Figures 2A and 2B for installation locations of proposed road drainage features. Also see Standard Condition 4.1a and 4.1d corrective actions, above.

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

Meets condition? Yes

Observations/Comments: Stockpiled construction materials were stored to the west of GH #1 near a Class III stream, however these materials were not observed to threaten water quality. No other stockpiled construction materials were observed on the Project Site with delivery potential to receiving waters.

Photos: MP #23: Photo 23c.

Corrective or remedial actions needed: Monitor the stockpiled construction materials west of GH #1 to ensure they do not have transport potential to receiving waters. Where possible, store future construction materials as far away as possible from receiving waters and ensure they do not threaten water quality.

4.2 Standard Condition #2. Stream Crossing Maintenance

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

Meets condition? No

Observations/Comments: There are 18 stream crossings on the Project Site and three stream crossings off the Project Site located on the northern portion of Access Road #1. Eleven of the 18 onsite stream crossings have undersized culverts based on drainage area calculations (Table 4.2 (below), Figures 2A and 2B). Stream Crossing #21 and the southernmost off-property stream crossing do not have a formal drainage structure. The southernmost off-property stream crossing may also have a completely plugged culvert and the stream at this location is currently diverted down the left inboard ditch to the inlet of SC #11. See Table 4.2, below, for culvert sizing and additional observations and treatment recommendations. Methods for determining culvert sizes to address the 100-year peak streamflow include the Rational Method, USGS Magnitude and Frequency Method and Flow Transference Method. All of the stream crossing upgrades will be constructed according to standards provided in the "Handbook for Forest, Ranch and Rural Roads," (Weaver, Weppner, and Hagans, 2015), and the California Salmonid Stream Habitat Restoration Manual, Part X (Weaver et al., 2006).

Photos: MP #1: Photo 1b. MP #2: Photo 2b and 2c. MP #3: No photo. MP #5: Photo 5a and 5b. MP #6: Photo 6a and 6b. MP #7: Photo 7a and 7b. MP #8: Photo 8a. MP #10: Photo 10a and 10b. MP #13: Photo 13a and 13b. MP #14: Photo 14a and 14b. MP #18: Photo 18a and 18b.

Corrective or remedial actions needed: PWA recommends upgrading the stream crossings on the Project Site with properly sized culvert diameters listed in Table 4.2 that are designed to pass the expected 100-year peak stream flow, as well as the other stream crossing construction standards required by the Order (e.g., minimized hydrologic connectivity, correct orientation, no diversion potential, etc.). A Summary List provided below Table 4.2 includes treatment recommendations for each stream crossing to bring them into compliance with the Order. When the southernmost off-property stream crossing is upgraded and the stream is realigned to its original watercourse the culvert at DRC #5 will also need to be upgraded to a 30-inch diameter culvert and reclassified and designed as a stream crossing. At the time of the Project Site inspection the culvert at DRC #5 was observed to drain spring flow from a

hillslope gully. Due to the unknown depth and future instability of the landslide located upslope of SC #21, and to minimize excavation associated with installation of a culvert, an armored fill crossing may be an alternative treatment to culvert installation at this location. There is a skid crossing on Access Road #4 in the southwest corner of the Project Site. Depending upon the client's future plan for this road segment, this skid crossing could either be decommissioned or, based on drainage area calculations, upgraded with a 72-inch diameter culvert.

Table 4.2. Stream crossing culvert sizing and additional observations and treatment recommendations

The following table summarizes observations made of stream crossings on the Project Site. Refer to this table and the detailed comments and recommendations in Standard Condition 4.2 as well as the Corrective Action Table (Table 1) and Summary List, below, regarding treatment recommendations to bring these stream crossings into compliance with the Order.

Stream Crossing	Drainage Area (acres)	Q_{100} (cubic feet per second)	Existing Culvert Diameter (inches)	Existing Culvert Undersized (True/False)	Recommended Culvert Diameter (inches)	Trash Rack Recommended (Yes/No)	Aquatic Organism Passage (Yes/No)	Maintenance performed (Yes/No)	Culvert Horizontally (Hor) and Vertically (Vert) Aligned (Yes/No)	Diversion Potential (Yes/No)	Treatment Required (Yes/No)
1	17	25	30	**TRUE**	**36**	No	N/A	Yes	Yes (Both)	No	**Yes**
2	5	7	18	**TRUE**	**24**	**Yes**	N/A	Yes	No (Vert)	Yes	**Yes**
3	5	7	18	**TRUE**	**24**	No	N/A	No	No (Vert)	Yes	**Yes**
4	17	26	24	**TRUE**	**36**	No	N/A	Yes	No (Both)	Yes	**Yes**
5	9	14	24	**TRUE**	**30**	**Yes**	No	No	No (Vert)	Yes	**Yes**
6	12	18	30	FALSE	**30**	**Yes**	No	No	No (Vert)	No	**Yes**
7	7	10	18	**TRUE**	**24**	No	N/A	Yes	No (Vert)	Yes	**Yes**
8	8	13	24	FALSE	**24**	No	No	Yes	No (Both)	Yes	**Yes**
9	9	13	24	**TRUE**	**30**	No	No	Yes	No (Vert)	Yes	**Yes**
10	12	18	18	**TRUE**	**30**	No	No	Yes	No (Vert)	Yes	**Yes**
11	32	49	36	**TRUE**	**48**	No	No	Yes	No (Vert)	Yes	**Yes**
12	8	12	24	FALSE	**24**	No	No	Yes	No (Vert)	Yes	**Yes**
13	4	6	18	FALSE	**18**	No	No	Yes	No (Both)	Yes	**Yes**
14	8	12	24	FALSE	**24**	**Yes**	N/A	Yes	No (Both)	Yes	**Yes**
15	157	161	48	**TRUE**	**72**	No	No	No	No (Vert)	No	**Yes**
16	34	51	36	**TRUE**	**48**	**Yes**	No	Yes	No (Vert)	No	**Yes**
17	34	50	48	FALSE	**48**	No	Yes	Yes	Yes (Both)	No	**No**
21	6	9	N/A	**N/A**	**24**	No	N/A	No	N/A	Yes	**Yes**

Summary List of Stream Crossings Requiring Upgrade Treatments and/or Culvert Replacement

SC #1: Install a flared inlet.

SC #2: Install a 24-inch diameter culvert vertically and horizontally aligned with the natural stream channel, install a single post trash rack and critical dip.

SC #3: Install a 24-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #4: Install a 36-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #5: Install a 30-inch diameter culvert vertically and horizontally aligned with the natural stream channel, install a single post trash rack and install a critical dip.

SC #6: Install a 30-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a single post trash rack.

SC #7: Install a 24-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #8: Install a 24-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #9: Install a 30-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #10: Install a 30-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #11: Install a 48-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #12: Install a 24-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #13: Install a 24-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a critical dip.

SC #14: Install a single post trash rack and a critical dip.

SC #15: Install a 72-inch diameter culvert vertically and horizontally aligned with the natural stream channel.

SC #16: Install a 48-inch diameter culvert vertically and horizontally aligned with the natural stream channel and install a single post trash rack.

SC #21: Install an armored fill stream crossing.

b) *Culverts and stream crossings shall be designed and maintained to address debris associated with the expected 100-year peak streamflow.*

Meets condition? No

Observations/Comments: Eleven culverted stream crossings and one stream crossing lacking a formal drainage structure (SC #21) located on the Project Site are undersized to pass debris associated with the expected 100-year peak streamflow based on drainage area calculations (Table 4.2). Due to the amount of woody debris observed upslope of the culvert inlets, single post trash racks are recommended at five stream crossings on the Project Site (Table 4.2). Methods for determining culvert sizes to address debris associated with the 100-year peak streamflow include the Rational Method, USGS Magnitude and Frequency Method and Flow Transference Method. All of the stream crossing upgrades will be constructed according to standards provided in the "Handbook for Forest, Ranch and Rural Roads," (Weaver, Weppner, and Hagans, 2015), and the California Salmonid Stream Habitat Restoration Manual, Part X (Weaver et al., 2006). PWA also recommends upgrading stream crossing culverts to a minimum 24-inch diameter culvert to allow for passage of woody debris and sediment in transport and to reduce plug potential.

Photos: MP #9: Photo 9a and 9b. MP #17: Photo 17a and 17b. Also see Standard Condition 4.2a Monitoring Points and photos, above.

Corrective or remedial actions needed: PWA recommends upgrading the 11 stream crossings mentioned above and in Table 4.2 with culverts designed to pass the 100-year peak flow and associated debris in transport. Single post trash racks should also be installed upstream of the culvert inlets at the five stream crossings identified above (SC #2, 5, 6, 14 and 16) and in Table 4.2 to minimize plug potential. Typical drawings included in Appendix H will provide guidance for proper trash rack installation.

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.*

Meets condition? No

Observations/Comments: Ten of the eleven stream crossings on intermittent streams do not currently allow passage of aquatic organisms (Table 4.2) and are required to be replaced to allow aquatic organism passage according to the Order. The remaining stream crossings are installed on ephemeral streams or currently allow aquatic organism passage.

Photos: MP #2: Photo 2c. MP #8: No photo. MP #9: Photo 9b. MP #11: Photo 11b. MP #12: Photo 12b. MP #13: Photo 13b. MP #14: Photo 14b. MP #15: No photo. MP #16: Photo 16b. MP #18: Photo 18b.

Corrective or remedial actions needed: When upgrading the stream crossings mentioned above and listed in Table 4.2, ensure that new culverts are installed at or slightly embedded in the natural channel grade or the stream crossing is otherwise designed to allow passage of aquatic organisms.

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.*

Meets condition? No

Observations/Comments: Adequate maintenance was not being performed at five of the 18 stream crossings on the Project Site (Table 4.2). The culvert inlet of SC #5 has not been maintained properly so as to prevent accumulation of sediment and debris which has led to plugging of the inlet and subsequent stream diversion. There was minimal erosion observed at the remaining stream crossings and it appears adequate maintenance was being performed at these locations.
Photos: MP #1: Photo 1b. MP #3: No photo. MP #8: Photo 8a. MP #9: Photo 9c. MP #18: Photo 18a.
Corrective or remedial actions needed: The culvert inlet at SC #5 should be immediately cleared of sediment and debris to convey stream flow through the road fill and address the existing stream diversion. Also see Standard Condition 4.2f, below, for additional treatment recommendations. Monitor and perform adequate maintenance on all stream crossings on the Project Site prior to each winter period and then after each significant storm and runoff event during the winter so as to prevent or minimize erosion. Employ appropriate BMPs listed in Appendix A.

e) *Culverts shall align with the stream grade and natural stream channel at the inlet and outlet where feasible.*

Meets condition? No
Observations/Comments: Of the 17 culverted stream crossings on the Project Site, 15 were either not installed at grade or horizontally aligned with the natural stream channel (Table 4.2).
Photos: MP #1: Photo 1b. MP #2: Photo 2c. MP #6: Photo 6b. MP #7: Photo 7a and 7b. MP #8: No photo. MP #9: Photo 9b. MP #10: Photo 10b. MP #11: Photo 11a and 11b. MP #12: Photo 12b. MP #13: Photo 13b. MP #14: Photo 14b. MP #15: No photo. MP #16: Photo 16a and 16b. MP #17: Photo 17a and 17b. MP #18: Photo 18b.
Corrective or remedial actions needed: Upgrade the culverted stream crossings with properly installed culverts that align with the natural channel grade and stream alignment where possible.

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.*

Meets condition? No
Observations/Comments: Of the 18 stream crossings on the Project Site, 13 were observed to have diversion potential (Table 4.2). Due to a plugged culvert at SC #5, the stream at this location is diverted down the left road approach to SC #6. Due to a lack of a formal drainage structure or completely plugged culvert at the southernmost off-property stream crossing, the stream at this location is diverted out of its original watercourse and down the left inboard ditch to the inlet of SC #11 (Figure 2B).
Photos: MP #1: Photo 1a. MP #3: No photo. MP #6: No photo. MP #7: No photo. MP #8: Photo 8a. MP #10: Photo 10a. MP #11: Photo 11a. MP #12: Photo 12a. MP #13: Photo 13a. MP #14: No photo. MP #15: No photo. MP #16: No photo. MP #17: Photo 17a.
Corrective or remedial actions needed: When the culverts on the Project Site are upgraded, ensure that the rebuilt crossings are constructed to prevent stream diversion, in case of a plugged culvert or exceptionally high flood flow, by installing a critical dip

on the down-road hinge line of the stream crossings. At SC #5 the culvert inlet should be cleared of all sediment and debris and the existing diversion gully down the left road should be blocked. A critical dip should be installed on the left hinge line of this crossing to eliminate diversion potential. The unstable and slumping left outboard fillslope at SC #6 should be excavated to stable native ground. This outboard fillslope failure was likely caused or exacerbated by excess flow from the diverted stream from SC #5.

Standard Condition #2. - General comments and recommendations: Refer to Table 4.2 and the Summary List, above, for stream crossing observations, recommended culvert diameters and additional treatment recommendations. Obtain all necessary agreements and permits prior to commencing work in any watercourse or at any stream crossing. These may include, but not be limited to: California Department of Fish and Wildlife (CDFW) Lake or Streambed Alteration Agreement (LSAA) 1602, Water Board Section 401 permit, Army Corps of Engineers (ACOE) Section 404 Permit, as well as any county or other permit that may be required.

4.3 Standard Condition #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 1 or 2 watercourse or within 50 feet of any Class 3 water course or wetlands.*

Meets condition? No

Observations/Comments: Under the Order, all cultivation areas AND associated facilities that are located within 50-feet of a Class III watercourse, or within 100-feet of a Class I or Class II watercourse, are required to be removed from the buffer, and the site is to be restored. There are currently no provisions for exceptions, regardless of the level of their potential threat to water quality.

1. Greenhouse #1 (GH #1) and several "compost tea" tanks (Figure 2B) are located between two Class III streams and the western edge of GH #1 was observed to be slightly within the 50-foot riparian setback of the Class III stream flowing through SC #2. Construction-related materials, garbage and a fuel can were also observed to be stored within the 50-foot riparian setback of the same Class III stream (see MP #23; Figure 2B). This greenhouse is slightly outside of the 50-foot riparian setback of the Class III stream flowing through SC #1 and SC #3.
2. The southeastern portion of Cultivation Area #3 (CA #3) and two piles of cultivation-related green waste is located within the riparian setback of a Class II stream (Figure 2A). Based on subsequent communication with the client, cultivation activities at CA #3 are no longer occurring. The cultivation-related green waste is addressed in Standard Condition 4.10, below.

Greenhouse #1 is designed to be a fully contained structure with a permanent concrete foundation that will contain and reuse irrigation water, nutrients and planting medium. Aside from the footprint of this structure, minimal to no impacts to water quality from this greenhouse are expected. According to the client, the planting holes at CA #3 still

contain potting soil and native vegetation is in the process of re-establishing itself at this location. Under the order, this spent potting soil is considered spoil material under Standard Condition 4.4 and cultivation-related waste under Standard Condition 4.10 and will be addressed in those sections of this report. Additional appropriate BMPs can be implemented at these locations to help mitigate potential threats to surface waters. PWA did not observe any other impacts to riparian areas as part of cultivation activities on this parcel.

Photos: MP #23: Photo 23a - 23e.

Corrective or remedial actions needed:

1. Relocate GH #1, construction-related garbage, the fuel can and any cultivation-related materials near GH #1 to a suitable location outside of the 50-foot riparian setback required for a Class III stream (Figure 2B). Alternatively, you may request a variance from the Order's requirement related to moving GH #1, especially if it has a concrete perimeter foundation, but that appeal might not be heard or approved by the Water Board and you will be required to move the structure and restore the site.
2. Relocate the spent growth medium within the 100-foot riparian buffer at CA #3 and any cultivation-related materials and green waste to a suitable location outside of the 100-foot riparian setback required for a Class II stream. These items should be properly stored after relocation to prevent surface transport to nearby watercourses or leaching into groundwater.

Once all of the structures and materials mentioned above have been relocated, the disturbed buffer areas at all these sites should be seeded and mulched for erosion control and replanted with native riparian vegetation. Implement additional appropriate BMPs at each of these locations to protect water quality and the riparian buffer zone, as necessary.

b) *Buffers shall be maintained at natural slope with native vegetation.*

Meets condition? No

Observations/Comments: The placement of GH #1 has occurred on what appears to be a stable landing, although construction of the landing has impacted the natural slope and native vegetation. The installation of planting holes at CA #3 has minimally impacted riparian vegetation and the natural slope. The native vegetation at this location consists mainly of grasses, which, according to the client, are naturally revegetating this area. Also see Standard Condition 4.3a comments, above.

Photos: See Standard Condition 4.3a Monitoring Points and photos, above.

Corrective or remedial actions needed: If a variance is not granted for GH #1 and this structure must be relocated the impacted area at this location must be treated with erosion control measures. After relocation of GH #1 (if required) and the spent potting soil at CA #3 to a suitable location outside of the riparian buffer zones, PWA recommends seeding and mulching for erosion control and replanting the impacted area with native vegetation. After the spent potting soil at CA #3 has been relocated, the potting holes should be filled in with native fill material and re-contoured to match the natural hillslope for proper drainage. The graded pad at GH #1 may also need to be decommissioned and the slope re-contoured to match the natural hillslope in the event

that GH #1 is required to be relocated. Also see Standard Condition 4.3a observations and comments, above.

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.*

Meets condition? No
Observations/Comments: See Standard Condition 4.3a comments, above.
Photos: See Standard Condition 4.3a Monitoring Points and photos, above.
Corrective or remedial actions needed: See Standard Condition 4.3a observations and comments, above.

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.*

Meets condition? No
Observations/Comments: See Standard Condition 4.3a comments, above.
Photos: See Standard Condition 4.3a Monitoring Points and photos, above.
Corrective or remedial actions needed: See Standard Condition 4.3a observations and comments, above.

Standard Condition #3. - General comments and recommendations: Under current conditions, certain cultivation areas and/or other related facilities on this Project Site do not meet the setback or buffer area requirements to be achieved and maintained under the NCRWQCB Waiver of Waste Discharge (Order) (see Standard Condition 4.3a, above). However, if you are participating in the Humboldt County Land Use planning and permitting process, Humboldt County Planning and Building Department (HCPBD) also requires that no infrastructure be moved at this time to maintain consistency in the process of evaluating and approving a pending land use application on file for properties in Humboldt County.

The Schedule of Corrective Actions listed in Table 1 of this WRPP specifies the date by which cultivation areas and related facilities now located within stream buffers should be removed from the riparian buffer areas. That WRPP Table 1 schedule and date of removal should be followed by everyone who is not a part of the HCPBD land use planning process.

If you are applying under HCPBD land use permitting process and have been specifically directed not to remove or move infrastructure, the following interim measures shall be applied until its removal has been approved:

(1) Obtain a written note from the HCPBD stating that you are directed not to remove the infrastructure within stream buffer areas on the Project Site; keep that note with your WRPP.
(2) All cultivation waste and spent soils should be removed and stored outside the buffer areas during the winter period as per recommendations included elsewhere in this WRPP.

(3) All petroleum products, fertilizers, and other chemicals that are stored within the buffer area(s) must be moved to proper storage facilities outside stream buffers elsewhere on the Project Site, and as recommended elsewhere in the WRPP.
(4) Use timed or volume limited drip irrigation for all watering of cultivation areas that fall within stream buffer areas.
(5) Minimize soil disturbances and bare earth areas within these cultivation areas; seed and mulch all bare earth prior to October 31 each year.
(6) Maintain native grassy buffers and/or dense riparian vegetation between these cultivation areas and the potential receiving waterbody.
(7) Prior to October 31, planting beds and planting pots containing spent soils or amendments should be either 1) fully tarped or 2) planted with heavy cover crops during the wet season to minimize surface runoff and leaching of nutrients. If cover crops cannot be maintained due to cold weather, the beds/pots should be fully tarped.
(8) Regularly monitor the subject garden area and related facilities to assure the interim measures are effective and adaptively manage the area to minimize or eliminate surface runoff and potential impacts to water quality.

4.4 Standard Condition #4. Spoils Management

a) Spoils shall not be stored or placed in or where they can enter any surface water.

Meets condition? Yes
Observations/Comments: Spoil material located on the Project Site was not observed to be stored with the potential to enter surface waters.
Photos: No
Corrective or remedial actions needed: Properly store and cover where necessary any spoil materials on the Project Site to ensure mobilization of spoil material and delivery to surface waters does not occur. Refer to Standard Condition 4.10, Cultivation-Related Wastes, below, for corrective actions related to spent potting soils and soils amendments, etc.

b) Spoils shall be adequately contained or stabilized to prevent sediment delivery to surface waters.

Meets condition? Yes
Observations/Comments: See Standard Condition 4.4a comments, above.
Photos: No
Corrective or remedial actions needed: See Standard Condition 4.4a observations and comments, above.

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.

Meets condition? Yes
Observations/Comments: No spoils generated through development or maintenance of roads with the potential for delivery to surface waters were observed on the Project Site.
Photos: No

Corrective or remedial actions needed: None

4.5 Standard Condition #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 operations, instream flow requirements and/or needs in the watershed, defined at the scale of a HUC 12 watershed or at a smaller hydrologic watershed as determined necessary by the Regional Water Board Executive Officer.*

Meets condition? Unknown

Observations/Comments: The client extracts water for irrigation from an approximately 250-foot deep unpermitted groundwater well (GW #1) located on the Project Site (Figure 2B) and no diversion of surface waters is occurring. A second groundwater well (GW #2) is used for watering of livestock and is not used for irrigation. Based on the 20,510 ft^2 cultivation area observed during the PWA site inspection in 2016 and the amount of water storage currently available (49,000 gallons) in rigid water tanks it appears that water storage is not sufficient for the landowner to avoid extraction of groundwater for irrigation during the dry season if required. At this time it is unclear whether GW #1 is hydrologically disconnected from surface waters. Based on subsequent communication with the client cannabis cultivation did not occur during the 2017 cultivation season and cultivation activities at CA #3 are no longer occurring. As such the anticipated cultivation area for the 2018 cultivation season is estimated to be 11,520 ft^2 and cultivation activities conducted at GH #1 and #2 (Figure 2B). Using preliminary water use estimates provided by the client of approximately 3.1 gallons per square foot of cannabis for irrigation (35,610 gallons), total water storage in tanks is estimated to be 13,390 gallons more than that needed to supply dry season irrigation without extracting groundwater during the dry season (see preliminary water budget analysis in General Comments and Recommendations, below). This preliminary Water Budget needs to be refined by accurate and quantitative water monitoring to determine how much additional storage is needed.

Photos: No

Corrective or remedial actions needed: Obtain the drilling log for GW #1 and have a geologist or other qualified professional verify that the well is not hydrologically connected to surface waters. Preliminary calculations based on revised cultivation area indicate that additional water storage may not be needed for this Project Site if you are not allowed to extract (pump) groundwater during the dry season. A precise Water Budget should be developed and refined by accurate water monitoring (using water meters) to quantify the exact volume of water storage you will need for your operations so as to not extract groundwater during the dry season each year if required. A Water Monitoring Plan will need to be implemented. Under the Order you are required to measure and document all the surface water or groundwater you divert, extract or import, store and use in your operations. Install water monitoring flow meters on your groundwater well and water tank distribution lines. The water data for this Project Site is required to be reported to the NCRWQCB on or before each March 31 for the preceding calendar year. See Appendix D for water monitoring data forms.

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.*

Meets condition? Yes

Observations/Comments: A drip irrigation system, controlled hand watering, biodynamic soils and capillary mats with a built in drip system that reduces water use by approximately 75% are currently used on the Project Site to improve water conservation. The greenhouse under construction at the time of the site inspection (GH #1) is also designed to be a fully contained and closed loop system to increase water efficiency and conservation. A rainwater catchment system is proposed for the Project Site to minimize or eliminate groundwater extraction for irrigation.

Photos: No

Corrective or remedial actions needed: Install shut off float valves on any water tanks where necessary to prevent overflow and improve water conservation. Ensure that all water tanks and water lines on the Project Site are properly sealed and regularly maintained to prevent leaks or overflow. Additional water conservation measures should continue to be investigated and employed to minimize groundwater extraction and use. These include timed or volume-limited drip irrigation systems, incorporating water holding amendments and native soil during the initial soil preparation at the start of the season, planting beds with cover crops to minimize evaporation, using surface mulch during the growing season, and planting plants in the ground instead of above ground pots. Rainwater harvesting during the wet season should be evaluated to limit or completely eliminate groundwater extraction for irrigation during the dry season. Dry season water conservation can also be improved by addition to waters storage on the Project Site, including addition hard tanks and/or one or more off-stream, rainwater-fed ponds.

c) *For Tier 2 Dischargers, if possible, develop off-stream storage facilities to minimize surface water diversion during low flow periods.*

Meets condition? Yes

Observations/Comments: There is currently 49,000 gallons of water storage on the Project Site. Based on the revised estimates of the cultivation area (11,520 ft^2) and existing off-stream water storage (49,000 gallons), it appears that water storage may be sufficient to minimize or eliminate groundwater extraction during the dry season. Total water storage is estimated to be 13,390 gallons more than that needed for cannabis irrigation without extracting groundwater during the dry season (see preliminary water budget analysis in General Comments and Recommendations, below). Ongoing revisions of storage requirements will be made based on the reduced cultivation area and water use for the 2018 cultivation season.

Photos: No

Corrective or remedial actions needed: Develop and refine a Water Budget for your Project Site to determine if sufficient water storage volumes exist for all your water needs during the dry season. Evaluate the feasibility, designs, locations, and permitting requirements for adding additional water storage, if necessary, to meet dry season irrigation needs, including additional rainwater-fed rigid water tanks or an additional rainwater-fed, off-stream pond. If required increase water storage to limit extraction of

groundwater to the winter months and completely eliminate groundwater extraction needed for irrigation activities during the dry season from May 15 through October 31.

d) Water is applied using no more than agronomic rates.

Meets condition? Unknown

Observations/Comments: According to the cultivator, water is applied sparingly due to water scarcity, though application was not observed due to the early inspection date.

Photos: No

Corrective or remedial actions needed: To verify conformance with this Standard Condition, start measuring and recording your water usage using flow meters on a per plant basis, based on type and size of plant pot, full term versus short season (light deprivation) plant, and type of irrigation. Observe and monitor soil moisture so watering, fertilizer and chemical applications are made only when necessary and overwatering and excess infiltration is avoided. This data will help you refine a Water Budget for your operation and determine agronomic rates of watering.

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.

Meets condition? Yes

Observations/Comments: The water used for irrigation on the Project Site is extracted from an approximately 250-foot deep unpermitted groundwater well (GW #1, Figure 2B). An Initial Statement of Diversion and Use (ISDU) application had been submitted to the State Water Board for the groundwater well, although the ISDU has been rescinded as it was ultimately deemed to not be required.

Photos: No

Corrective or remedial actions needed: As opposed to extracting groundwater, consider obtaining irrigation water for your agricultural needs by developing rainwater capture systems to fill rigid water tanks and/or an off-stream, rainwater-fed pond.

Submit annual groundwater extraction and use volumes to the NCRWQCB by March 31 for the preceding calendar year.

Fish and Wildlife impacts: While not a true water right, if you are directly diverting water from a jurisdictional spring or stream, pumping water from a well, or capturing surface water in a pond, you will need to obtain a consultation with California Department of Fish and Wildlife (CDFW) staff to determine if you are required to file a CDFW Lake or Streambed Alteration Agreement (LSAA). The Agreement will be needed to cover stream crossing upgrade treatments and may be needed for the groundwater well if it is determined to be hydrologically connected to surface waters.

• Lake and Streambed Alteration Agreement (LSAA).
https://www.wildlife.ca.gov/Conservation/LSA

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.

Meets condition? Yes
Observations/Comments: The majority of water storage tanks utilized on this Project Site are located on stable slopes on or near ridge tops and far from any streams making it unlikely that water storage structure failures could result in delivery of runoff and eroded sediment to the stream network. The outboard fillslope of the road bench where the four 5,000-gallon water tanks are sited upslope of CA #3 was slumping at the time of the PWA site visit. Although the tanks were set back from the outboard edge and appeared stable this location should be monitored to ensure containment failure does not occur.
Photos: Photo 26a.
Corrective or remedial actions needed: Monitor the slumping outboard fillslope at the location mentioned above for further signs of instability. These water tanks may need to be relocated to a more secure and stable location if evidence of further instability and the potential for containment failure is observed.

Standard Condition #5 - General comments and recommendations: Currently, the only source of water for both irrigation and domestic use is an approximately 250-foot deep groundwater well (GW #1, Figure 2B). There is 49,000 gallons of water storage capacity in rigid water tanks on the Project Site. At this time, the water storage capacity contained within this Project Site appears to fully satisfy the demand that would be expected from the revised estimate of the cultivation area (~11,520 ft^2) during the annual dry season (May 15th through October 31st). A Water Budget will be developed and refined by accurate water monitoring to determine how much additional water storage, if necessary, would be required for dry season forbearance and operation.

Based on water use estimates from the HCPBD, and PWA client data, adequate storage does not currently exist on the Project Site. These estimates and data suggest that 10 gallons of water is needed for every square foot of cultivation to observe the forbearance period. Based on the existing cultivation area of 11,520 ft^2, a total of 115,200 gallons of water storage would be needed to observe the 150 day forbearance period. Using these estimates, the current amount of water storage (49,000 gallons) is not adequate for the size of the operation and approximately 66,200 gallons of additional water storage would be required. Rough water use estimates provided by the client of 35,610 gallons per cultivation season suggests that no additional storage is needed. If water storage is not sufficient for current operations, and summer water pumping from the well is not allowed, then additional storage will need to be added so the "diverter" can completely forbear during the dry season. In this way, as per the Order, it can then be assumed that water use will not impact downstream water quality or beneficial uses.

A LSAA will need to be submitted to CDFW prior to any stream crossing upgrade or decommissioning work that has been prescribed on the Project Site, and possibly for the groundwater well. It is important that the driller's well log for the water well (GW #1) be obtained so its possible connection to surface waters can be evaluated.

PWA highly recommends, and state agencies may require, that you install flow meters on your groundwater well, water tanks, and/or on your distribution lines, to accurately document the timing and volume of your groundwater extraction and use. The client will

need to document the amount of groundwater that is extracted, stored in tanks, and used for irrigation and other purposes through time. PWA has created a simple log sheet to help you monitor your water usage (see Appendix D).

4.6 Standard Condition #6. Irrigation Runoff

a) *Implementing water conservation measures, irrigating at agronomic rates, applying fertilizers at agronomic rates and applying chemicals according to the label specifications, and maintaining stable soil and growth media should serve to minimize the amount of runoff and the concentration of chemicals in that water. In the event that irrigation runoff occurs, measures shall be in place to treat/control/contain the runoff to minimize the pollutant loads in the discharge. Irrigation runoff shall be managed so that any entrained constituents, such as fertilizers, fine sediment and suspended organic particles, and other oxygen consuming materials are not discharged to nearby watercourses. Management practices include, but are not limited to, modifications to irrigation systems that reuse tailwater by constructing off-stream retention basins, and active (pumping) and or passive (gravity) tailwater recapture/redistribution systems. Care shall be taken to ensure that irrigation tailwater is not discharged towards or impounded over unstable features or landslides.*

Meets condition? Yes
Observations/Comments: No evidence of irrigation runoff to nearby watercourses was observed on the Project Site. Because irrigation is limited to a drip system and precise hand watering, there is a high degree of control. The closest active cultivation areas to surface waters at the time of the Project Site inspection was GH #2, which is greater than 200 feet away from a Class III stream. No evidence of irrigation runoff was observed at this location. Any runoff that theoretically may occur at GH #2 could not travel far due to the low gradient topography and/or adequate vegetative buffer. Greenhouse #1, once operational, will be a closed loop system and water used for irrigation will be captured and reused with no threat of delivery to surface waters.
Photos: No
Corrective or remedial actions needed: PWA recommends monitoring GH #2, and GH #1 once operational, to ensure irrigation runoff is not occurring. Appropriate BMPs should be implemented at the locations mentioned above as needed to prevent nutrient delivery to surface waters.

Standard Condition #6 - General comments and recommendations: According to the Order, irrigation and fertilization shall occur at agronomic rates and chemicals shall be applied according to the label instructions and specifications. Agronomic rates are those rates of application of water, fertilizers and other amendments that are sufficient for utilization by the crop being grown, but not at a rate that would result in surface runoff or infiltration below the root zone of the crop being grown.

In the event that irrigation runoff occurs or could occur, you shall ensure that contaminated runoff does not enter nearby watercourses. This can be accomplished by constructing or designing containment measures, including sediment basins, berms, infiltration ditches and/or other Best Management Practices (BMPs), as needed, to contain and control surface runoff (see Appendix A).

4.7 Standard Condition #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.*

Meets condition? No

Observations/Comments: According to the landowner, the majority of fertilizers and amendments are stored indoors when not in immediate use, however, spent potting soil in planting holes at CA #3 was observed with the potential for leaching into groundwater if left uncovered over the wet season.

Photos: MP #23: Photo 23b.

Corrective or remedial actions needed: Potting soil at CA #3 should be tarped or have thick cover crops planted and maintained to prevent nutrient mobilization over the wet season. The spent potting soil located within the 100-foot riparian buffer zone required for a Class II stream should be relocated to a suitable location and stored appropriately. Any other spent potting soil located on the Project Site should be tarped or have heavy cover crops planted to prevent nutrient mobilization over the wet season. Any fertilizers, potting soils and soil amendments on the Project Site shall continue to be stored indoors, under a roof or tarped during the wet season. Liquid fertilizers, amendments and other chemicals should be stored under cover, off the ground and with adequate secondary containment. The treatment of spent potting soils and amendments, and other cultivation waste, is also detailed in Standard Condition 4.10, below.

b) *Fertilizers and soil amendments shall be applied and used per packaging instructions and/or at proper agronomic rates.*

Meets condition? Unknown

Observations/Comments: Based on verbal communication with the cultivator, the recommended application rates are being followed.

Photos: No

Corrective or remedial actions needed: To confirm compliance with this Standard Condition, under the Order you are required keep detailed records of the type, timing and volume of fertilizers and/or other soil amendments you use in your operations. They can be recorded on log sheets such as those provided in Appendix E. Observe and monitor soil moisture so watering, fertilizer and chemical applications are made only when necessary and overwatering and excess infiltration is avoided.

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

Meets condition? No

Observations/Comments: See Standard Condition 4.7a observations and comments, above.

Photos: See Standard Condition 4.7a Monitoring Point and photo, above.

Corrective or remedial actions needed: To prevent nutrient mobilization or leaching, you should: 1) keep new or spent potting soils and amendments inside or under a roof, 2) tarp any soils or amendments that are kept outside over the wet season to prevent mobilization or leaching of nutrients, or 3) plant and maintain dense cover crops in

spent pots, holes and beds to enrich soil and lock up nutrients. If dense cover crops cannot be kept alive, all planted areas should be tarped to protect them from rainfall, snowmelt and subsequent infiltration and leaching of nutrients. Also see Standard Condition 4.7a corrective or remedial actions, above, and Standard Condition 4.10a, below. To confirm compliance with this Standard Condition, provide winter time (wet season) photos of the cultivation areas showing treatments and include them with the WRPP, Appendix B (Monitoring and Reporting).

Standard Condition #7 - General comments and recommendations: Most of the fertilizers, potting soil and soil amendments on the Project Site were observed to be either stored indoors or covered when stored outdoors. Spent potting soil in planting holes at CA #3 was observed to be left uncovered with the potential for leaching of nutrients if not covered over the wet season. Fertilizers and amendments were applied according to packaging instructions, and usage is reportedly diminished or eliminated toward the end of the growing season. PWA recommends planting of cover crops in spent pots and holes to enrich soil and lock up nutrients.

Under the Order, you are required to keep track of the type, timing and volume of fertilizers and other soil amendments that are applied. This can be done using a simple log form we have provided in Appendix E.

Do not store fertilizers and/or soil amendments with petroleum products. See guidelines for hazardous material storage in Appendix G.

4.8 Standard Condition #8. Pesticides/Herbicides

a) *At the present time, there are no pesticides or herbicides registered specifically for use directly on cannabis and the use of pesticides on cannabis plants has not been reviewed for safety, human health effects, or environmental impacts. Under California law, the only pesticide products not illegal to use on cannabis are those that contain an active ingredient that is exempt from residue tolerance requirements and either registered and labeled for a broad enough use to include use on cannabis or exempt from registration requirements as a minimum risk pesticide under FIFRA section 25(b) and California Code of Regulations, title 3, section 6147. For the purpose of compliance with conditions of this Order, any uses of pesticide products shall be consistent with product labelling and any products on the site shall be placed, used, and stored in a manner that ensures that they will not enter or be released into surface or ground waters.*

Meets condition? Unknown
Observations/Comments: Pesticides and/or herbicides were not observed on the Project Site at the time of our inspection and are not used according to the landowner.
Photos: No
Corrective or remedial actions needed: All pesticides, herbicides and related materials (e.g., fungicides) must be used and applied consistent with product labeling. When present, these chemicals should be stored within enclosed buildings in such a way they cannot enter or be released into surface or ground waters.

To verify conformance with this Standard Condition, you are required to keep records of the type, timing and volume of pesticides, herbicides and related chemicals that are applied your operations. This can be done using a simple log form, such as the one included in Appendix F.

Additionally, for any pesticide use you must comply with any Pesticide Registration Requirements. See Appendix E2 included in the NCRWQCB Order, or on their web site at:
http://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2015/150728_Appendix_E2_DPR_MJ%20Pesticide%20Handout.pdf

Standard Condition #8 - General comments and recommendations: For the health of the environment and your workers, you are encouraged to utilize organic or biologic controls, rather than highly toxic petro-chemicals, to prevent pest and mildew problems. Several safe alternatives are available.

All pesticides, herbicides and related materials (e.g., fungicides) must be used and applied consistent with product labeling. When present, these chemicals should be stored within enclosed buildings in such a way they cannot enter or be released into surface or ground waters.

Do not store pesticides/herbicides with petroleum products. See guidelines for hazardous material storage in Appendix G.

4.9 Standard Condition #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.*

Meets condition? No

Observations/Comments: There is a large generator and a 550-gallon above ground diesel storage tank located in the generator shed south of the house (Figure 2B). The generator appeared to be equipped with its own secondary containment basin, which may or may not be of sufficient capacity to contain the amount of fuel onboard the generator. The 550-gallon diesel storage tank was not equipped with a secondary containment basin. The generator shed has a concrete floor which lacks a raised perimeter. Small fuel cans were observed near GH #1 that lacked adequate secondary containment. Note that when petroleum products are onsite they will need to be stored under cover, off the ground and in a secondary containment basin (tote, tub, etc.) capable of containing the entire stored volume.

Photos: MP #23: Photo 23c. MP #24: Photo 24a and 24b.

Corrective or remedial actions needed: Place all small fuel cans, gas powered water pumps, generators and any other above ground fuel containers including those in the generator shed in adequate secondary containment basins and store in a safe and secure, covered location out of the elements. PWA recommends monitoring the

generator shed, and all other petroleum storage areas, to ensure secure containment of all petroleum products and that no threats to water quality are occurring.

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.*

Meets condition? No
Observations/Comments: See Standard Condition 4.9a observations and comments, above.
Photos: See Standard Condition 4.9a Monitoring Points and photos, above.
Corrective or remedial actions needed: See Standard Condition 4.9a corrective or remedial actions, above.

c) *Dischargers shall ensure that diked areas are sufficiently impervious to contain discharged chemicals.*

Meets condition? N/A
Observations/Comments: No diked areas were observed on the Project Site.
Photos: No
Corrective or remedial actions needed: None

d) *Discharger(s) shall implement spill prevention, control, and countermeasures (SPCC) and have appropriate cleanup materials available onsite.*

Meets condition? No
Observations/Comments: A complete spill prevention cleanup kit is not kept onsite to help clean up small spills. According to the client, some absorbent pads for cleanup of fuel spills were stored on the Project Site.
Photos: No
Corrective or remedial actions needed: Obtain one or more complete spill prevention cleanup kits and keep readily available to clean up small spills. Spill kits should be located where fuel is stored and refueling occurs.

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.*

Meets condition? N/A
Observations/Comments: No underground storage tanks were observed on the Project Site.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #9 - General comments and recommendations: Place all small fuel cans, gas powered water pumps, generators and above ground storage tanks in one or more covered areas and with adequate secondary containment basins. Monitor the generator shed to ensure complete containment of petroleum products and that no threats to water quality are occurring. Note that when petroleum products are onsite they will need to be stored under cover, off the ground and in a secondary containment basin (tote, tub, etc.). Due to

the amount of petroleum products stored on the Project Site, a Hazardous Materials Business Plan (HMBP) must be developed.

The State of California requires an owner or operator of a facility to complete and submit a Hazardous Materials Business Plan (HMBP) if the facility handles a hazardous material or mixture containing a hazardous material that has a quantity at any one time during the reporting year equal to or greater than: 55 gallons (liquids), 500 pounds (solids), or 200 cubic feet for compressed gas (propane) used for the cultivation operations. If at any time during the year your operations exceed any one of these quantities, you need to prepare and file a HMBP for your operation. Information regarding HMBPs can be found at https://www.caloes.ca.gov/FireRescueSite/Documents/HMBP%20FAQ%20-%20Feb2014.pdf or by searching for a State of California Hazardous Materials Business Plan.

Additionally, while it is not explicitly stated in the Order, please note that the Humboldt County Division of Environmental Health (HCDEH) also requires that anyone that has over 55 gallons or more of any petroleum liquid at any time of the year, including fuels and waste oil, develop a HMBP. https://humboldtgov.org/701/Certified-Unified-Program-Agency-CUPA.

Do not store petroleum products and/or chemicals with fertilizers, soil amendments and/or pesticides/herbicides. See guidelines for hazardous material storage in Appendix G.

4.10 Standard Condition #10. Cultivation-Related Wastes

a) *Cultivation-related wastes including, but not limited to, empty soil/soil amendment/ fertilizer/pesticide bags and containers, empty plant pots or containers, dead or harvested plant waste, and spent growth medium shall, for as long as they remain on the site, be stored at locations where they will not enter or be blown into surface waters, and in a manner that ensures that residues and pollutants within those materials do not migrate or leach into surface water or groundwater.*

Meets condition? No

Observations/Comments: Two piles of cultivation-related green waste (plant stalks) were observed at CA #3 within the riparian buffer zone of a Class II stream. These piles of plant stalks, and the spent potting soil in planting holes at CA #3 mentioned in Standard Condition 4.3, 4.4 and 4.7, above, were observed to have the potential for mobilization to surface waters and/or leaching into groundwater if not covered, treated or relocated over the wet season. According to the landowner, the majority of cultivation-related plant waste is composted locally on the Project Site.

Photos: MP #23: Photo 23d and 23e.

Corrective or remedial actions needed: Collect the piles of plant stalks and root balls at CA #3 and compost this material in a suitable covered location far from any surface water or dispose of appropriately. See Standard Condition 4.3, 4.4 and 4.7 corrective or remedial actions, above, for treatment recommendations regarding the spent potting soil at CA #3. Remove or cover all cultivation-related waste material on the Project Site over the wet season to prevent leaching of nutrients into groundwater and potential transport to surface waters. PWA recommends composting green waste onsite in an

area far from surface waters and covering (tarping) any piles of green waste stored over the wet season to prevent leaching of residual nutrients into groundwater, or taking material to an appropriate waste disposal facility for disposal.

Standard Condition #10 - General comments and recommendations: We encourage you to chip or shred your plant stalks and compost them after harvest. Any additional cultivation-related waste can be easily contained by keeping soils and garbage greater than 200 feet from drainage areas and on gentle slopes, tarping or otherwise covering soil piles, and/or by placing straw waddles or other containment structures around the perimeter of spoil piles.

4.11 Standard Condition #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.*

Meets condition? No

Observations/Comments: The existing Onsite Wastewater Treatment System (OWTS) is not currently permitted through the HCDEH and the exact location of the septic tank is not known. The approximate locations of the septic tank and leach field as per conversations with the landowner are shown on Figure 2B. Multiple portable toilets are currently in use on the Project Site (Figure 2B).

Photos: No

Corrective or remedial actions needed: The Order requires a Humboldt County-permitted or approved OWTS. Work with the HCDEH regarding retroactive permitting options for the existing OWTS. If the existing OWTS cannot be retroactively permitted or improved to meet the requirements of the HCDEH, PWA recommends you conduct any additional testing and onsite investigations needed to site, design and install a newly permitted OWTS for the Project Site. The system must be designed to serve the number of residents and workers that will be present on the Project Site when your cultivation-related operations are at their peak. Continue use of the portable toilets as needed and maintain copies of service records for the entire time the toilet is in use on the Project Site. Employ more portable toilets as needed based on the maximum number of residents and workers onsite.

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.*

Meets condition? No

Observations/Comments: The majority of garbage and refuse on the Project Site was observed to be stored properly and securely in lidded cans at the time of the PWA site inspection. Garbage stored in trash bags was observed on the south side of the house and construction-related trash and debris was observed near GH #1 in trash cans which, if left uncovered and not properly stored over the wet season, would have the potential for mobilization to surface waters or leaching into groundwater. As per conversations

with the landowner at the time of the site inspection, this material would be disposed of appropriately in a timely manner at an approved waste disposal facility.
Photos: MP #23: Photo 23a, and 23f. MP #25: Photo 25a.
Corrective or remedial actions needed: If not already addressed, properly store and appropriately dispose of the bagged garbage located on the south side of the house and the construction-related garbage near GH #1. Continue to store all garbage and refuse in lidded cans or other adequate containers in a safe and secure location where the threat to waters of the state does not exist.

c) *Garbage and refuse shall be disposed of at an appropriate waste disposal location.*
Meets condition? Yes
Observations/Comments: According to the client the garbage and refuse generated onsite is disposed of at an approved waste disposal facility on a regular basis.
Photos: No
Corrective or remedial actions needed: PWA recommends that the client continue to dispose of existing garbage and refuse in a timely manner and at an approved waste disposal facility.

Standard Condition #11 - General comments and recommendations: At the current time the existing OWTS is not permitted through the HCDEH. Continue to contact the HCDEH regarding retroactive permitting options for the existing OWTS. Follow the recommendations in Standard Condition 4.11a corrective or remedial actions, above, depending upon the final permit status. Continue use of the portable toilets as needed and maintain copies of the service records on the Project Site. Appropriately store and dispose of garbage and refuse mentioned in Standard Condition 4.11b, above, if not already addressed. Continue to store garbage and refuse in lidded cans or other adequate containers at a safe and secure location and dispose of in a timely manner at an approved waste disposal facility.

4.12 Standard Condition #12. Remediation/Cleanup/Restoration

a) *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 A accompanying the NCRWQCB Order, (and Appendix A in your WRPP), *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.*

These protection and mitigation measures have been developed to prevent or reduce the environmental impacts and represent minimum, enforceable standards by which cleanup activities shall be conducted under this Order.

Meets condition? Yes
Observations/Comments: See general comments below.
Photos: No
Corrective or remedial actions needed: None

Standard Condition #12 - General comments and recommendations: It is PWA's opinion that the Project Site is currently compliant with this condition. All needed corrective actions are addressed in Standard Conditions 1 through 11.

5.0 TABLE 1. PRIORITIZED CORRECTIVE ACTIONS AND SCHEDULE TO REACH FULL COMPLIANCE

The following check list should be followed to become fully compliant with the Order. Please see the detailed comments and recommendations above for a more complete description of the problems and the needed corrective actions and monitoring requirements.

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
1 – Site Maintenance, Erosion Control and Drainage Features	1a, b, d, e	Moderate	Nov. 15, 2019	- Roads on the Project Site require the installation of multiple road drainage structures (rolling dips and ditch relief culverts) to disconnect surface runoff from streams. See Figure 2A and 2B for locations and see Standard Condition 4.1, above, for details. - Proposed stream crossing upgrade treatments at SC #13(see Standard Condition 4.2, above) and road drainage feature installation for the associated left road approach is intended to disconnect flow to the two outboard fillslope gullies to the left of SC #13. These gullies should be monitored on a regular basis before and after upgrade treatments are implemented to ensure surface flow is disconnected and future sediment delivery is not occurring. - Install additional DRCs and/or rolling dips with adequate spacing intervals at and up-road of any location where concentrated road runoff and gullying is observed or wherever runoff is delivered to streams. - PWA also recommends installing water bars at 75 to 100 foot spacing intervals prior to each winter season on Access Road #4, both of the quad trails and any other seasonal roads where the potential for sediment delivery to surface waters exists. - Typical drawings included in Appendix H will provide guidance for proper road drainage feature construction. Ensure that the construction and outlet location of the DRCs and rolling dips allows dispersal and infiltration of collected road runoff. If there is significant runoff collected in an inboard ditch, DRCs should also be installed to drain the inboard ditch.	MP #1, Photo 1a MP #2, Photo 2a	
	1c	Moderate-High	Nov. 15, 2019	- Correct the stream diversion at SC #5 (see Standard Condition 4.2, above). - Monitor the landslide feature upslope of SC #21 and the slumping outboard fillslope near the four 5,000-gallon water tanks upslope of CA #3. - Implement appropriate BMPs such as drainage ditches/French drains to collect and convey flow away from unstable fillslopes and applying straw mulch, native erosion control seed and fiber rolls to protect from raindrop impact, concentrated runoff.	MP #3, Photo 3a, 3b	

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #		Date Completed
				Appropriate BMPs should be installed as necessary to prevent sediment delivery to surface waters (see Appendix A). - The unstable hillslope material upslope of SC #21 should be excavated and a stream channel constructed to ensure stream flow reaches the crossing and potential sediment delivery from this location is mitigated.			
	1d	Moderate	Nov. 15, 2019	PWA recommends installing multiple erosion control features at the graded and cleared cutslope and outboard fillslope located at GH #1. See detailed treatment description in Standard Condition 4.1d, above. Also see Standard Condition 4.1a corrective actions, above. - Additional straw mulch should be applied to all bare soil surfaces and native erosion control seed should be spread to protect against further surface erosion and speed up the revegetation process.	MP #1, Photo 1a MP #2, Photo 2a MP #4, Photo 4a – 4d		
	1e	Moderate-High	Oct. 15, 2019	See Figures 2A and 2B for installation locations of proposed road drainage features. Also see Standard Condition 4.1a and 4.1d corrective actions, above.	MP #1, Photo 1a MP #2, Photo 2a MP #3, Photo 3a, 3b MP #4, Photo 4a – 4d		
	1f	Moderate-Low	Until relocation is complete	Monitor the stockpiled construction materials west of GH #1 until they are removed to ensure they do not have transport potential to receiving waters.	--		
2 – Stream Crossing Maintenance	2a	High	Oct. 15, 2020	- PWA recommends upgrading the stream crossings on the Project Site with properly sized culvert diameters listed in Table 4.2 and the corresponding Summary List, above, employing stream crossing construction standards required by the Order (e.g., minimized hydrologic connectivity, correct orientation, no diversion potential, etc.). - See detailed treatment descriptions in Standard Condition 4.2a, above.	MP #1, Photo 1b MP #2, Photo 2b, 2c MP #3, No photo MP #5, Photo 5a, 5b MP #6, Photo 6a, 6b MP #7, Photo 7a, 7b	MP #8, Photo 8a MP #10, Photo 10a, 10b MP #13, Photo 13a, 13b MP #14, Photo 14a, 14b MP #18, Photo 18a, 18b	
	2b	High	Oct. 15, 2020	- PWA recommends upgrading the 11 stream crossings mentioned above and in Table 4.2 and the Summary List with culverts designed to pass the 100-year peak flow and associated debris in transport. - Single post trash racks should also be installed upstream of the culvert inlets at the five stream crossings shown in Table 4.2 to minimize plug potential. Typical drawings included in Appendix H will provide guidance for proper trash rack installation. - All stream crossing upgrades and treatments should be constructed according to standards provided in the "Handbook for Forest, Ranch and Rural Roads," and the California Salmonid Stream Habitat Restoration Manual, Part X.	MP #1, Photo 1b MP #2, Photo 2b, 2c MP #3, No photo MP #5, Photo 5a, 5b MP #6, Photo 6a, 6b MP #7, Photo 7a, 7b MP #8, Photo 8a	MP #9, Photo 9a, 9b MP #10, Photo 10a, 10b MP #13, Photo 13a, 13b MP #14, Photo 14a, 14b MP #17, Photo 17a, 17b MP #18, Photo 18a, 18b	

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #		Date Completed
	2c	High	Oct. 15, 2020	When upgrading the stream crossings in Table 4.2 and the Summary List, ensure that new culverts are installed at or slightly embedded in the natural channel grade to allow passage of aquatic organisms.	MP #2, Photo 2c MP #8, No photo MP #9, Photo 9b MP #11, Photo 11b MP #12, Photo 12b	MP #13, Photo 13b MP #14, Photo 14b MP #15, No photo MP #16, Photo 16b MP #18, Photo 18b	
	2d	High-Moderate	Clean SC #5 culvert inlet by 3/1/2019 Inspect culverts annually by Oct. 15	- The culvert inlet at SC #5 should immediately be cleared of sediment and debris to convey stream flow through the road fill and address the existing diversion. Also see Standard Condition 4.2f for additional treatment recommendations. - Monitor and perform adequate maintenance on all stream crossings on the Project Site prior to each winter period and then after each significant storm and runoff event during the winter to prevent or minimize erosion (see Appendix A).	MP #1, Photo 1b MP #3, No photo MP #8, Photo 8a MP #9, Photo 9c MP #18, Photo 18a		
	2e	Moderate-High	Oct. 15, 2020	Upgrade the culverted stream crossings with properly installed culverts that align with the natural channel grade and stream alignment where possible (see Table 4.2)	MP #1, Photo 1b MP #2, Photo 2c MP #6, Photo 6b MP #7, Photo 7a, 7b MP #8, No photo MP #9, Photo 9b MP #10, Photo 10b MP #11, Photo 11a,b	MP #12, Photo 12b MP #13, Photo 13b MP #14, Photo 14b MP #15, No photo MP #16, Photo 16a, 16b MP #17, Photo 17a, 17b MP #18: Photo 18b	
	2f	High	Oct. 15, 2020	- All upgraded crossings need to be constructed to prevent stream diversion by installing a critical dip on the down road hinge line. - The culvert inlet at SC #5 should be cleared of all sediment and debris and a critical dip installed on the left hinge line. - The unstable, slumping left fillslope at SC #6 should be excavated to stable native ground.	MP #1, Photo 1a MP #3, No photo MP #6, No photo MP #7, No photo MP #8, Photo 8a MP #10, Photo 10a MP #11, Photo 11a	MP #12, Photo 12a MP #13, Photo 13a MP #14, No photo MP #15, No photo MP #16, No photo MP #17, Photo 17a	
	2	High	Prior to any stream crossing work	- Refer to Table 4.2 and the Summary List for stream crossing observations, recommended culvert diameters and additional stream crossing treatment recommendations. - Obtain all necessary agreements and permits prior to commencing work in any watercourse or at any stream crossing. These may include, but not be limited to: CDFW LSAA 1602, Water Board Section 401 permit, ACOE Section 404 Permit, as well as any county or other permit that may be required.	--		

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
3 –Riparian and Wetland Protection and Management	3a, b, c, d	High	Oct. 15, 2020	**NOTE:** Under the Order, all cultivation areas and associated facilities that are located within 50-feet of a Class III watercourse, or within 100-feet of a Class I or Class II watercourse, are required to be removed from the buffer area, and the site is to be restored. Before you move these cultivation areas and/or related facilities, and if you are applying to Humboldt County for a land use permit for your operations, you should read and follow recommendations in ***Standard Condition 3, General Comments and Recommendations*** in this WRPP. - Relocate GH #1, construction-related garbage, the fuel can and any cultivation-related materials near GH #1 to a suitable location outside of the 50-foot riparian setback required for a Class III stream (Figure 2B). Alternatively, you may request a variance from the Order's requirement related to moving GH #1, especially if it has a concrete perimeter foundation, but that appeal might not be heard or approved by the Water Board and you will be required to move the structure and restore the site. - The southeastern portion of Cultivation Area #3 (CA #3) is located within the 100-ft riparian setback of a Class II stream (Figure 2A). Based on subsequent communication with the client, cultivation activities at CA #3 are no longer occurring. - Relocate the spent growth medium within the 100-foot riparian buffer at CA #3 and any other cultivation-related materials to a suitable location outside of the 100-foot riparian setback required for a Class II stream. - Implement additional appropriate BMPs, such as application of native erosion control seed, straw mulch, fiber rolls and/or replanting native riparian vegetation to protect water quality and the riparian buffer zone where necessary.	MP #23, Photo 23a - 23e	
	3b	High	Oct. 15, 2020	After relocation of the items mentioned in Standard Condition 4.3a, above, the disturbed buffer areas at all these sites should be seeded and mulched for erosion control and replanted with native riparian vegetation. Also see Standard Condition 4.3a observations and comments, above.	MP #23, Photo 23a - 23e	
	5a	Moderate	Well log by April 15, 2019 Water monitoring April 1,	- Obtain the drilling log for GW #1 and have a geologist or other qualified professional verify that the well is not hydrologically connected to surface waters. - Install water monitoring flow meters on your groundwater well and water tank distribution lines for both cannabis irrigation and domestic uses.	--	

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
			2019 and continuing Reporting as required	- Under the Order you are required to monitor and record the timing and volume of groundwater extraction, water storage and water use using log sheets such as those provided in Appendix D. - The water data for this Project Site is required to be reported to the NCRWQCB on or before each March 31 for the preceding calendar year. See Appendix D for water monitoring data forms.		
	5b	High	April 1, 2019 and continuing	- Install shut off float valves on any water tanks where necessary to prevent overflow and improve water conservation. - Ensure that all water tanks and water lines on the Project Site are properly sealed and regularly maintained to prevent leaks or overflow.	--	
	5b	Moderate	May 1, 2019 and continuing	- Evaluate and increase the use of water saving strategies, such as timed or volume-limited drip irrigation systems, incorporating water holding amendments and native soil during the initial soil preparation at the start of the season, planting beds with cover crops to minimize evaporation, using surface mulch during the growing season, and planting plants in the ground instead of above ground pots. - Rainwater harvesting during the wet season should be evaluated and employed as needed to limit or completely eliminate groundwater extraction during the dry season.	--	
	5a, c	Moderate	Monitor water by or before 4/1/2019; Refine Water Budget 12/1/2019	- Develop and refine (using water monitoring) an accurate Water Budget for your Project Site to determine how much additional water storage volume you would need in order to forbear (not pump from the well) during the dry season. - Install water monitoring flow meters on the groundwater well and on distribution lines used for irrigation and domestic uses. - Based on water monitoring, refine the preliminary Water Budget for the Project Site to more accurately determine annual water needs and required storage volumes needed for forbearance from May 15th - October 31st.	--	
	5c	High	August 1, 2019	Evaluate the feasibility, designs, locations, and permitting requirements for adding additional water storage, if necessary, to meet dry season irrigation needs, including additional rainwater-fed rigid water tanks or an additional rainwater-fed, off-stream pond.	--	
	5c	High	Oct. 31, 2020	If required increase water storage to limit extraction of groundwater to the winter months and completely eliminate groundwater extraction needed for irrigation activities during the dry season from May 15 through October 31.		

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
	5d	Moderate	April 1, 2019 (or prior to irrigation activities) and continuing	- To verify conformance with this Standard Condition, start measuring and recording your average water usage on a per plant basis, based on type and size of plant pot, full term versus short season (light deprivation) plant, and type of irrigation, in order to develop and refine a Water Budget for your operation. - Observe and monitor soil moisture so watering, fertilizer and chemical applications are made only when necessary and overwatering and excess infiltration is avoided.	--	
	5e	Moderate	August 1, 2019	- To minimize extracting groundwater for irrigation, evaluate feasibility of obtaining irrigation water by developing rainwater capture systems to fill rigid water tanks and/or an off-stream, rainwater-fed pond.	--	
	5e	High	Report annually by 6/30 and by 3/31	- Submit annual water use volumes to the SWRCB-DWR by June 30 of each year. - Submit groundwater extraction and water use data to the NCRWQCB annually by March 31 for the previous calendar year.	--	
	5f	Moderate	Ongoing	Monitor the slumping outboard fillslope at the location mentioned above for further signs of instability. These water tanks may need to be relocated to a more secure and stable location if evidence of further instability and the potential for containment failure is observed.	Photo 26a	
	5	Moderately High	June 1, 2019	A LSAA will need to be submitted to the CDFW prior to any stream crossing upgrade or decommissioning work that has been prescribed and will be completed on the Project Site, and possibly for the groundwater well.	--	
7 - Fertilizer and Amendment Use	7a, c	High	March 1, 2019 and continuing	- Potting soil at CA #3 should be tarped or have thick cover crops planted and maintained to prevent nutrient mobilization over the wet season. The spent potting soil located within the 100-foot riparian buffer zone required for a Class II stream should be relocated to a suitable location and stored appropriately. - When not being used on the planting beds or in greenhouses, all fertilizers, soil amendments, potting soils and compost shall continue to be stored within a water tight building or covered area not exposed to the elements or, if stored outdoors, fully tarped in a stable location with no chance of nutrient leaching or delivery to surface waters. - Liquid fertilizers, amendments and other chemicals should be stored under cover, off the ground and with adequate secondary containment where applicable. - During the winter, all fertilizers and soil amendments should be stored inside a covered structure with an impervious floor or in covered secondary containment basins/bins.	MP #23, Photo 23b	

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
	7b	High	March 1, 2019 and continuing	- To confirm compliance with this Standard Condition, you must keep detailed records of the type, timing and volume of fertilizers and/or soil amendments you use in your operations. They can be recorded on log sheets such as those provided in Appendix E. - Observe and monitor soil moisture so watering, fertilizer and chemical applications are made only when necessary and overwatering and excess infiltration is avoided.	--	
	7c	Moderate-High	Oct. 31. 2019 and then annually	- To prevent nutrient mobilization or leaching: 1) keep new or spent potting soils and amendments inside or under a roof; 2) tarp any soils or amendments that are kept outside over the wet season to prevent mobilization or leaching of nutrients; or 3) plant and maintain dense cover crops in spent pots, holes and beds to enrich soil and lock up nutrients. If dense cover crops cannot be kept alive, all planted areas should be tarped to protect them from rainfall, snowmelt and subsequent infiltration and leaching of nutrients (See also Standard Condition 4.10, below). - To confirm compliance with this Standard Condition, provide winter time (wet season) photos of the cultivation areas showing treatments and include them with the WRPP, Appendix B (Monitoring and Reporting).	MP #23, Photo 23b	
8 – Pesticides & Herbicides	8	Moderate-High	March 1, 2019 and continuing	- All pesticides, herbicides and related materials (e.g., fungicides) must be used and applied consistent with product labeling. - When present, these chemicals should be stored within enclosed buildings in such a way they cannot enter or be released into surface or ground waters. - To verify conformance with this Standard Condition, you are required to keep records of the type, timing and volume of pesticides, herbicides and related chemicals that are applied your operations. This can be done using a simple log form, such as the one included in Appendix F.	--	
9 – Petroleum Products and Other Chemicals	9a, b	High	March 1, 2019	- Place all small fuel cans, gas powered water pumps, generators and any other above ground fuel containers including those in the generator shed in adequate secondary containment basins and store in a safe and secure, covered location out of the elements. - PWA recommends monitoring the generator shed, and all other petroleum storage areas, to ensure secure containment of all petroleum products and that no threats to water quality are occurring.	MP #23, Photo 23c MP #24, Photo 24a, 24b	
	9d	High	April 1, 2019	Obtain one or more complete spill prevention cleanup kits and keep readily available to clean up small spills. Spill kits should be located where fuel is stored and refueling occurs.	--	

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
	9	High	August 1, 2019	Due to the amount of petroleum products stored on the Project Site, you are required to prepare a Hazardous Materials Business Plan (HMBP) (see Standard Condition 9: *General comments and recommendations*, above, for additional details). - Do not store petroleum products and/or chemicals with fertilizers, soil amendments and/or pesticides/herbicides. See guidelines for hazardous material storage in Appendix G.	--	
10 – Cultivation-Related Waste	10	High	April 1, 2019, or sooner if possible, and then annually by Oct. 31	- Tarp or otherwise cover spent plant stalks, root balls and soil piles during the wet season to prevent soil from being transported to surface waters or leaching nutrients into the groundwater. - Collect the piles of plant stalks and root balls at CA #3 and dispose of, cover or compost this material in a suitable location far from any surface water. PWA recommends composting green waste onsite in an area far from surface waters and covering (tarping) any piles of green waste stored over the wet season to prevent leaching of residual nutrients into groundwater. - Remove and store indoors, or tarp or otherwise cover, all spent soil in piles, pots or beds during the wet season to prevent soil and nutrients from being transported to surface waters or leaching nutrients into the groundwater. Alternately, spent soils may be heavily cover cropped to tie up nutrients during the wet season, but if the dense cover crop cannot be maintained due to cold weather or snow, then the soil materials must be tarped and fully protected from the weather. - The spent potting soil at CA #3 located within the 100-foot riparian buffer required for a Class II stream should be relocated outside of any stream buffer and stored appropriately (see Standard Condition 4.3, above). - See Standard Condition 4.3 and 4.4 corrective or remedial actions, above, for treatment recommendations regarding the spent potting soil at CA #3.	MP #23, Photo 23d, 23e	
11 – Refuse and Human Waste	11a	Moderately high	Dec. 31, 2020	- The Order requires a Humboldt County-permitted or approved OWTS. Work with the HCDEH regarding retroactive permitting options for the existing OWTS. - If the existing OWTS cannot be retroactively permitted or improved to meet the requirements of the HCDEH, PWA recommends you conduct any additional testing and onsite investigations needed to site, design and install a newly permitted OWTS for the Project Site. The system must be designed to serve the number of residents and workers that will be present on the Project Site when your cultivation-related operations are at their peak.	--	

Standard Condition Requiring Action		Treatment Priority	Schedule	Summary of Corrective Actions/Recommendations (see more detailed listing of corrective actions in Section 4, above)	Monitoring Point and Photo #	Date Completed
				- Continue use of the portable toilets as needed and maintain copies of service records for the entire time the toilet is in use on the Project Site. - Employ more portable toilets as needed based on the maximum number of residents and workers onsite.		
	11b, c	Moderate	April 1, 2019	- If not already addressed, properly store and appropriately dispose of the bagged garbage located on the south side of the house and the construction-related garbage near GH #1. - Continue to store all garbage and refuse in lidded cans or other adequate containers in a safe and secure location where the threat to waters of the state does not exist. - Dispose of garbage and refuse in a timely manner at an approved waste disposal facility.	MP #23, Photo 23a, 23f MP #25, Photo 25a	

7.0 MONITORING AND INSPECTION PLAN

Under the Order, sites are required to be monitored and inspected periodically to ensure conformance with the 12 Standard Conditions. In most cases, inspections and records of inspections identify conditions that have been corrected and are now in compliance; conditions that remain in compliance; and conditions that have changed and may no longer be in compliance with the Order. An inspection and monitoring plan is used to document these conditions, identify problems and make corrections using best management practices (BMPs) to protect water quality (Appendix A).

Monitoring Plan – Please refer to Appendix B and Figure 2A and 2B to review the monitoring plan and specific monitoring points for which you are responsible.

Monitoring guidelines and reporting standards have been created by the NCRWQCB as part of the Order. Monitoring of the Project Site includes visual inspection and photographic documentation of each feature of interest listed on the Project Site map, with new photographic documentation recorded with any notable changes to the feature of interest.

Site inspection schedule - According to the NCRWQCB, periodic inspections should include visual inspection of the site, including any management measures/practices, to ensure they are being implemented correctly and are functioning as expected. Inspections include photographic documentation of any controllable sediment discharge sites, as identified on the site map, and a visual inspection of those locations on the site where pollutants or wastes, if uncontained, could be transported into receiving waters, and those locations where runoff from roads or developed areas drains into or towards surface water.

At a minimum, sites shall be inspected 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 or minimize discharges of waste or pollutants to surface water:

1) Before and after any significant alteration or upgrade to a given stream crossing, road segment, or other controllable sediment discharge site. Inspection should include photographic documentation, with photo records to be kept onsite.
2) Prior to October 15th to evaluate site preparedness for storm events and stormwater runoff.
3) Following the accumulation of 3 inches cumulative precipitation (starting September 1st) or by December 15th, whichever is sooner.
4) Following any rainfall event with an intensity of 3 inches precipitation in 24 hours. Precipitation data can be obtained from the National Weather Service by entering the site zip code at https://water.weather.gov/precip/; Pick the nearest or most relevant zip code and then select the 3 day history that will also show precipitation totals.

Inspection and Monitoring Checklist – Appendix B contains a checklist data form that will be used by the landowner and/or operator to: 1) document inspection dates, 2) document visual and photographic inspection results, 3) describe remediation and management measures that are being applied, 4) identify new problems and their treatments, and 5) document the progress and effectiveness of implementing remedial and corrective measures that are needed to meet the 12 Standard Conditions, as outlined in this WRPP. Appendix C contains photo documentation of your

monitoring points and will need to be updated as corrective treatments are implemented and treatments are monitored and evaluated over time.

Annual Reporting – An Annual Report is to be submitted directly to the NCRWQCB or to PWA (through our 3rd Party Program). The information in the annual reporting form must be submitted by March 31st of each year. The reported information is to be reflective of current site conditions, and includes monitoring data and tasks accomplished to protect water quality. Among other things, the report includes such items as the reporting of monthly monitoring data collected during the year (e.g., chemical use, water diversions, water storage, water use, etc.), management measures (BMPs) applied during the year and their effectiveness, and tasks accomplished during the year towards meeting each of the 12 Standard Conditions identified as deficient in this WRPP.

8.0 WATER USE PLAN

Requirements - According to the Order, a Water Use Plan (WUP) shall record water source, relevant water right documentation, and amount used monthly. All water sources shall be recorded, including alternative sources such as rain catchment and groundwater, and/or hauled water. Other elements of the WUP will include:

- Developing a Water Budget for determining the timing and volume of actual water use on the site. Water related data will be summarized monthly for the preceding month.
- Designing and implementing water conservation measures to reduce water diversion and water use.
- Calculating water storage requirements needed to support cultivation activities during the dry season, and implementing those required storage measures.

The Water Use Plan must also describe water conservation measures and document your approach to ensure that the quantity and timing of water use is not impacting water quality objectives and beneficial uses (including cumulative impacts based on other operations using water in the same watershed). Water use will only be presumed to not adversely impact water quality under one of the following scenarios:

- No surface water diversions occur from May 15th to October 31st.
- Water diversions are made pursuant to a local plan that is protective of instream beneficial uses.
- Other options that may affect water quality: (e.g., percent of flow present in stream; minimum allowable riffle depth; streamflow gage at bottom of Class I stream; AB2121 equations; CDFW instream flow recommendations; promulgated flow objective in Basin Plan; etc.).

Site Water Use Plan -The record of activities, accomplishments and water monitoring results for the Water Use Plan for this site will be logged and recorded in data tables and site records (data forms) included in Appendix D of this WRPP. These will be tracked and kept up-to-date by the landowner or cultivator of the site.

Water Storage and Forbearance – The ultimate goal of the applicant is to accumulate enough water storage capacity to not extract groundwater for irrigation for the entire period from May 15 to October 31. Under the Order, this will ensure the timing of water use is not impacting water

quality objectives and downstream beneficial uses. It is currently unknown if the groundwater well (GW #1) can be used for dry season irrigation needs. If it is determined to be hydrologically connected to, and drawing from, streams or other surface waters, then its use during the dry season may not be allowed. To verify the well is not connected to surface waters, and therefore is useable for summer irrigation, the driller's well log needs to be obtained and analyzed by a qualified geologist or engineer. The conclusion and evidence will likely need to be submitted to CDFW for their in6#a5,nati3(ane co3(u(den-)]TJETBT1 0 0 1 511.78 633.34 Tm 0.012 Tce.06)]TJETBT1 0 0 1 499.08 633.:

(

wratondwateextracgatv

you will understand the water uses and needs of your farm, the value of water conservation, and the volume of water storage that is needed for you to forbear and not extract groundwater for irrigation during the dry summer growing season. Over the course of the future season, water use should be documented using the log forms supplied to you by PWA, attached in Appendix D. The landowner will apply for any additional water rights or permits, if necessary, for the existing groundwater well, and CDFW will be contacted for the required LSAA.

9.0 LIST OF CHEMICALS

The WRPP must contain a list of chemicals being stored onsite, in addition to quantities used and frequency of application. These include fertilizers/soil amendments, pesticides, herbicides, fungicides, petroleum products and other chemicals used in, or associated with, your cultivation activities and related operations.

Because cultivation did not occur during the 2017 cultivation season the list of chemicals below is from the 2016 cultivation season. The 2016 cultivation season was the first year of enrollment and as such the information regarding chemicals stored onsite provided below are estimates. Appendixes E and F contain monitoring forms that should be used to list the chemical inventory record over time, as supplies are added to the site and used during the growing season. The landowner or operator will use these forms to track the types, storage volumes, timing of application, and volume of use of these products throughout the year. The initial chemicals and amendment list that may be used and stored onsite include:

Fertilizers and amendments:	
Compost	3,000 lbs
Bat Guano	1,000 lbs
Earthworm Castings	3,000 lbs
Seaweed	25 lbs
Kelp	250 lbs
Verma Compost	N/A
Amri Listed Catalyst	N/A

Petroleum and Other Chemicals:
Gasoline
Diesel
Motor oil
Propane

Pesticides, Herbicides, and Fungicides:
None

10.0 LANDOWNER/LESSEE CERTIFICATION/SIGNATURES

This Water Resource Protection Plan (WRPP) has been prepared by Pacific Watershed Associates, an approved Third Party Program acting on behalf of the North Coast Regional Water Quality Control Board (NCRWQCB).

"I have read and understand this WRPP, including Section 2.0 – Certifications, Conditions and Limitations. I agree to comply with the requirements of the California Regional Water Quality Control Board North Coast Region Order No. 2015-0023 (Waiver of Waste Discharge Requirements and General Water Quality Certification for Discharges of Waste Resulting from Cannabis Cultivation and Associated Activities or Operations with Similar Environmental Effects in the North Coast Region), including the recommendations and actions listed in this WRPP."

Name of Legally Responsible Person (LRP): _____

Title (owner, lessee, operator, etc.): Owner

Signature: _____ Date: _____

WRPP prepared by (if different from LRP): **Pacific Watershed Associates, Inc.**

WRPP prepared and finalized on (date): _____

Signature: _____

Date: _____

Exhibit D

WRPP Appendix B: Monitoring Plan and Photo Log

Appendix B: Monitoring plan and photo logs

Monitoring Plan – In general, the entire road network, cultivation area and associated facilities need to be monitored throughout the year to identify any problems that might arise and to monitor the effectiveness of corrective actions which are completed. Refer to Figure 2A and 2B for the general location of monitoring points that you are responsible for tracking. However, the entire Project Site needs to be monitored to ensure that the site achieves and maintains compliance with the 12 Standard Conditions. If additional deficiencies develop, or individual problems arise, then corrective actions must be implemented immediately and these problem areas will be further monitored according to the WRPP.

For this Project Site, 22 monitoring points have been identified. Most are related to inadequate road drainage, undersized culverts or improperly designed stream crossings, riparian buffer zones, and fertilizer, soil, petroleum and cultivation-related waste storage. MP #1 – MP #4 show the effects of inadequate surface drainage and sediment delivery to surface waters. MP #1, MP #2 and MP #5 – MP #19 show undersized culverts or inadequately designed stream crossings. MP #23 shows a greenhouse, stockpiled construction materials, potting soil, fuel cans lacking secondary containment and cultivation-related waste within the riparian buffer zone of Class II and Class III watercourses. MP #24 shows a large generator and a generator shed that houses the generator and an above ground storage tank that lack adequate secondary containment. MP #25 shows improperly stored garbage with the potential for transport or leaching.

The goal of the monitoring is to ensure the original problems or non-compliant features (e.g., improperly designed stream crossings, fuel tanks and generators without secondary containment, items located or stored within stream buffers, etc.) have been effectively treated and that environmental problems or threats to water quality do not arise or are adequately mitigated during the year. Consult with PWA if a problem is detected at any of these monitoring locations or elsewhere on the property, or if you would like our assistance in monitoring or developing corrective actions (BMPs) for problems that develop. Please also report to PWA when one or more of the corrective actions in the WRPP have been implemented, and include photos and descriptions of the actions taken.

Site inspection schedule - According to the NCRWQCB, periodic inspections should include visual inspection of the site, including any management measures/practices, to ensure they are being implemented correctly and are functioning as expected. Inspections include photographic documentation of any controllable sediment discharge sites, as identified on the site map, and a visual inspection of those locations on the site where pollutants or wastes, if uncontained, could be transported into receiving waters, and those locations where runoff from roads or developed areas drains into or towards surface water.

At a minimum, sites shall be inspected 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 or minimize discharges of waste or pollutants to surface water:

1) Before and after any significant alteration or upgrade to a given stream crossing, road segment, or other controllable sediment discharge site. Inspection should include photographic documentation, with photo records to be kept on-site.
2) Prior to October 15 to evaluate site preparedness for storm events and stormwater runoff.
3) Following the accumulation of 3 inches cumulative precipitation (starting September 1st) or by December 15th, whichever is sooner.
4) Following any rainfall event with an intensity of 3 inches precipitation in 24 hours. Precipitation data can be obtained from the National Weather Service by entering the site zip code at https://water.weather.gov/precip/; Pick the nearest or most relevant zip code and then select the 3 day history that will also show precipitation totals.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
1a	MP #1	Road Surface Discharge Point #1	8/9/16	Pre-treatment	View of road surface and inboard ditch runoff delivering to a Class III watercourse at Stream Crossing #3 (SC #3). View is looking toward the stream crossing from the right road approach.
1b	MP #1	Stream Crosssing #3	11/9/16	Pre-treatment	View of the outlet of an undersized 18-inch diameter culvert at SC #3 installed high in the fill. View is from downslope of the crossing looking upstream.
2a	MP #2	Road Surface Discharge Point #2	11/9/16	Pre-treatment	View of eroding road surface and inboard ditch runoff delivering to a Class II watercourse at SC #16. View is looking up the left road approach from the stream crossing.
2b	MP #2	Stream Crosssing #16	11/9/16	Pre-treatment	View of the inlet of an undersized 36-inch diameter culvert and armored inboard fillslope. View is looking downstream from the right edge of the channel.
2c	MP #2	Stream Crosssing #16	11/9/16	Pre-treatment	View of the armored outboard fillslope and outlet of an undersized 36-inch diameter culvert installed high in the fill. View is from the right outboard fillslope looking downslope toward the channel.
3a	MP #3	Landslide	11/9/16	Pre-treatment	View of the crown scarp of a landslide or slump located upslope of SC #21 and a small Class III stream channel near the center right of the frame. View is from the hillslope on the left edge of the failure.
3b	MP #3	Landslide	11/9/16	Pre-treatment	View of the toe of the landslide or unstable slope shown in Photo 3a. The small Class III stream currently flows along the left lateral scarp near the right edge of the frame before reaching the road. View is looking upslope from the center of the road at SC #21.
--	MP #3	Stream Crossing #21	--	--	No photo.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
4a	MP #4	Graded cutslope	8/9/16	Pre-treatment	View of the graded cutslope upslope of Greenhouse #1 (GH #1) exhibiting surface erosion and sediment delivery to two Class III streams via an inboard ditch. View is from the inboard edge of the road at SC #2 looking upslope.
4b	MP #4	Graded cutslope drainage ditch	8/9/16	Pre-treatment	View of the inboard ditch below the graded cutslope shown in Photo 4a with sediment delivery to SC #2. View is from the channel upstream of SC #2 looking toward GH #1.
4c	MP #4	Graded cutslope drainage ditch	11/9/16	Pre-treatment	View of the inboard ditch below the graded cutslope shown in Photo 4a with sediment delivery to SC #1. View is from near the center of the graded cutslope looking toward the stream channel upstream of SC #1.
4d	MP #4	Outboard fillslope	11/9/16	Pre-treatment	View of the outboard fillslope of the graded pad at GH #1 with straw wattles partially installed. This surface is still exhibiting surface erosion resulting in sediment delivery to SC #4. View is from the outboard edge of the road to the right of SC #4 looking upslope.
5a	MP #5	Stream Crossing #1	8/9/16	Pre-treatment	View of the inlet of an undersized 30-inch diameter culvert and poorly armored inboard fillslope. Fill material from the graded pad has been placed in and near the stream at this location. View is looking downstream from the left inboard edge of the graded pad at the culvert inlet.
5b	MP #5	Stream Crossing #1	8/9/16	Pre-treatment	View of the outlet of an undersized 30-inch diameter culvert and armored outboard fillslope. View is looking upstream from the natural channel.
6a	MP #6	Stream Crossing #2	8/9/16	Pre-treatment	View of the inlet of an undersized 18-inch diameter culvert and armored inboard fillslope. The inboard ditch draining the graded cutslope shown in Photo 4b flows to the culvert inlet from the left. View is looking downstream from upslope of the crossing.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
6b	MP #6	Stream Crossing #2	11/9/16	Pre-treatment	View of the armored outboard fillslope and outlet of an undersized 18-inch diameter culvert installed high in the fill. View is from the left outboard edge of the road looking downslope at the culvert outlet..
7a	MP #7	SC #4	8/9/16	Pre-treatment	View of the inlet of an undersized 24-inch diameter culvert and armored channel. View is looking downstream from upslope of the crossing.
7b	MP #7	DRC #2	8/9/16	Pre-treatment	View of the outlet of an undersized 24-inch diameter culvert installed high in the fillslope, causing erosion of the channel and outboard fillslope below the culvert outlet. View is from the left outboard edge of the road looking downstream.
8a	MP #8	Stream Crossing #5	11/9/16	Pre-treatment	View of a diverted stream caused by plugging of an undersized 24-inch diameter culvert inlet at SC #5. The diverted stream flows down the left road to SC #6. View is from the approximate location of the plugged inlet looking down the left road approach to SC #6.
9a	MP #9	Stream Crossing #6	11/9/16	Pre-treatment	View of the inlet of a 30-inch diameter culvert installed high in the fill. View is from the channel upstream of the crossing looking downslope at the inlet.
9b	MP #9	Stream Crossing #6	11/9/16	Pre-treatment	View of the armored outboard fillslope and outlet of a 30-inch diameter culvert installed high in the fillslope. View is from downstream of the crossing looking upslope at the outlet.
9c	MP #9	Stream Crossing #6	11/9/16	Pre-treatment	View of the slumping left outboard fillslope and culvert outlet. The diverted stream from SC #5 flows to this location. View is from the left outboard edge of the road looking downslope toward the channel.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
10a	MP #10	Stream Crossing #7	11/9/16	Pre-treatment	View of the inlet of an short and undersized 18-inch diameter culvert and stream crossing lacking a critical dip to prevent diversion. Roadfill is perched over the culvert inlet. View is from the left hillslope looking downstream towards the crossing.
10b	MP #10	Stream Crossing #7	11/9/16	Pre-treatment	View of the outlet of an undersized 18-inch diameter culvert installed high in the fillslope. View is from downslope of the crossing looking upstream at the fillslope and culvert outlet..
11a	MP #11	Stream Crossing #8	11/9/16	Pre-treatment	View of the inlet of a 24-inch diameter culvert installed high in the fillslope and horizontally misaligned with the natural channel. View is looking downstream from the natural channel alignment toward the culvert inlet.
11b	MP #11	Stream Crossing #8	11/9/16	Pre-treatment	View of the outlet of a 24-inch diameter culvert installed high in the fillslope resulting in significant erosion of the outboard fillslope below the culvert outlet. View is from the outboard edge of the road looking downstream.
12a	MP #12	Stream Crossing #9	11/9/16	Pre-treatment	View of the inlet of an undersized 24-inch diameter culvert installed high in the fillslope. View is the from the stream channel looking downstream toward the culvert inlet.
12b	MP #12	Stream Crossing #9	11/9/16	Pre-treatment	View of the armored outlet of an undersized 24-inch diameter culvert installed high in the fillslope. View is from the left outboard edge of the road looking across the slope toward the culvert outlet.
13a	MP #13	Stream Crossing #10	11/9/16	Pre-treatment	View of the inlet of an undersized 18-inch diameter culvert installed high in the fillslope. View is from the stream channel looking downstream toward the culvert inlet.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
13b	MP #13	Stream Crossing #10	11/9/16	Pre-treatment	View of the outlet of an undersized 18-inch diameter culvert installed very high in the fillslope. View is from the left outboard edge of the road looking down on the culvert outlet and gully erosion.
14a	MP #14	Stream Crossing #11	11/9/16	Pre-treatment	View of the inlet of an undersized 36-inch diameter smooth-walled culvert installed high in the fillslope. The diverted stream from the southernmost off-property flows to this crossing from the right. View is from the stream channel looking downstream toward the culvert inlet.
14b	MP #14	Stream Crossing #11	11/9/16	Pre-treatment	View of the outlet of an undersized 36-inch diameter smooth-walled culvert installed high in the fillslope. View is from the left outboard edge of the road looking across the slope toward the culvert outlet (hidden by grass).
15a	MP #15	Stream Crossing #12	11/9/16	Pre-treatment	View of the inlet of a 24-inch diameter culvert installed high in the fillslope. View is from the right edge of the channel looking downstream toward the culvert inlet.
16a	MP #16	Stream Crossing #13	11/9/16	Pre-treatment	View of the inlet of an 18-inch diameter culvert installed high in the fillslope and horizontally misaligned with the natural channel. View is looking downstream from the natural channel alignment toward the culvert inlet.
16b	MP #16	Stream Crossing #13	11/9/16	Pre-treatment	View of the outlet of an 18-inch diameter culvert installed high in the fill, resulting in significant erosion of the outboard fillslope. View is from the right outboard fillslope looking toward the culvert outlet.
17a	MP #17	Stream Crossing #14	11/9/16	Pre-treatment	View of the inlet of a 24-inch diameter culvert installed high in the fill and horizontally misaligned with the natural channel. View is looking downstream in the ditch from the natural channel alignment, toward the culvert inlet.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
17b	MP #17	Stream Crossing #14	11/9/16	Pre-treatment	View of the outlet of a 24-inch diameter culvert installed high in the fill, resulting in significant erosion of the steep, outboard fillslope. View is from the right outboard edge of the road looking toward the culvert outlet.
18a	MP #18	Stream Crossing #15	11/9/16	Pre-treatment	View of the inlet of an undersized 48-inch diameter culvert and failing inboard fillslope. Undersized culvert causes stormflow to back up and erode the fill at the culvert inlet. View is from the stream channel looking downstream toward the culvert inlet.
18b	MP #18	Stream Crossing #15	11/9/16	Pre-treatment	View of the armored fillslope and outlet channel of an undersized 48-inch diameter culvert installed high in the fill. View is from the left outboard edge of the road looking toward the culvert outlet.
19a	MP #19	Stream Crossing #17	11/9/16	Pre-treatment	View of the inlet of a 48-inch diameter culvert and armored inboard fillslope. View is from the stream channel looking downstream toward the culvert inlet.
19b	MP #19	Stream Crossing #17	11/9/16	Pre-treatment	View of the outlet of a 48-inch diameter culvert. View is from the right outboard edge of the road looking downslope toward the culvert outlet.
23a	MP #23	Riparian buffer zone	8/9/16	Pre-treatment	View of GH #1, refuse and stockpiled construction materials within the buffer zones of two Class III streams. Stream Crossing #2 is in the foreground and SC #1 is on the far side of GH #1.
23b	MP #23	Riparian buffer zone and potting soil	11/9/16	Pre-treatment	View of a portion of CA #3 and uncovered potting soil in grow-holes within the riparian buffer zone of a Class II stream. View is looking downslope from the upper edge of the cultivation area toward the Class II stream channel.

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**
23c	MP #23	Riparian buffer zone and fuel storage	11/9/16	Pre-treatment	View of two fuel cans lacking secondary containment and stockpiled construction materials on the west side of GH #1 within the riparian buffer zone of a Class III watercourse.
23d	MP #23	Riparian buffer zone and cultivation-related waste	11/9/16	Pre-treatment	View of pile of cultivation waste (plant stalks) at CA #3 discarded within the riparian buffer zone of a Class II watercourse.
23e	MP #23	Riparian buffer zone and cultivation-related waste	11/9/16	Pre-treatment	View of cltivaton waste (pile of plant stalks and root balls) at CA #3 discarded within the riparian buffer zone of a Class II watercourse.
23f	MP #23	Riparian buffer zone and garbage storage	8/9/16	Pre-treatment	View of improperly stored garbage and refuse at GH #1 within the riparian buffer zone of a Class III watercourse.
24a	MP #24	Generator	8/9/16	Pre-treatment	View of a large portable generator lacking secondary containment inside the generator shed downslope of the house (Figure 2B).
24b	MP #24	Generator shed	8/9/16	Pre-treatment	View of the generator shed lacking a raised perimeter, located downslope of the house, and portable toilets used onsite.
25a	MP #25	Garbage storage	11/9/16	Pre-treatment	View of improperly stored garbage/refuse located south of the house.
26a	--	Slumping outboard fillslope	11/9/16	Pre-treatment	View of the slumping outboard fillslope near the four 5,000 gallon water tanks (Figure 2A).

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**

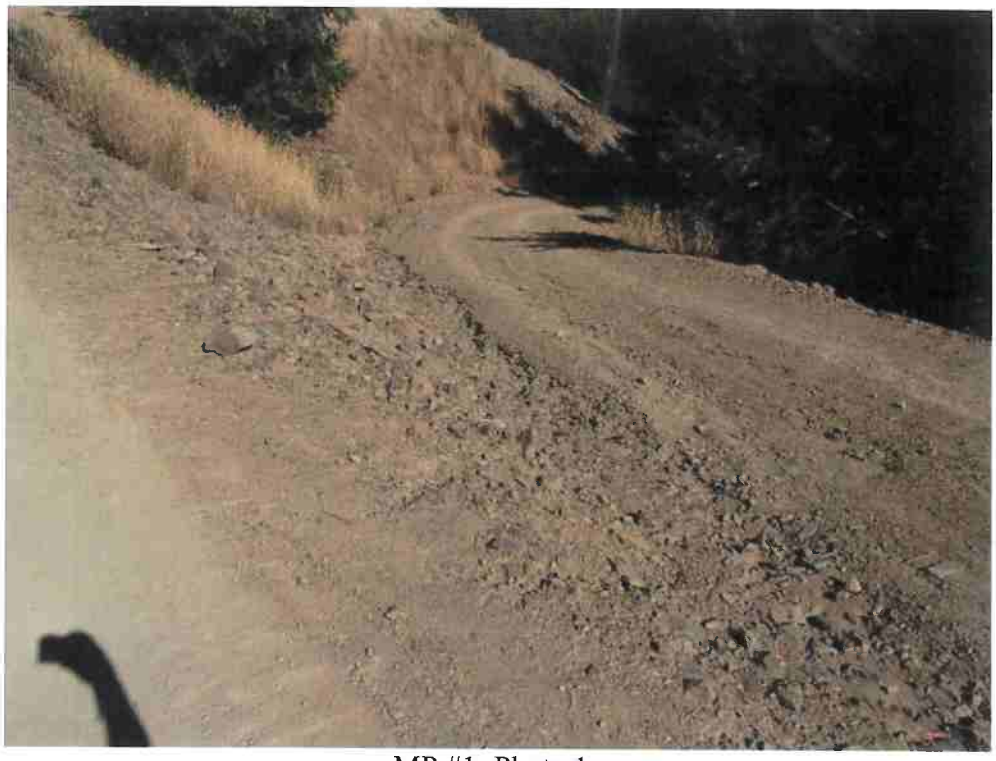
Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**

Photo Log of features of interest and monitoring points before, during, and/or after treatment					
Photo #	**Monitoring Point**	**Feature**	**Date**	**Pre-, during, or post-treatment**	**Description**

Exhibit E

WRPP Appendix C: Photo Documentation of Monitoring Points

APPENDIX C: PHOTO DOCUMENTATION OF MONITORING POINTS



MP #1: Photo 1a

MP #1: Photo 1b

MP #2: Photo 2a

MP #2: Photo 2b

MP #2: Photo 2c

MP #3: Photo 3a

MP #3: Photo 3b

MP #4: Photo 4a

MP #4: Photo 4b

MP #4: Photo 4c

MP #4: Photo 4d

MP #5: Photo 5a

MP #5: Photo 5b

MP #6: Photo 6a

MP #6: Photo 6b

MP #7: Photo 7a

MP #7: Photo 7b

MP #8: Photo 8a

MP #9: Photo 9a

MP #9: Photo 9b

MP #9: Photo 9c

MP #10: Photo 10a

MP #10: Photo 10b

MP #11: Photo 11a

MP #11: Photo 11b

MP #12: Photo 12a

MP #12: Photo 12b

MP #13: Photo 13a

MP #13: Photo 13b

MP #14: Photo 14a

MP #14: Photo 14b

MP #15: Photo 15a

MP #16: Photo 16a

MP #16: Photo 16b

MP #17: Photo 17a

MP #17: Photo 17b

MP #18: Photo 18a

MP #18: Photo 18b

MP #19: Photo 19a

MP #19: Photo 19b

MP #23: Photo 23a

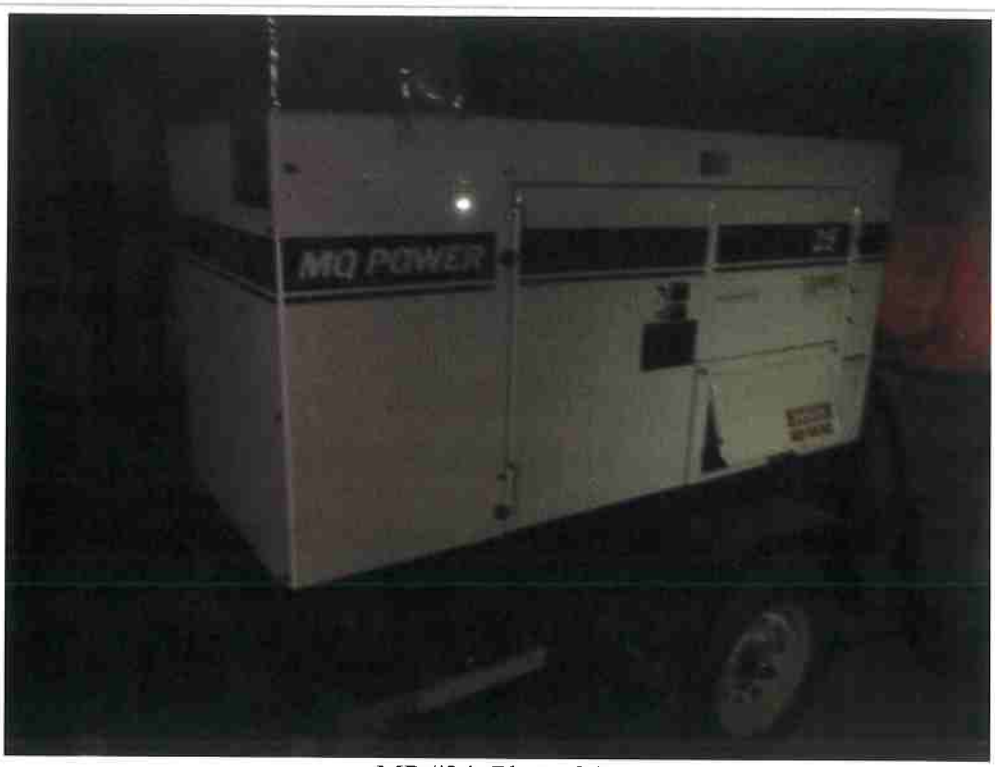
MP #23: Photo 23b

MP #23: Photo 23c

MP #23: Photo 23d

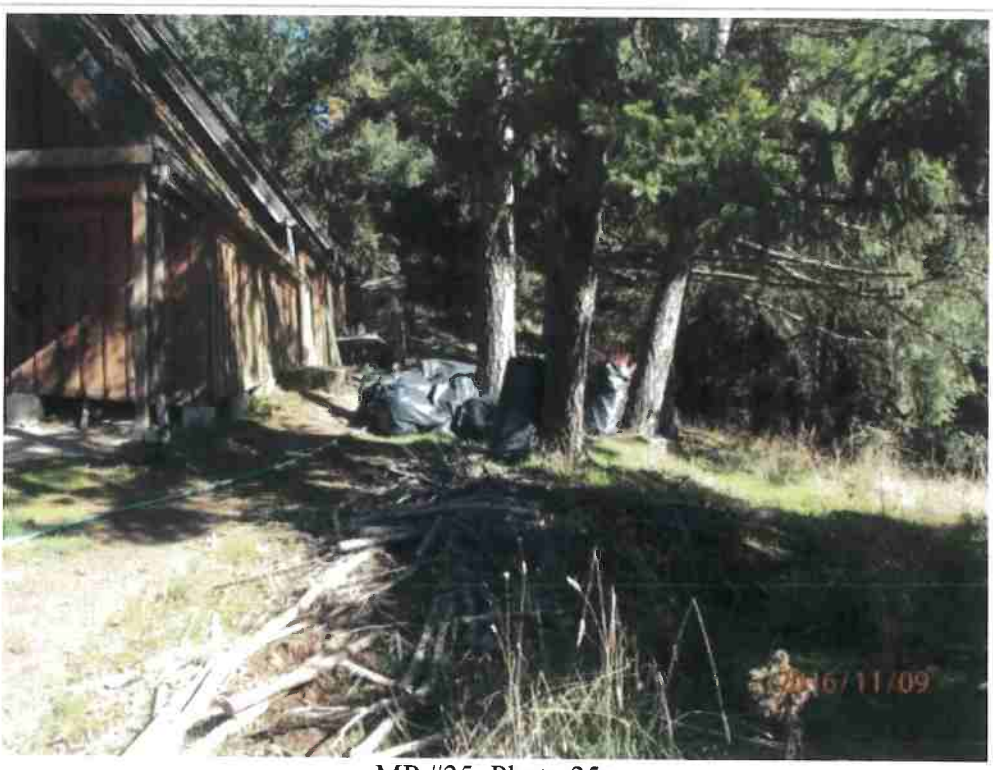
MP #23: Photo 23e

MP #23: Photo 23f



MP #24: Photo 24a

MP #24: Photo 24b



MP #25: Photo 25a

Photo 26a

Exhibit F

Humboldt County Road Evaluation

From: David Nicoletti PE QSD\QSP
DTN Engineering & Consulting
2731 K Street Unit A
Eureka, CA 95501
Email: dnicoletti@dtnengineering.com

Subject: Roadway Evaluation for APN #216-082-002, APPS 11506

Introduction

On April 4, 2019, DTN Engineering & Consulting (Engineer) performed a roadway evaluation for Peaksview MBC upon request from Humboldt County Public Works. Humboldt County Public Works has provided direction for the roads to be evaluated by the Engineer. The roads to be evaluated are as follows (see Exhibit A):

- Private Access Rd Cultivation Area on APN 216-082-002 to Bell Springs Rd Photos 1-128 (Exhibit B)

The Private Access Rd is being evaluated as part of the Applicant's Cannabis permit referral process. The Private Access Rd. is beiung evaluated for Category 2 compliance as described in Title III – Land Use and Development, Division II, Fire Safe Regulations (Ordinance) (Exhibit D).

The existing site conditions for the evaluated roadway in this Technical Memorandum consists of slightly hilly terrain, crosses one Streamside Management Areas (SMA) (Exhibit C) and has high seismic instability. There are gradual to moderate grades along the roadway evaluation. The Applicant will have three employees onsite and deliveries of supplies to the Applicants facilities will occur twice every year.

Evaluation

Private Access Rd APN 216-082-002 (Photos 1-128) (Exhibit B)

This evaluation will apply the Category 2 roadway criteria to Private Access Rd on APN 216-082-002 (1.75 miles). Private Access Rd varies in width from 10 feet to 14 feet with 2-4 foot shoulders. The grades for Private Access Rd are gradual with two very short locations where grades are above 16%. This Private Access Rd is solely used by Peaksview MBC and no other residents are on the road. Traffic counts are strictly for this project only.

The following are photo locations that are not in accordance with Humboldt County SRA Ordinance, AASHTO Guidelines for Geometric Design of Low

Volume Roads, or industry standard practices for gravel roadway maintenance, and drainage.

Curve Locations Requiring Turnouts: None
Slope Over 16%: Photos 24, 45, 52, & 56
Width Under 12 Feet: Photos 36 & 105
Clogged / Partially Culverts: Photos: 37/38, 48, 63, 65, 82/83, 90/91, 114/115, 116/117, 126
Erosion / Drainage Issues: None
Slides: None
Miscellaneous: None
Gate Under 14 Feet: None

Slopes Over 16%: *The Engineer recommends no improvements for photo locations where slopes are over 16%. The traffic benefits to environmental impacts doesn't justify paving or lowering grades. Typically, the steep grades shown at these locations are for short segments of roadway.*

Width Under 12 Feet: *The Engineer recommends no improvements for photo locations where grades exceed 16%. The traffic benefits to environmental impacts doesn't justify cutting into hillsides or expanding travel width on hillsides with fill.*

Clogged / Partially Culverts: *The Engineer recommends unclogging all culverts that have been shown to be partially clogged or fully clogged.*

Miscellaneous: *The Engineer recommends that a Paved approach at the intersection of the Private Access Rd & Bell Springs Rd be constructed in accordance with the Humboldt County Driveway Detail (Appendix D).*

The Private Access Rd doesn't meet a Category 2 roadway. It is recommended to construct waterbars and rolling dips in accordance with Appendix D. With these improvements the Private Access Rd will accommodate the traffic associated with the operation of Peaksview MBC.

Report Completed By
David Nicoletti PE:

Exhibit A

Exhibit A - Location Map

Peaksview MBC
Apps 11506
APN 216-082-002

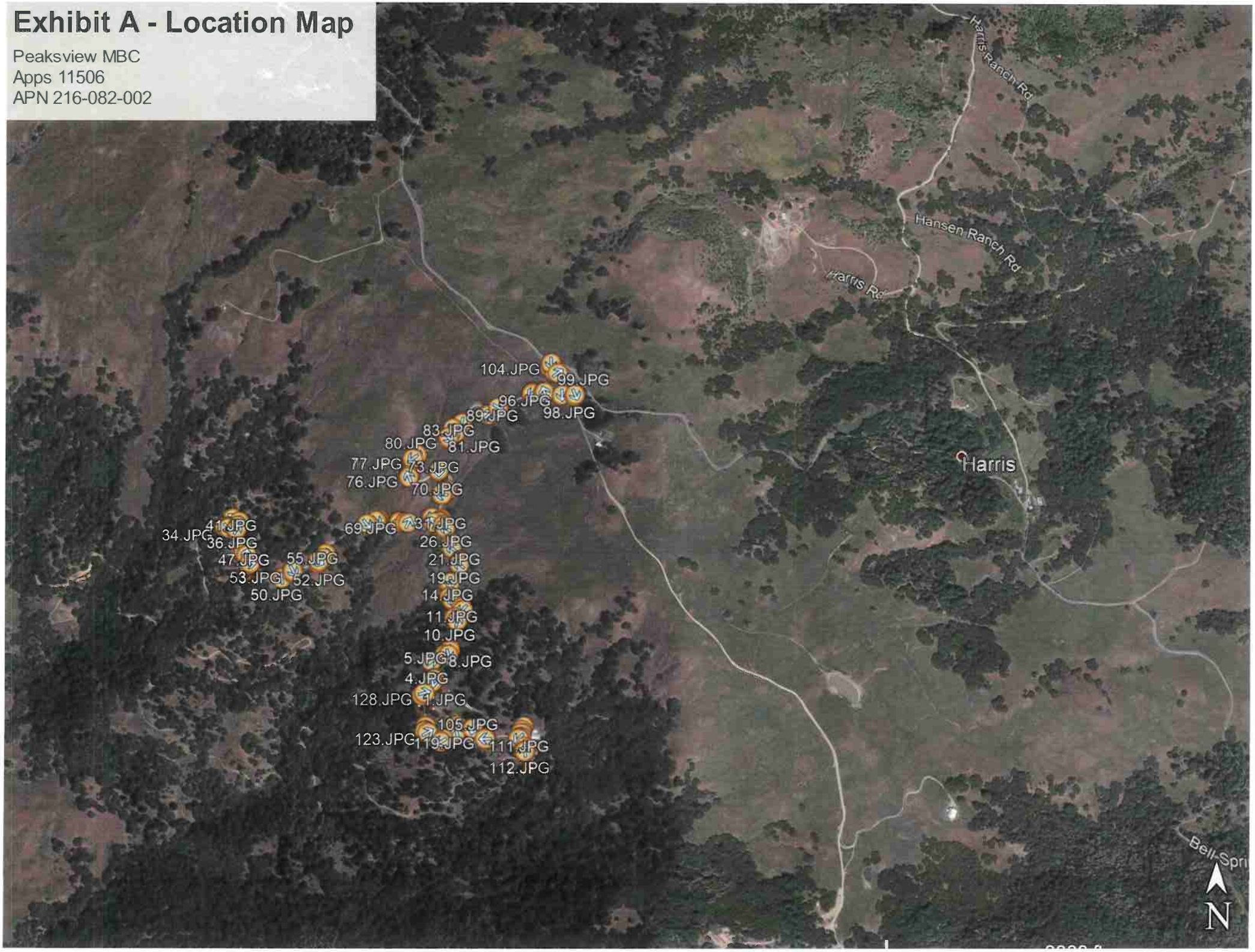


Exhibit A - Photos 1-18

Peaksview MBC
Apps 11506
APN 216-082-002

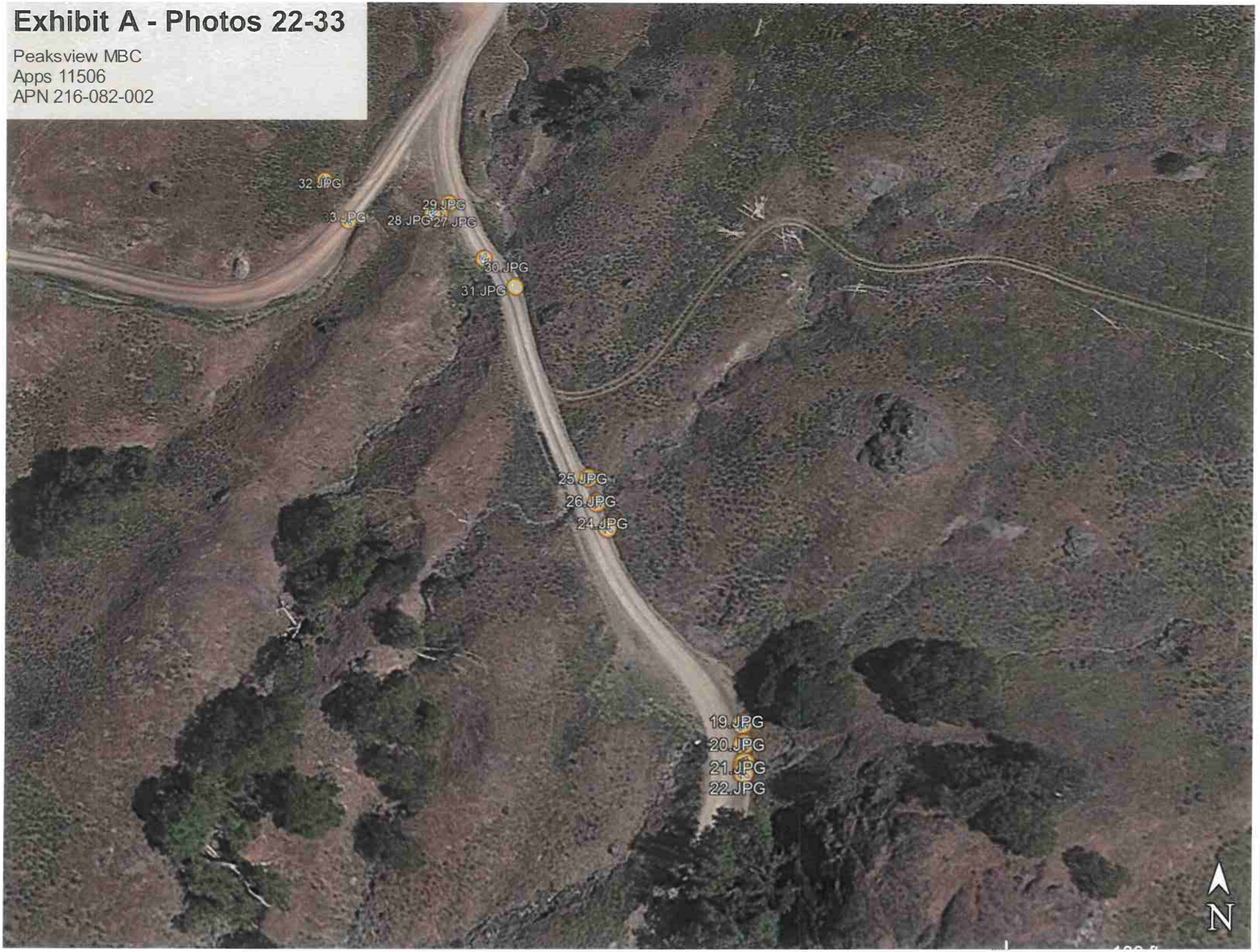


Exhibit A - Photos 22-33
Peaksview MBC
Apps 11506
APN 216-082-002
32.JPG
33.JPG
29.JPG
28.JPG
27.JPG
30.JPG
31.JPG
25.JPG
26.JPG
24.JPG
19.JPG
20.JPG
21.JPG
22.JPG
N

Exhibit A - Photos 34-49

Peaksview MBC
Apps 11506
APN 216-082-002

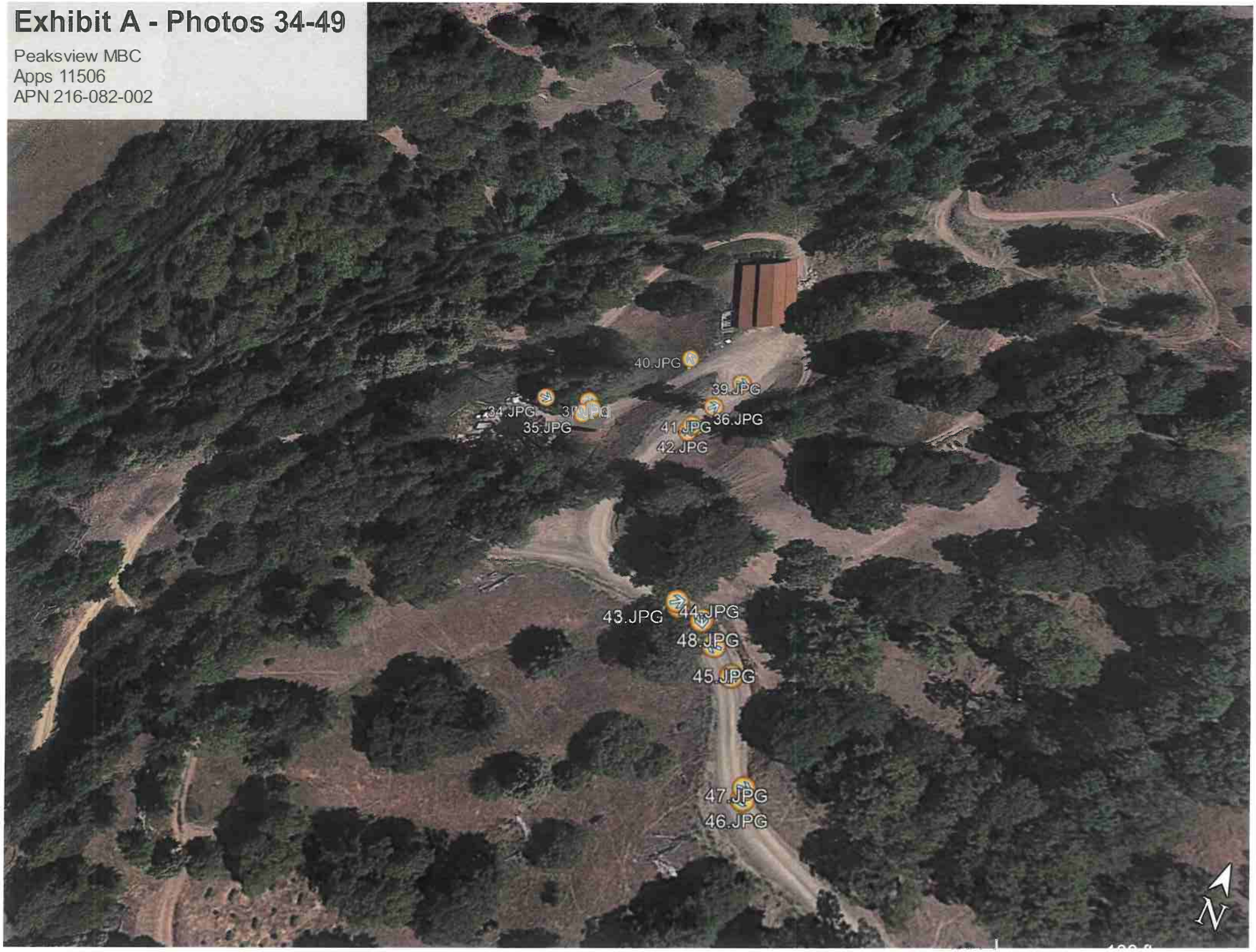


Exhibit A - Photos 50-57

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 58-69

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 70-88

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 89-104

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 105-128

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit B

Photo #1 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #2 Private Access Rd Looking NW@ Curve

Photo #3 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #4 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #5 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #6 Private Access Rd Slope 11.7% Width 12'4"

Photo #7 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #8 Private Access Rd Looking @ 18" Culvert In

Photo #9 Private Access Rd Looking @ 18" Culvert Out

Photo #10 Private Access Rd @ Pullout Looking SW @ Curve

Photo #11 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #12 Private Access Rd Looking @ 18" Culvert In

Photo #13 Private Access Rd Looking @ 18" Culvert Out

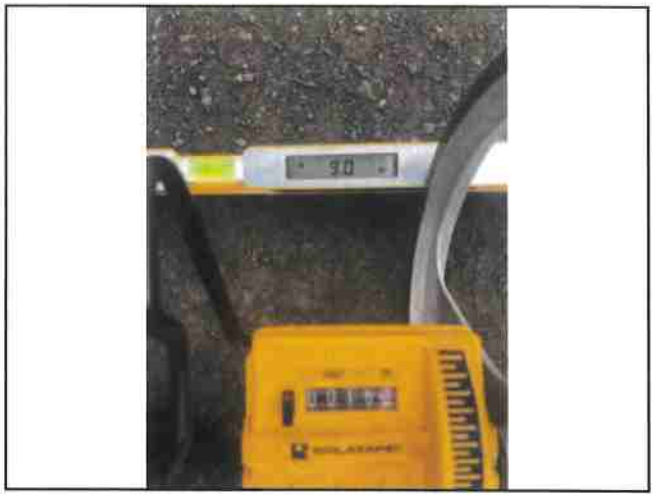


Photo #14 Private Access Rd Slope 9.0% Width 16'5"

Photo #15 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #16 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #17 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #18 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #19Private Access Rd Looking @ 18" Culvert In

Not Used

Photo #20 Not Used

Photo #21 Private Access Rd Looking @ 18" Culvert Out

Photo #22 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #23 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #24 Private Access Rd Slope 4.9% Width 11'4"

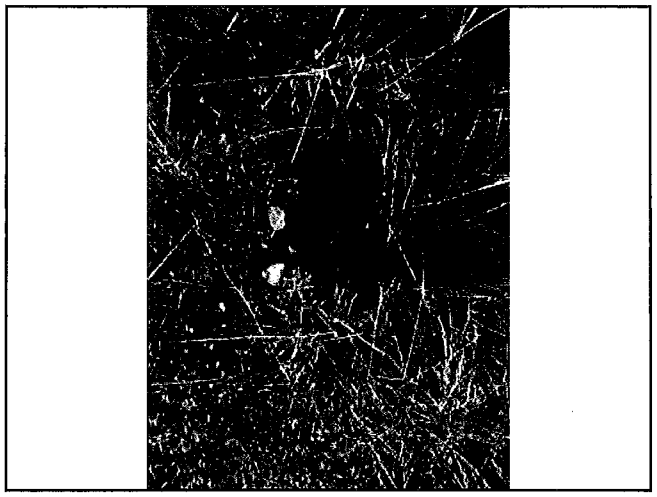


Photo #25 Private Access Rd Looking @ 18" Culvert In

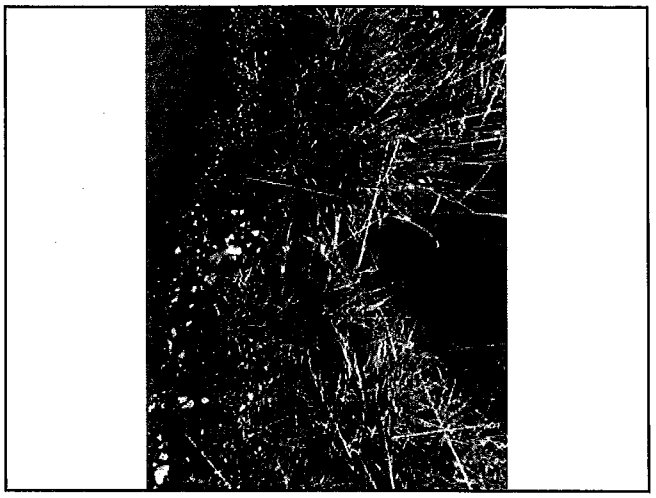


Photo #26 Private Access Rd Looking @ 18" Culvert Out

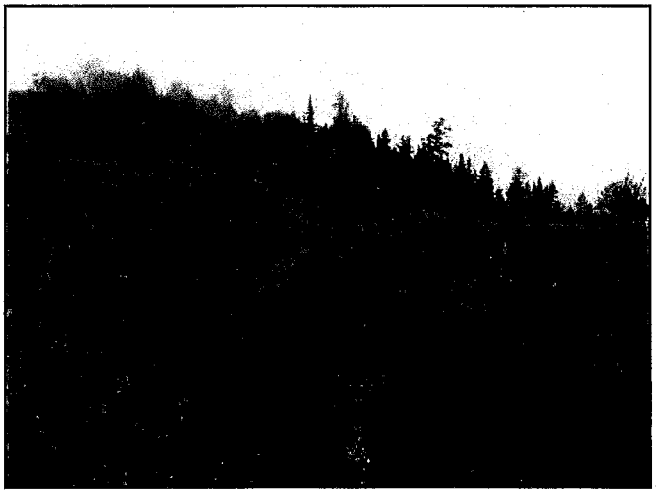


Photo #27 Private Access Rd @ Curve w/ Pullout Looking SE

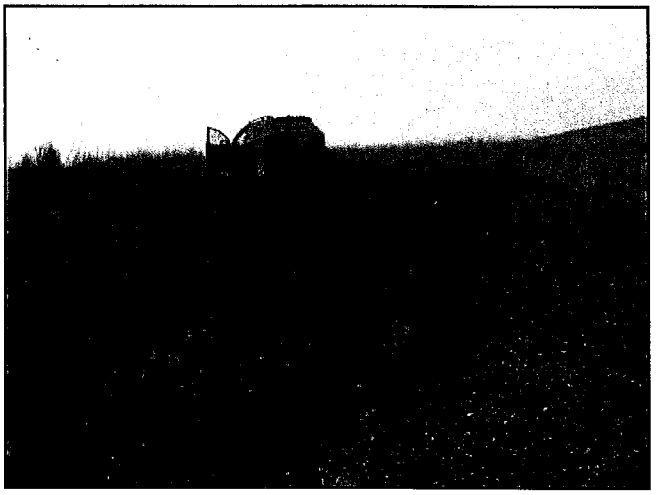


Photo #28 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #29 Private Access Rd @ Curve w/ Pullout Looking NE

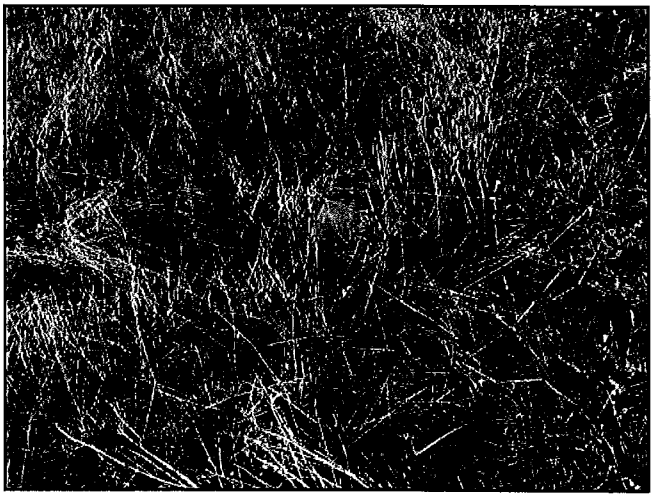


Photo #30 Private Access Rd Looking @ 24" Culvert In

Photo #31Private Access Rd Looking @ 24" Culvert Out

Photo #32 Private Access Rd Looking @ 18" Culvert In

Photo #33 Private Access Rd Looking @ Parially Clogged Culvert Out (Size Unknown)

Photo #34 Private Access Rd @ Turnaround Looking SE

Photo #35 Private Access Rd @ Turnaround Looking NE

Photo #36 Private Access Rd Slope 16.2% Width 12'1"

Photo #37 Private Access Rd Looking @ Partially 12" Culvert In

Photo #38 Private Access Rd Looking @ 12" Culvert Out

Photo #39 Private Access Rd @ Turnaround Area

Photo #40 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #41 Private Access Rd Slope 7.2% Width 13'2"

Photo #42 Private Access Rd @ Pullout Looking SE @ Curve

Photo #43 Private Access Rd Looking @ Curve w/ Pullout Looking SE

Photo #44 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #45 Private Access Rd Slope 13.6% Width 11'7"

Photo #46 Private Access Rd @ Pullout Looking SE

Photo #47 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #48 Private Access Rd Looking @ Partially Clogged 12" Culvert In

Photo #49 Private Access Rd Looking @ 12" Culvert Out

Photo #50 Private Access Rd Looking @ Curve w/ Pullout Looking SW

Photo #51 Private Access Rd Looking @ Curve w/ Pullout Looking NE

Photo #52 Private Access Rd Slope 11.9% Width 10'7"

Photo #53 Private Access Rd Looking @ Pullout Looking NE @ Curve

Photo #54 Private Access Rd Looking @ Curve w/ Pullout Looking SW

Photo #55 Private Access Rd Looking @ Curve w/ Pullout Looking NE

Photo #56 Private Access Rd Slope 8.6% Width 11'6"

Photo #57 Private Access Rd Looking @ Curve w/ Pullout Looking SW

Photo #58 Private Access Rd Looking @ Pullout Looking SW

Photo #59 Private Access Rd Looking @ Curve w/ Pullout Looking NE

Photo #60 Private Access Rd Slope 8.4% Width 12'0"

Photo #61 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #62 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #63 Private Access Rd Looking @ Partially Clogged 18" Culvert In

Photo #64 Private Access Rd Looking @ 18" Culvert Out

Photo #65 Private Access Rd Looking @ Partially Clogged 18" Culvert In

Photo #66 Private Access Rd Looking @ 18" Culvert Out

Photo #67 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #68 Private Access Rd @ Pullout Looking SE @ Curve

Photo #69 Private Access Rd @ Pullout Looking NW

Photo #70 Private Access Rd @ Pullout Looking SE @ Curve

Photo #71 Private Access Rd @ Pullout Looking SW @ Curve

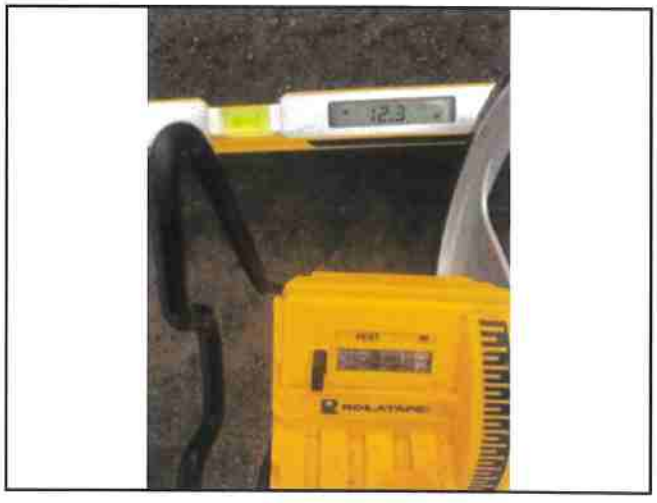


Photo #72 Private Access Rd Slope 12.3% Width 11'9"

Photo #73 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #74 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #75 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #76 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #77 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #78 Private Access Rd Slope 10.2% Width 11'4"

Photo #79 Private Access Rd Looking NBE

Photo #80 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #81 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #82 Private Access Rd Looking @ Partially Clogged 18" Culvert In

Photo #83 Private Access Rd Looking @ Partially Clogged 18" Culvert Out

Photo #84 Private Access Rd Slope 8.6% Width 11'9"

Photo #85 Private Access Rd @ Pullout Looking NE @ Curve

Photo #86 Private Access Rd @ Pullout Looking SW @ Curve

Photo #87 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #88 Private Access Rd @ Curve w/ Pullout Looking NE

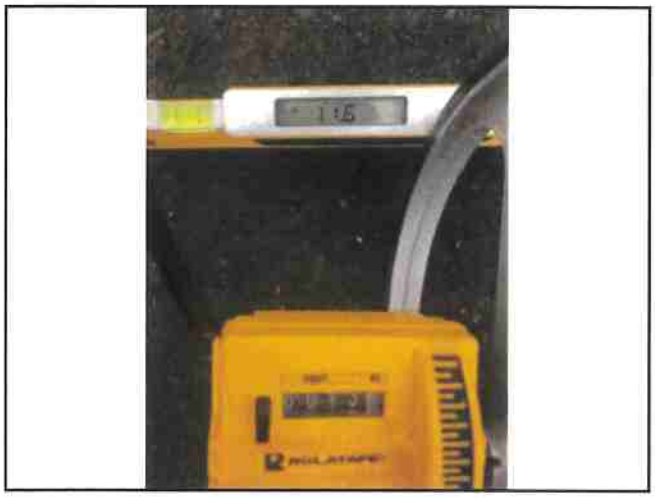


Photo #89 Private Access Rd Slope 11.6% Width 13'10"

Photo #90 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #91 Private Access Rd Looking @ Partially Clogged Culvert Out (Size Unknown)

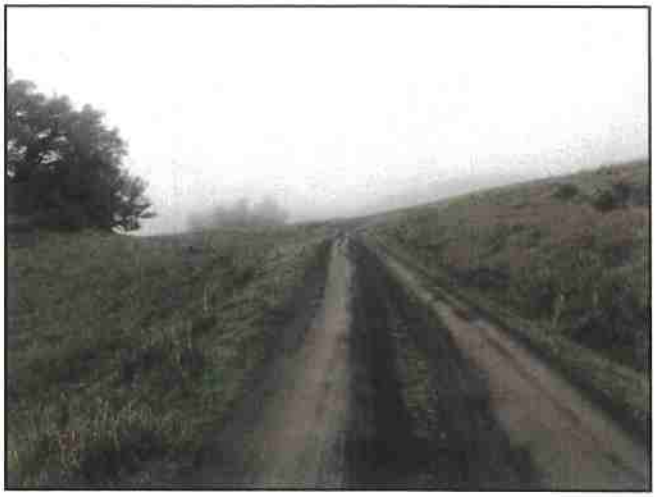


Photo #92 Private Access Rd @ Pullout Looking NE @ Curve

Photo #93 Private Access Rd @ Pullout Looking NE @ Curve

Photo #94 Private Access Rd Slope 10.2% Width 12'2"

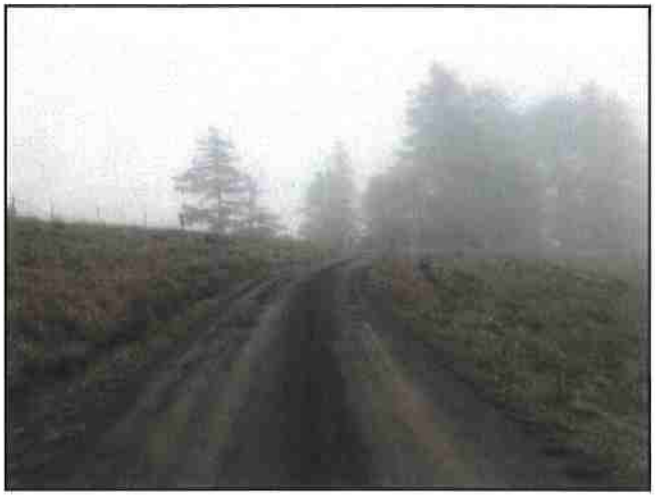


Photo #95 Private Access Rd @ Pullout Looking NE @ Curve

Photo #96 Private Access Rd Gate Width 15'0"

Photo #97 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #98 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #99 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #100 Private Access Rd Slope 2.6% Width 13'6"

Photo #101 Private Access Rd Looking NW @ Bell Springs Rd

Photo #102 Intersection of Bell Springs Rd & Private Access Rd Looking NW

Photo #103 Intersection of Bell Springs Rd & Private Access Rd Looking SE

Photo #104 Intersection of Bell Springs Rd & Private Access Rd Looking SW

Photo #105 Private Access Rd Slope 18.7% Width 14'6"

Photo #106 Private Access Rd @ Curve w/ Pull-out Looking NW

Photo #107 Private Access Rd @ Curve w/ Pull-out Looking NW

Photo #108 Private Access Rd @ Curve w/ Pull-out Looking NE

Photo #109 Private Access Rd @ Turnaround Looking SE

Photo #110 Private Access Rd @ Turnaround Looking SE

Photo #111 Private Access Rd @ Turnaround Looking NE

Photo #112 Private Access Rd @ Turnaround Looking SW

Photo #113 Private Access Rd Slope 16.1% Width 14'4"

Photo #114 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #115 Private Access Rd Looking @ Partially Clogged Culvert Out (Size Unknown)

Photo #116 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #117 Private Access Rd Looking @ Partially Clogged Culvert Out (Size Unknown)

Photo #118 Private Access Rd @ Pullout Looking NW

Photo #119 Private Access Rd @ Turnaround Looking SW

Photo #120 Private Access Rd @ Turnaround Looking NE

Photo #121 Private Access Rd @ Pullout Looking NE

Photo #122 Private Access Rd Slope 7.4% Width 12'7"

Photo #123 Private Access Rd @ Curve w/ Pull-out Looking SE

Photo #124 Private Access Rd @ Curve w/ Pull-out Looking NW

Photo #125 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #126 Private Access Rd Looking @ Partially Clogged 18" Culvert Out (Size Unknown)

Photo #127 Private Access Rd Slope 11.0% Width 12'4"

Photo #128 Private Access Rd @ Curve w/ Pull-out Looking NE

Photo #

Photo #

Photo #

Photo #

Exhibit C

ArcGIS Web Map

Humboldt County Planning and Building Department

Printed: May 15, 2019 Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Highways and Roads
- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads
- Private or Unclassified
- Major River or Stream

Blue Line Streams
- Perennial 1-3
- Perennial >4
- Intermittent
- Subsurface
- City Boundary
- Counties
- Parcels
- Parcels (no APN labels)

0 650 1,300 2,600 Feet
0 0.125 0.25 0.5 Miles
RF= 1:17,530 1 in = 1,461 ft

N W E S

Sources: NRCS
Humboldt County GIS
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
FRAP, FEMA, USGS

Exhibit D

RECEIVED
DEC 11 2020
Humboldt County
Building Division

TITLE III - LAND USE AND DEVELOPMENT

DIVISION 11

FIRE SAFE REGULATIONS

Chapter 1 - Administration

§ 3111-1. Title.
§ 3111-2. Purpose.
§ 3111-3. Scope.
§ 3111-4. Provisions for Application of These Regulations.
§ 3111-5. Inspection Authority.
§ 3111-6. Inspections.
§ 3111-7. Exceptions - Intent.
§ 3111-8. Exceptions to Standards.
§ 3111-9. Requests for Exceptions.
§ 3111-10. Appeals.
§ 3111-11. Definitions.
§ 3111-12. Distance Measurements.
§ 3111-13. Maintenance of Defensible Space Measures.

Chapter 2 - Emergency Access

§ 3112-1. Road and Driveway Access - Intent.
§ 3112-2. Application of Design Standards.
§ 3112-3. Road Width.
§ 3112-4. Roadway Surface.
§ 3112-5. Roadway Grades.
§ 3112-6. Roadway Radius.
§ 3112-7. Roadway Turnarounds.
§ 3112-8. Roadway Turnouts.
§ 3112-9. Roadway Structures.
§ 3112-10. One-Way Roads.
§ 3112-11. Dead-End Roads.
§ 3112-12. Driveways.
§ 3112-13. Gate Entrances.

Chapter 3 - Signing and Building Numbers

§ 3113-1. Signing and Building Numbering - Intent.
§ 3113-2. Size of Letters, Numbers and Symbols for Street and Road Signs.
§ 3113-3. Visibility and Legibility of Street and Road Signs.
§ 3113-4. Height of Street and Road Signs.
§ 3113-5. Names and Numbers on Street and Road Signs.
§ 3113-6. Intersecting Roads, Streets and Private Lanes.
§ 3113-7. Signs Identifying Traffic Access Limitation.
§ 3113-8. Installation of Road, Street and Private Lane Signs.
§ 3113-9. Addresses for Buildings.
§ 3113-10. Size of Letters, Numbers and Symbols.
§ 3113-11. Installation, Location and Visibility of Addresses.

Chapter 4 - Emergency Water Standards

§ 3114-1. Water Standards - Intent.
§ 3114-2. Application.
§ 3114-3. General Standards.
§ 3114-4. Hydrant/Fire Valve.
§ 3114-5. Signing of Water Sources

Chapter 5 - Fuel Modification Standards

§ 3115-1. Fuel Modification - Intent.
§ 3115-2. Setback for Structure Defensible Space.
§ 3115-3. Disposal of Flammable Vegetation and Fuels.
§ 3115-4. Greenbelts.

Chapter 6 - Enforcement

§ 3116-1. Violation.

TITLE III - LAND USE AND DEVELOPMENT

DIVISION 11

FIRE SAFE REGULATIONS

CHAPTER 1

ADMINISTRATION

3111-1. TITLE.

These regulations shall be known as the "SRA Fire Safe Regulations" and shall constitute the basic wildland fire protection standards of the County for lands within State Responsibility Areas (SRA). (Ord. 1952, § 1, 12/17/1991)

3111-2. PURPOSE.

These regulations have been prepared and adopted for the purpose of establishing minimum wildlife protection standards in conjunction with building, construction and development in SRA. These regulations constitute local alternative standards as authorized by Section 4290 of the Public Resources Code. The future design and construction of structures, subdivisions and developments in SRA shall provide for basic emergency access and perimeter wildlife protection measures as specified in the following sections. These measures shall provide for emergency access; signing and building numbering; private water supply reserves for emergency fire use; and vegetation modification. The fire protection standards which follow shall specify the minimums for such measures. (Ord. 1952, § 1, 12/17/1991)

3111-3. SCOPE.

(a) These regulations shall apply as appropriate to all of the following activities which are approved in the SRA after January 1, 1992: (Ord. 1952, § 1, 12/17/1991)

(1) the creation of new parcels, excluding lot line adjustments as specified in Government Code (GC) Section 66412(d); (Ord. 1952, § 1, 12/17/1991)

(2) new construction, not relating to an existing structure, which requires a building permit; (Ord. 1952, § 1, 12/17/1991)

(3) land use or development which requires a use permit; (Ord. 1952, § 1, 12/17/1991)

(4) the siting of manufactured homes; and (Ord. 1952, § 1, 12/17/1991)

(5) new road construction, including construction of a road that does not currently exist, or an extension of an existing road. (Ord. 1952, § 1, 12/17/1991)

(b) Notwithstanding paragraph (a) of this section, these regulations shall not apply to: (Ord. 1952, § 1, 12/17/1991)

(1) enlargement, alteration, repair or improvement of any building or structure existing on the effective date of these regulations; (Ord. 1952, § 1, 12/17/1991)

(2) new construction of accessory structures where the main building exists on the effective date of these regulations; (Ord. 1952, § 1, 12/17/1991)

(3) land use or development which requires a use permit where the Planning Director and CAL FIRE determines that no increase in fire risk would result from the use or activity (e.g., wetland restoration or fish and wildlife habitat management); (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(4) roads required as a condition of tentative parcel or final maps prior to the effective date of these regulations; roads for agricultural or mining use solely on one ownership; and roads use solely for the management and harvesting of wood products; and (Ord. 1952, § 1, 12/17/1991)

(5) repair or maintenance of any road, street or private lane existing on the effective date of these regulations. (Ord. 1952, § 1, 12/17/1991)

3111-4. PROVISIONS FOR APPLICATION OF THESE REGULATIONS.

These regulations shall be applied as follows:

(a) The County shall provide the local CAL FIRE Unit with notice of applications for building permits, tentative parcel maps, tentative maps, and use permits for construction or development within SRA. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) The County shall request CAL FIRE to review and make fire protection recommendations on applicable construction or development permits or maps provided by the County. CAL FIRE shall respond within thirty (30) days of the referral. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) The County shall ensure that the applicable sections of this ordinance become a condition of approval of any applicable construction or development permit or map. (Ord. 1952, § 1, 12/17/1991)

(d) The application of these regulations shall be confined to the real property that is the subject of the building permit or other grant of land use or development approval by the County, unless otherwise stated. (Ord. 1952, § 1, 12/17/1991)

Nothing contained in these regulations shall be considered as abrogating the provisions of any ordinance, rule or regulation of the state or county, including the provisions of the California Environmental Quality Act (CEQA), which may require the evaluation and mitigation of potential impacts of the project beyond the limits of the real property that is the subject of the building permit or other grant of land use or development approval before the County. (Ord. 1952, § 1, 12/17/1991)

3111-5. INSPECTION AUTHORITY.

(a) Inspection shall be made pursuant to Section 6 by:

(1) the Planning Director or his/her designee, or (Ord. 1952, § 1, 12/17/1991)

(2) the Director of the California Department of Forestry and Fire Protection (CAL FIRE) or his/her designee. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) The County shall report violations of these regulations to the CAL FIRE Unit headquarters with responsibility for SRA fire protection for the County. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3111-6. INSPECTIONS.

(a) The inspection authority may inspect for compliance with these regulations. When conducted, inspections should occur prior to the following events: (Ord. 1952, § 1, 12/17/1991)

(1) issuance of a use permit; (Ord. 1952, § 1, 12/17/1991)

(2) issuance of a Certificate of Occupancy under a building permit; (Ord. 1952, § 1, 12/17/1991)

(3) recordation of a parcel or final map for a subdivision; (Ord. 1952, § 1, 12/17/1991)

(4) filing of a notice of completion (other than for a building permit); (Ord. 1952, § 1, 12/17/1991) or

(5) final inspection of any project or building permit. (Ord. 1952, § 1, 12/17/1991)

(b) It shall be the duty of the holder of the building permit or other permit or map approval issued by the County to notify the County, or CAL FIRE, as appropriate, that the construction and/or improvement required under these regulations is ready for inspection and to assure that the premises will be accessible at the time scheduled for inspection. Inspections shall be requested by the applicant at least forty-eight (48) hours in advance of the intended inspection. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) The inspection authority shall notify or inform the permit holder of the day during which the inspection is to be conducted and shall attempt to notify the permit holder if the inspection cannot be made as scheduled. (Ord. 1952, § 1, 12/17/1991)

(d) Annual inspection conducted by CAL FIRE pursuant to Public Resources Code Section 4290 shall to the extent practical include notification as provided in paragraph (c) of this section for inspections which focus on individual parcels and by public notice for area-wide inspections. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3111-7 EXCEPTIONS - INTENT.

The County seeks to protect the intent of the State Fire Safe Regulations while ensuring that no undue hardship occurs at the county level due to conditions peculiar to the County. The exceptions procedure is provided with the intent of ensuring that every individual who is negatively impacted will get a fair hearing before local authorities who are competent to judge the legitimacy of that individual's concerns. The local inspection authority together with the local representative of CAL FIRE is therefor directed to deal with requests for exceptions to the provisions of these regulations on a case by case basis, making a comprehensive review of the circumstances in each case, taking special note of such factors as: (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(a) community standards as expressed in the County' Alternative Owner Building Ordinance; and (Ord. 1952, § 1, 12/17/1991)

(b) economic factors which may affect the affordability of housing as described in the Housing Element of the County's General Plan. (Ord. 1952, § 1, 12/17/1991)

3111-8. EXCEPTIONS TO STANDARDS.

Upon request by the applicant, exceptions to standards within this ordinance and mitigated practices shall be allowed by the inspection authority, where the exception provides the same overall practical effect as these regulations towards providing defensible space. In evaluating requests for exceptions to standards, the inspection authority shall be guided by Section 3111-7 of these regulations (Intent). (Ord. 1952, § 1, 12/17/1991)

3111-9. REQUESTS FOR EXCEPTIONS.

(a) An applicant may apply to the Planning Director for an exception to the standards within this ordinance. The application for an exception shall be accompanied by such information as the Planning Department requires and by a fee established by the Board of Supervisors. At minimum, the application shall contain the following information: (Ord. 1952, § 1, 12/17/1991)

(1) a description of the specific section(s) for which an exception is requested, (Ord. 1952, § 1, 12/17/1991)

(2) material facts supporting the contention of the applicant, (Ord. 1952, § 1, 12/17/1991)

(3) details of the exception or mitigation measures proposed, and (Ord. 1952, § 1, 12/17/1991)

(4) a map showing the proposed location and siting of the exception or mitigation measure(s). (Ord. 1952, § 1, 12/17/1991)

(b) The Planning Director shall request the California Department of Forestry and Fire Protection (CAL FIRE) to review the exception request. CAL FIRE shall respond within thirty (30) days of the referral with documentation outlining the effects of the requested exception on wildland fire protection. If CAL FIRE does not respond within the time provided, the Planning Director shall assume that CAL FIRE supports the exception. The Planning Director shall not approve an exception request if the recommendation from CDF is for denial. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) The Planning Director shall give written notice of his/her decision to the applicant. Notice shall also be given to any parties requesting such notice and to CAL FIRE. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3111-10. APPEALS.

(a) Any person aggrieved by the decision of the Planning Director may appeal to the Board of Supervisors. The appeal shall be filed with the Planning Department within ten (10) days of the date of the notice and shall be accompanied by a written statement of the reasons why the decision was in error and by a fee established by the Board of Supervisors. (Ord. 1952, § 1, 12/17/1991)

(b) The Board of Supervisors shall consider the appeal at the earliest possible date. The decision of the Board of Supervisors is final and binding. (Ord. 1952, § 1, 12/17/1991)

(c) If an appeal is granted, the Board of Supervisors shall make findings that the decision meets the intent of providing defensible space consistent with these regulations. Such findings shall include reasons for the decision. (Ord. 1952, § 1, 12/17/1991)

(d) A written copy of the findings adopted under paragraph (c) above shall be provided to the CAL FIRE Unit headquarters that administers SRA fire protection in the County. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3111-11. DEFINITIONS.

Unless the context otherwise requires, the definitions set out in this ordinance shall be used in the interpretation and construction of these regulations. Words used in the present tense shall include the future tense, and in the future tense shall include the present tense; the singular number shall include the plural number, and the plural shall include the singular. (Ord. 1952, § 1, 12/17/1991)

Abatement: For the purpose of this ordinance means the restoration of the specific measure(s) or mitigation required as a condition of the permit, parcel or map approval pursuant to these regulations. (Ord. 1952, § 1, 12/17/1991)

Accessory building: Any building used as an accessory to residential, Commercial, recreational, industrial, or educational purposes as defined in the California Building Code, 2013 Edition, Chapter 3, Group U Occupancy, as amended from time to time by the State, that requires a building permit. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

Agriculture: Land used for agricultural uses as defined in Humboldt County Code Section 312-6. (Ord. 1952, § 1, 12/17/1991)

Board: The Humboldt County Board of Supervisors. (Ord. 1952, § 1, 12/17/1991)

Building: Any structure used or intended for supporting or sheltering any use or occupancy that is defined in the California Building Code, 1989 Amendments, Chapter 11, except Group M, Division 1, Occupancy. For the purpose of the ordinance, building includes mobile homes and manufactured homes, churches, and day care facilities. (Ord. 1952, § 1, 12/17/1991)

California Environmental Quality Act (CEQA): Means the California Environmental Quality Act, California Public Resources Code Section 21000 et seq. (Ord. 1952, § 1, 12/17/1991)

CAL FIRE: California Department of Forestry and Fire Protection. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

County: The County of Humboldt. (Ord. 1952, § 1, 12/17/1991)

Dead-end road: A road that has only one point of vehicular ingress/egress, including cul-de-sacs and looped roads. (Ord. 1952, § 1, 12/17/1991)

Defensible space: The area within the perimeter of a parcel, development, neighborhood or community where basic wildland fire protection practices and measures are implemented, providing the key point of defense from an approaching wildfire or defense against encroaching wildfires or escaping structure fires. The perimeter used in this regulation is the area encompassing the parcel or parcels proposed for construction and/or development, excluding the physical structure itself. The area is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names and building identification, and fuel modification measures. (Ord. 1952, § 1, 12/17/1991)

Development: As defined in Section 66418.1 of the California Government Code. (Ord. 1952, § 1, 12/17/1991)

Director of Public Works: The Director of the Department of Public Works or his/her designee. (Ord. 1952, § 1, 12/17/1991)

Drafting: The transfer of water from the source, usually a tank or pond, to the fire engine or water tender where the head pressure of the water source on the hydrant is insufficient to perform the operation without suction provided by a pump on the fire apparatus. (Added by Ord. 2540, Section 1, 11/17/2015)

Driveway: A vehicular access that serves no more than two buildings, with no more than three dwelling units on a single parcel, and any number of accessory buildings. (Ord. 1952, § 1, 12/17/1991)

Dwelling unit: Any building or portion thereof which contains living facilities, including provisions for sleeping, eating, cooking and/or sanitation for not more than one family. (Ord. 1952, § 1, 12/17/1991)

Exception: An alternative to the specified standard requested by the applicant that may be necessary due to health, safety, environmental conditions, physical site limitations or other limiting conditions such as recorded historical sites, that provides mitigation of the problem. (Ord. 1952, § 1, 12/17/1991)

Feasible: Means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. (Added by Ord. 2540, Section 1, 11/17/2015)

Fire valve: See hydrant. (Ord. 1952, § 1, 12/17/1991)

Fuel modification area: An area where the volume of flammable vegetation has been reduced, providing reduced fire intensity and duration. (Ord. 1952, § 1, 12/17/1991)

Greenbelts: A facility or land-use, designed for a use other than fire protection, which will slow or resist the spread of a wildfire. Includes parking lots, irrigated or landscaped areas, golf courses, parks, playgrounds, maintained vineyards, orchards or annual crops that do not cure in the field. (Ord. 1952, § 1, 12/17/1991)

Hammerhead "T": A roadway that provides a "T" shaped, three-point turnaround space for emergency equipment, being no narrower than the road that serves it. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

Hydrant: A valved connection on a water supply/storage system, having at least one 2-1/2 inch outlet, with male American National Fire Hose Screw Threads (NH) used to supply fire apparatus and hose with water. (Ord. 1952, § 1, 12/17/1991)

Local Authority having jurisdiction: This term shall have the following meaning with regard to administration of the following codes and regulations: County Road Manual, the Director of the Department of Public Works; California Building Code, the Chief Building Official; and Uniform Fire Code, the State Fire Marshal or the local fire agency. (Added by Ord. 2540, Section 1, 11/17/2015)

Local fire agency: A local fire organization recognized by the County Local Agency Formation Commission (LAFCO) which has shared responsibility on SRA lands. (Ord. 1952, § 1, 12/17/1991)

Manufactured home: As defined in California Health and Safety Code Sections 18007, 18008, and 199791. (Ord. 1952, § 1, 12/17/1991)

Mountainous Terrain: Any combination of gradients, length of grade, or horizontal or vertical alignment that will cause trucks to operate at very slow speeds for considerable distances or at frequent intervals; generally associated with steep terrain with cross slopes of 30% or greater. (Added by Ord. 2540, Section 1, 11/17/2015)

Occupancy: The purpose for which a building, or part thereof, is used of intended to be used. (Ord. 1952, § 1, 12/17/1991)

One-way road: A minimum of one traffic land width designed for traffic flow in one direction only. (Ord. 1952, § 1, 12/17/1991)

Planning Director: Director of the Planning and Building Department or his/her designee. (Ord. 1952, § 1, 12/17/1991)

Roads, streets, private lanes: Vehicular access to more than one parcel; access to any industrial or commercial occupancy; or vehicular access to a single parcel with more than two buildings or four or more dwellings units. (Ord. 1952, § 1, 12/17/1991)

Roadway: Any surface designed, improved, or ordinarily used for vehicle travel. (Ord. 1952, § 1, 12/17/1991)

Roadway structures: Bridges, culverts, and other appurtenant structures which supplement the roadway bed or shoulders. (Ord. 1952, § 1, 12/17/1991)

Same practical effect: As used in this ordinance, means an exception or alternative with the capability of applying accepted wildland fire suppression strategies and tactics, and provisions for firefighter safety, including: (Ord. 1952, § 1, 12/17/1991)

(a) access for emergency wildland fire equipment, (Ord. 1952, § 1, 12/17/1991)

(b) safe civilian evacuation, (Ord. 1952, § 1, 12/17/1991)

(c) signing that avoids delays in emergency equipment response, (Ord. 1952, § 1, 12/17/1991)

(d) available and accessible water to effectively attack wildfire or defend a structure from wildfire, and (Ord. 1952, § 1, 12/17/1991)

(e) fuel modification sufficient for civilian and firefighter safety. (Ord. 1952, § 1, 12/17/1991)

Shoulder: Roadbed or surface adjacent to the traffic lane. (Ord. 1952, § 1, 12/17/1991)

State Board of Forestry (SBOF): A nine member board, appointed by the Governor, which is responsible for developing the general forest policy of the state, for determining the guidance policies of the Department of Forestry and Fire Protection, and for representing the state's interest in federal land in California. (Ord. 1952, § 1, 12/17/1991)

State Responsibility Area (SRA): As defined in Public Resources Code Sections 4126-4127; and the California Code of Regulations, Title 14, Division 1.5, Chapter 7, Article 1, Sections 1220-1220.5. (Ord. 1952, § 1, 12/17/1991)

Structure: That which is built or constructed, an edifice or building of any kind, or any piece of work artificially built up or composed or parts joined together in some definite manner. (Ord. 1952, § 1, 12/17/1991)

Subdivision: As defined in Section 66424 of the California Government Code. (Ord. 1952, § 1, 12/17/1991)

Traffic lane: The portion of the roadway that provides a single line of vehicle travel, excluding striping, where present. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

Turnaround: A roadway, unobstructed by parking, which allows for a safe opposite change of direction for emergency equipment. Design of such area may be a hammerhead "T", Slip "T" or terminus bulb. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

Turnouts: A widening in a roadway to allow vehicles to pass. (Ord. 1952, § 1, 12/17/1991)

Vertical clearance: The minimum specified height of a bridge or overhead projection above the roadway. (Ord. 1952, § 1, 12/17/1991)

Wildfire: As defined in California Public Resources Code Sections 4103 and 4104. (Ord. 1952, § 1, 12/17/1991)

3111-12. DISTANCE MEASUREMENTS.

All specified or referenced distances are measured along the ground surface, unless otherwise stated. (Ord. 1952, § 1, 12/17/1991)

3111-13. MAINTENANCE OF DEFENSIBLE SPACE MEASURES.

(a) To ensure continued maintenance of properties in conformance with these standards and measures and to assure continued availability, access, and utilization of the defensible space provided for in these standards during a wildfire, provisions for annual maintenance shall be included in the development plans and/or shall be provided as a condition of approving any activity subject to these regulations. Provisions deemed to satisfy this requirement include but are not limited to: (Ord. 1952, § 1, 12/17/1991)

(1) establishment of a County Service Area (CSA) for the subdivision prior to map recordation; (Ord. 1952, § 1, 12/17/1991)

(2) development of a binding maintenance association or similar agreement between affected property owners formed for the subdivision prior to map recordation; (Ord. 1952, § 1, 12/17/1991)

(3) recordation of binding Covenants, Conditions, and Restrictions (CC&R) for maintenance of individual measures which are enforceable against the property; or (Ord. 1952, § 1, 12/17/1991)

(4) recordation of a Notice of Requirement for Maintenance against the real property by the County prior to issuance of a building permit or as a condition of a initiating a use authorized under a use permit. (Ord. 1952, § 1, 12/17/1991)

(b) The inspection authority may conduct inspections to ensure compliance with the standards as set forth in the development plans and/or conditions of permit, parcel or map approval. Inspections should be conducted in accordance with Section 3111-6, paragraph (d) of these regulations. Violation of these regulations shall be subject to the penalties as set forth in Section 3116-1 of this ordinance. (Ord. 1952, § 1, 12/17/1991)

CHAPTER 2

EMERGENCY ACCESS

3112-1. ROAD AND DRIVEWAY ACCESS - INTENT.

Road and street networks, whether public or private, unless exempted under Section 3111-3(b), shall provide for safe access for emergency wildland fire equipment and civilian evacuation concurrently, and shall provide unobstructed traffic circulation during a wildfire emergency consistent with Sections 3112-2 through 3112-13. (Ord. 1952, § 1, 12/17/1991)

3112-2. APPLICATION OF DESIGN STANDARDS.

The design and improvement standards as referenced in these regulations shall be those as set forth in the Appendix to Title III, Division 2, of the Humboldt County Code, and in the County Roadway Design Manual. Application of these design and improvement standards shall be consistent with the intent as prescribed in Section 3112-1, and shall be based upon: (Ord. 1952, § 1, 12/17/1991)

(a) legal requirements, (Ord. 1952, § 1, 12/17/1991)

(b) sound engineering principles and practices and engineering geological evaluation of necessary, (Ord. 1952, § 1, 12/17/1991)

(c) traffic safety considerations, (Ord. 1952, § 1, 12/17/1991)

(d) economy of design and maintenance, and (Ord. 1952, § 1, 12/17/1991)

(e) allowance for the special nature of Humboldt County roads and traffic problems. (Ord. 1952, § 1, 12/17/1991)

Interpretation of these standards shall be provided by the Director of Public Works. (Ord. 1952, § 1, 12/17/1991)

3112-3. ROAD WIDTH.

All roads shall be constructed to a minimum Road Category 4 road standard of two ten (10) foot traffic lanes, not including shoulders, capable of providing for two-way traffic flow to support emergency vehicle and civilian egress. This standard may be modified where an exception has been granted pursuant to Sections 3111-7 through 3111-10 of this ordinance, and the development is made subject to the following provisions. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(a) A traffic lane meeting the standard for Road Category 2 (12 feet) shall be considered as meeting the requirements of this section for a single lot division into two (2) parcels, where all the following conditions are met: (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(1) The subdivision is conditioned so as to limit site development as follows: (Ord. 1952, § 1, 12/17/1991)

For a parcel or parcels having a minimum parcel size of less than 20 acres, not more than one (1) dwelling unit shall be permitted for each parcel. (Ord. 1952, § 1, 12/17/1991)

For a parcel or parcels having a minimum parcel size of 20 acres or more, not more than two (2) dwelling units shall be permitted for each parcel. (Ord. 1952, § 1, 12/17/1991)

(2) Rights to further subdivide the parcels created by the land division would be conveyed to the county until such time as the full road segment was improved to a minimum of Road Category 3 or 4 for traffic lane, as appropriate. (Ord. 1952, § 1, 12/17/1991)

(3) Inter-visible turnouts are installed in conformance Section 3112-8 of these regulations. (Ord. 1952, § 1, 12/17/1991)

(b) In mountainous terrain and/or where geologic or other natural features make infeasible full development of two ten (10) foot wide traffic lanes, a traffic lane meeting the standard for Road Category 3 (16 feet) shall be considered as meeting the requirements of this section for subdivisions of three (3) to eight (8) parcels, where all the following conditions are met: (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(1) The subdivision is conditioned so as to limit site development as follows: (Ord. 1952, § 1, 12/17/1991)

For a parcel or parcels having a minimum parcel size of less than 20 acres, not more than one (1) dwelling unit shall be permitted for each parcel. (Ord. 1952, § 1, 12/17/1991)

For a parcel or parcels having minimum parcel size of 20 acres, not more than two (2) dwelling units shall be permitted for each parcel. (Ord. 1952, § 1, 12/17/1991)

(2) Rights to further subdivide the parcels created by the subdivision would be conveyed to the County until such time as the full road segment was improved to a minimum of Road Category 4 for a traffic lane. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(3) The roadbed width shall include a minimum of two-foot (2') wide bladed shoulders on each side of the traffic lane. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) In mountainous terrain and/or where geologic or other natural features make infeasible full development of two ten (10) foot wide traffic lanes, a traffic lane meeting the standard for Road Category 3 (16 feet) shall be considered as meeting the requirements of this section for subdivisions of not more than nineteen (19) parcels, where all the following conditions are met: (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(1) The requirements of Section 3112-3(b) are satisfied. (Ord. 1952, § 1, 12/17/1991)

(2) The minimum parcel size for the subdivision is forty (40) acres or larger. (Ord. 1952, § 1, 12/17/1991)

3112-4. ROADWAY SURFACE.

The surface of all roadways shall provide unobstructed access to conventional drive vehicles, including sedans and fire engines. The surface shall conform to the standards of a Road Category 4 roadway. Where Road Category 2 or 3 has been approved pursuant to Section 3112-3, the surface shall conform to the standards for these categories, as appropriate. Roadways shall be designed and maintained to support the imposed load of fire apparatus weighing at least 75,000 pounds. Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3112-5. ROADWAY GRADES.

The grade for all roads, streets, and private lanes shall conform to the standards for Road Category 4. The grade for driveways shall conform to the standards for Road Category 1. No roadway grade in excess of 16 percent shall be permitted unless it has been demonstrated to be in conformance with the County Roadway Design Manual. (Ord. 1952, § 1, 12/17/1991)

3112-6. ROADWAY RADIUS.

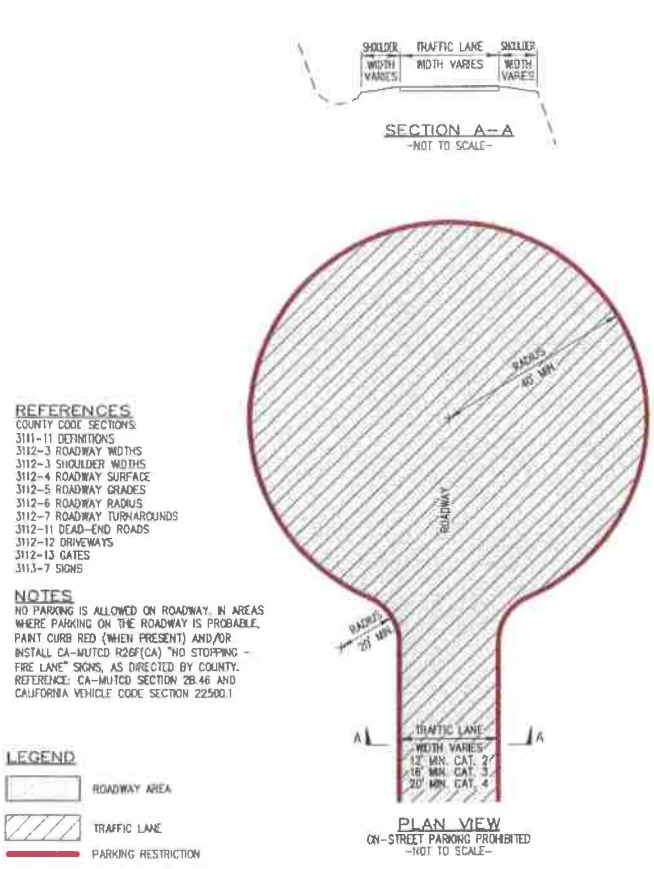
(a) The roadway radius for all roads, and private lanes shall conform to the standards for Road Category 4. The minimum roadway radius for driveways shall conform to the standards for Road Category 1. No roadway shall have a horizontal inside radius of curvature of less than 50 feet unless it has been demonstrated to be in conformance with the County Roadway Design Manual. (Ord. 1952, § 1, 12/17/1991)

(b) Curve alignments shall provide for curve widening on low radius curves to compensate for off tracking characteristics or trucks and trailers. Additional surface width of four (4) feet shall be added to curves of 50-100 feet radius; two (2) feet to those from 100-200 feet. Design of curve alignments shall be in conformance with the County Design Manual. (Ord. 1952, § 1, 12/17/1991)

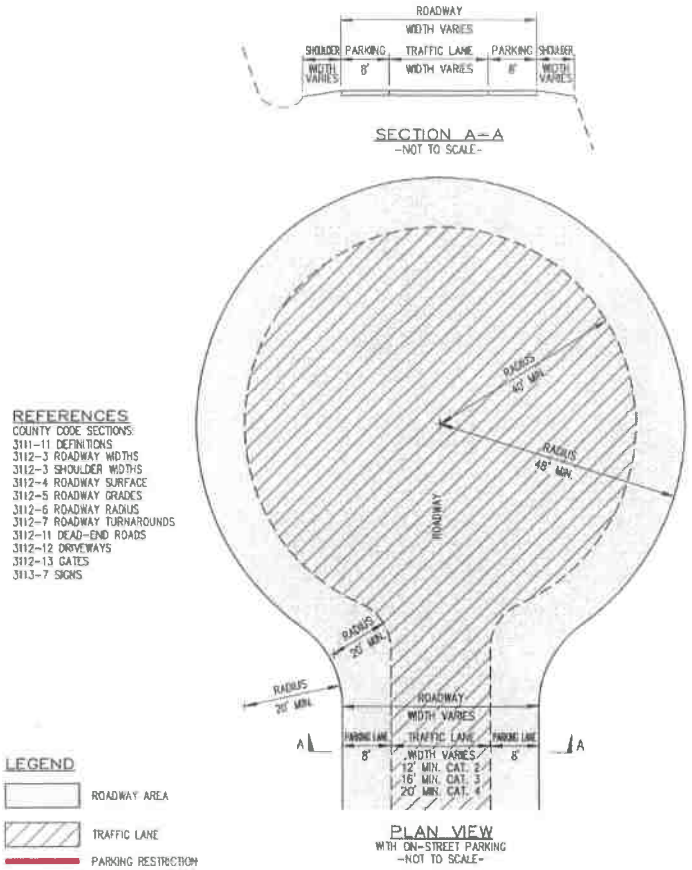
(c) The length of vertical curves in roadways, exclusive of gutters, ditches, and drainage structures designed to hold or divert water, shall not be less than 100 feet. Design of vertical curves shall be in conformance with the County Roadway Design Manual. (Ord. 1952, § 1, 12/17/1991)

3112-7. ROADWAY TURNAROUNDS.

Turnarounds are required on driveways and dead-end roads as specified in these regulations. The minimum turning radius for a turnaround shall be 40 feet from the center line of the road, not including the parking lane. If a hammerhead "T" is used, the top of the "T" shall be a minimum of 60 feet in length. If a slip "T" design is used, the projection shall have a minimum depth of forty (40) feet. Turnaround designs shall conform to the diagrams below in Figures 3112-7A, 3112-7B and 3112-7C, as applicable. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

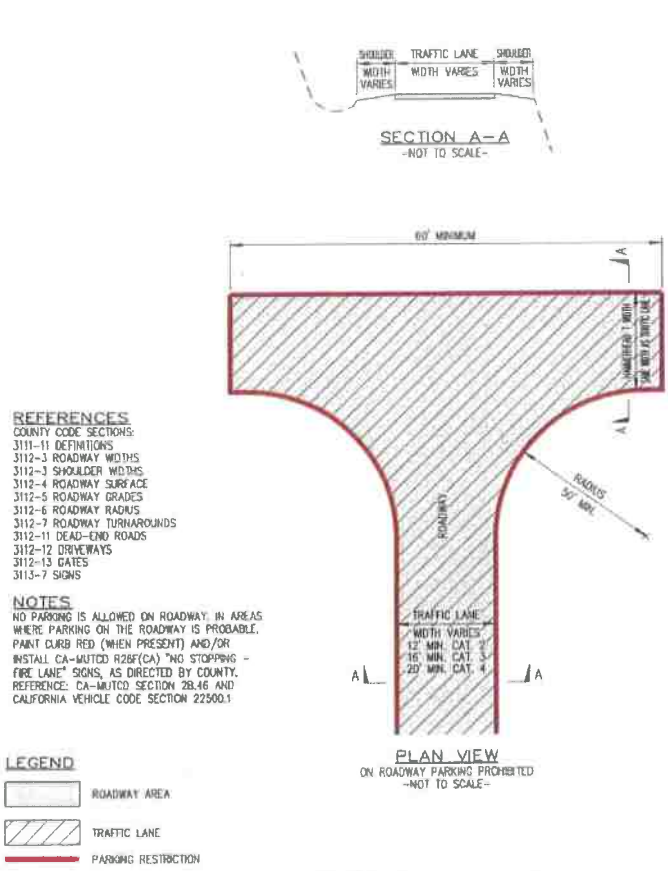


Type 1
On-Street Parking Prohibited

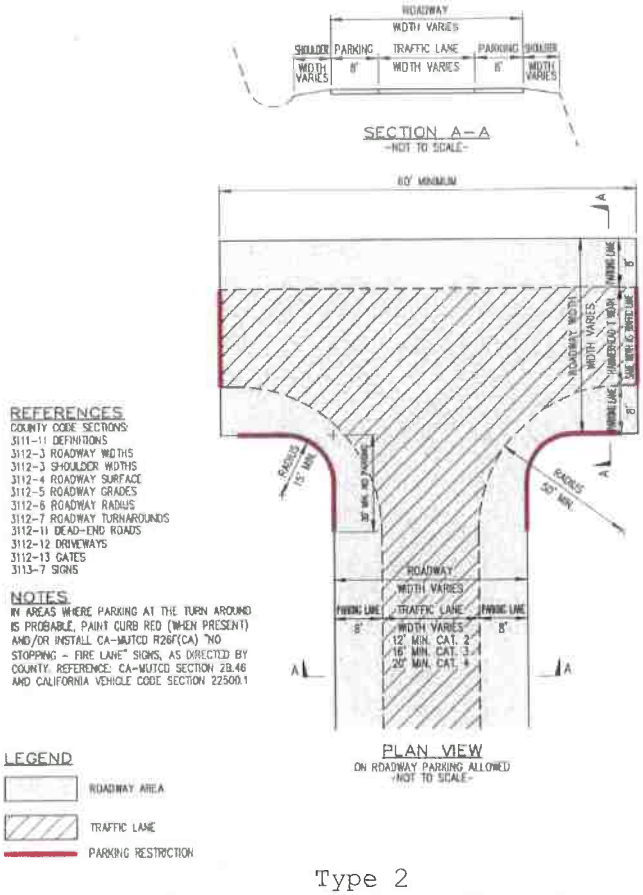


Type 2
On-Street Parking Allowed

FIGURE 3112-7A
Cul-de Sac



Type 1
On-Street Parking Prohibited



Type 2
On-Street Parking Allowed

FIGURE 3112-7B
Hammerhead "T"

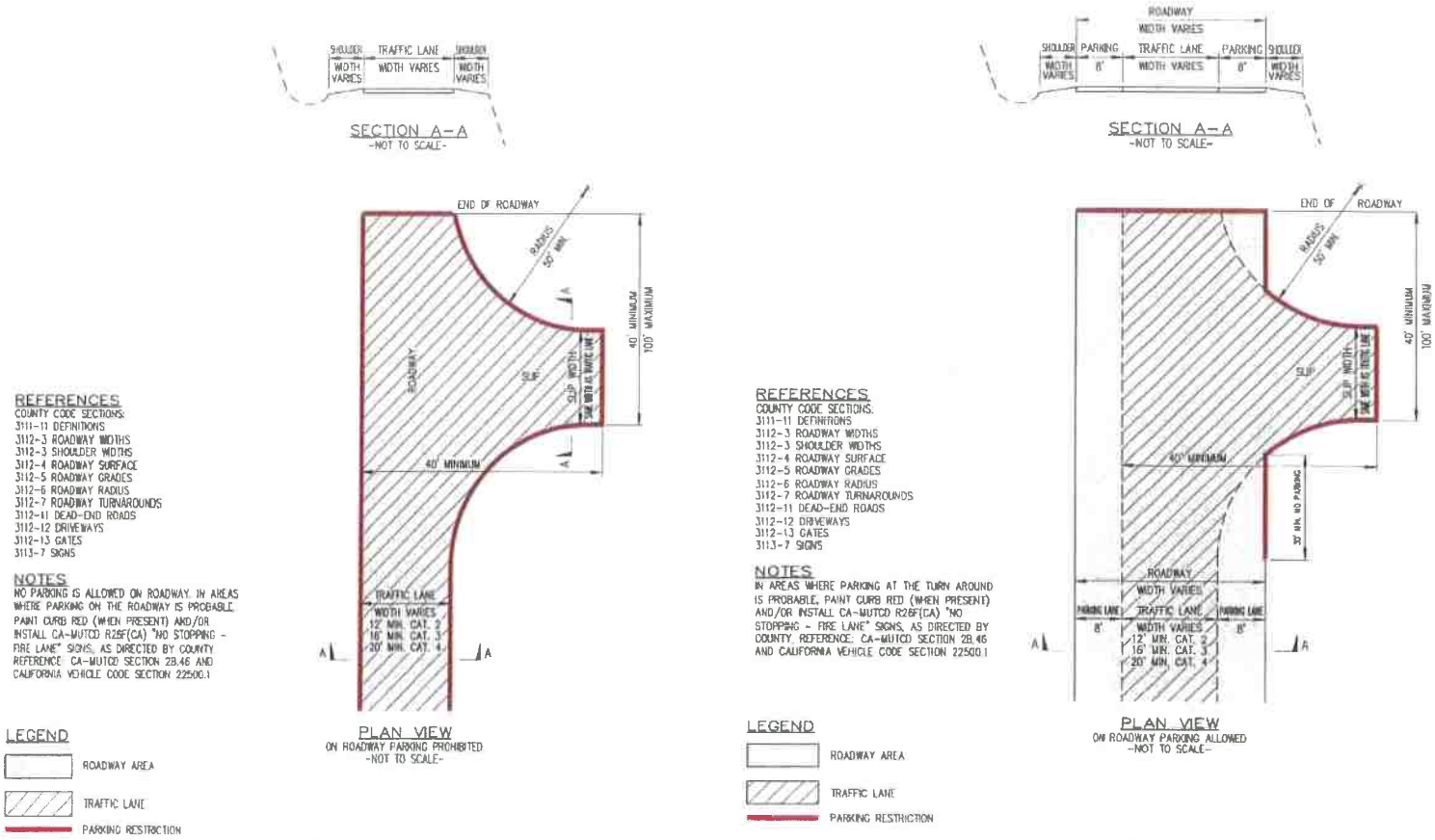
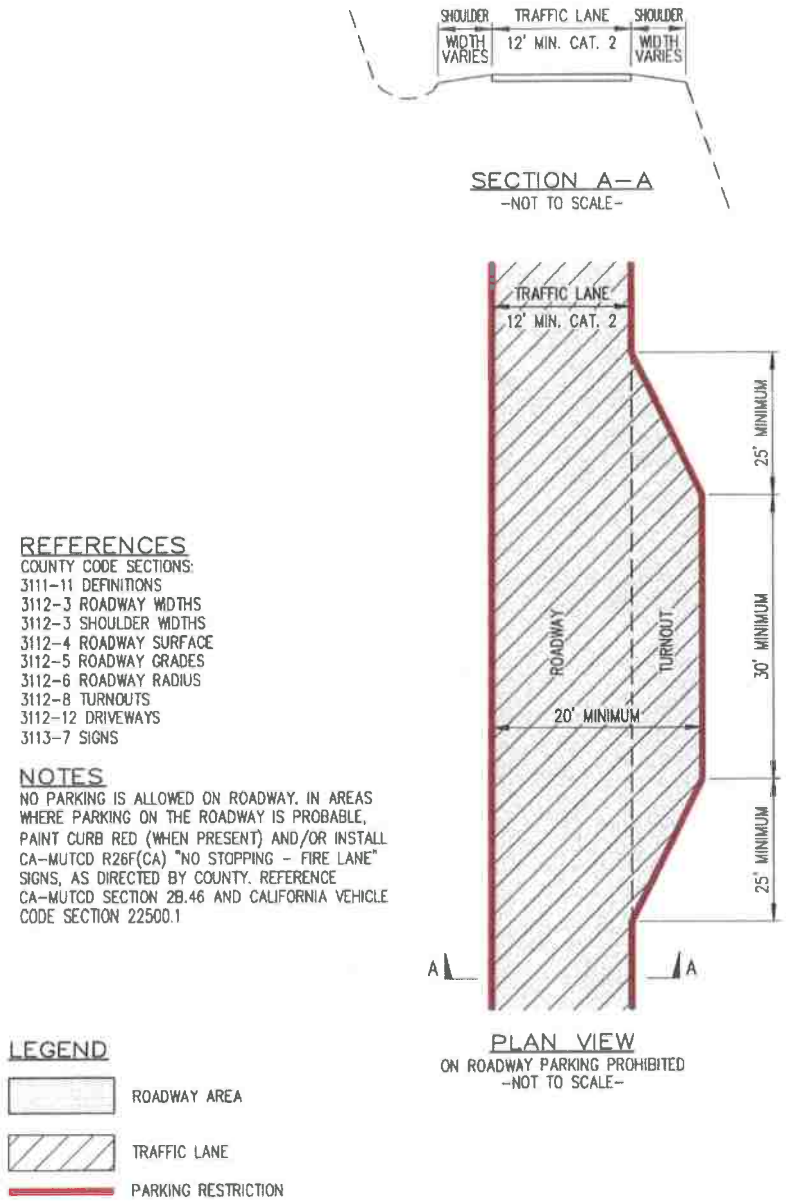


FIGURE 3112-7C
Slip "T"

3112-8. ROADWAY TURNOUTS.

Turnouts shall be designed in conformance with the County Roadway Design Manual. Turnouts shall be required on roadways constructed to the standard of Road Category 2 and at locations as specified in these regulations. Turnouts shall be a minimum of twenty (20) feet wide, to include width of adjacent traffic lane, and thirty (30) feet long with a minimum of 25 foot taper on each end (eighty (80) feet total length). Turnout designs shall conform to the diagram below. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

FIGURE 3112-8
Roadway Turnout



3112-9. ROADWAY STRUCTURES.

(a) All driveway, road, street, and private lane roadway structures shall be constructed to carry at least the maximum load and provide the minimum vertical clearance as required in California Vehicle Code Sections 35250, 35550, and 35750. Where a bridge, culvert or an elevated surface is part of a fire apparatus access road, the roadway structure shall be constructed and maintained in accordance with the American Association of State and Highway Transportation Officials Standard Specifications for Highway Bridges, 17th Edition, published 202 (known as AASHTO HB-17), hereby incorporated by reference, or an equivalent or greater AASHTO standard as may be from time to time adopted. Roadway structures shall be designed for a live load sufficient to carry the imposed loads of fire apparatus. The minimum vertical clearance shall be 15 feet at all points on the surface of the roadway. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) Appropriate signing, including but not limited to vehicle load, vertical clearance, one-way road, or single lane conditions, shall be posted at both entrances to bridges. This requirement may be omitted for bridges on private roads and driveways where compliance with paragraph (a) of this section has been demonstrated to the satisfaction of the Director of Public Works. Where elevated surfaces designed for emergency vehicle use are adjacent to surfaces which are not designed for such use, barriers or signs, or both, as approved by the Department of Public Works, shall be installed and maintained. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) A bridge with only one traffic lane may be authorized by the County; however, the bridge shall provide for unobstructed visibility from one end to the other and shall have intervisible turnouts at both ends. (Ord. 1952, § 1, 12/17/1991)

(d) The County may allow a flatcar bridge having a width of not less than nine (9) feet to be used as a roadway structure on a private lane or driveway provided the requirements of Section 3112-9(c) are satisfied. No exception request shall be required for the reduced roadway width. (Ord. 1952, § 1, 12/17/1991)

3112-10. ONE-WAY ROADS.

All one-way roads shall be constructed to provide a minimum, not including shoulders, of one ~~10~~twelve (12) foot traffic lane. The County may approve one-way roads. All one-way roads shall connect to a two-lane roadway at both ends, and shall provide access to an area currently zoned for no more than ten (10) dwelling units. In no case shall it exceed 2,640 feet in length. A turnout shall be placed approximately at the midpoint of each one-way road. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3112-11. DEAD-END ROADS.

(a) The maximum length of a dead-end road, including all dead-end roads accessed from that dead-end road, shall not exceed the following cumulative lengths, regardless of the number of parcels served: (Ord. 1952, § 1, 12/17/1991)

parcels zoned for less than one acre	800 feet
parcels zoned for 1 acre to 4.99 acres	1350 feet
parcels zoned for 5 acres to 19.99 acres	2640 feet
parcels zoned for 20 acres to 39.99 acres	5280 feet
parcels zoned for 40 acres to 159.99 acres	7500 feet
parcels zoned for 160 acres or larger	Unlimited

All lengths shall be measured from the edge of the roadway surface at the intersection that begins the road to the end of the road surface at its farthest point. Where a dead-end road crosses areas of differing zoned parcel sizes, requiring different length limits, the shortest allowable length shall apply. (Ord. 1952, § 1, 12/17/1991)

(b) Where parcels are zoned 5 acres or larger, turnarounds shall be provided at a maximum of 1320 foot intervals. (Ord. 1952, § 1, 12/17/1991)

(c) Each dead-end road shall have a turnaround constructed at its terminus. (Ord. 1952, § 1, 12/17/1991)

3112-12. DRIVEWAYS.

(a) All driveways shall be constructed to provide a minimum Road Category1 standard of one ten (10) foot traffic lane and fourteen (14) feet of unobstructed horizontal clearance (two (2) feet on each side of the traffic lane). The minimum vertical clearance shall be 15 feet along its entire length. Driveways in excess of 1320 feet in length shall be constructed to the standard for Road Category 2 of one twelve (12) foot traffic lane. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) Driveways exceeding 150 feet in length, but less than 800 feet in length, shall provide a turnout near the midpoint of the driveway. Where a driveway exceeds 800 feet, turnouts shall be spaced at intervisible points at approximately 400 foot intervals. The location and spacing of turnouts shall be in conformance with the County Roadway Design Manual. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) A turnaround shall be provided at all building sites on driveways over 300 feet in length, or 200 feet if required by the local fire agency, and shall be within fifty (50) feet of the building. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3112-13. GATE ENTRANCES.

(a) Gate entrances shall be at least two (2) feet wider than the width of the traffic lane(s) serving the gate, and a minimum width of fourteen (14) feet of unobstructed horizontal clearance and unobstructed vertical clearance of fifteen (15) feet. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) All gates providing access from a road to a driveway shall either: (Ord. 1952, § 1, 12/17/1991)

(1) be located a minimum of thirty (30) feet from the roadway, or (Ord. 1952, § 1, 12/17/1991)

(2) if located closer than thirty (30) feet from the roadway, turnout(s) shall be constructed near the gate entrance to allow parking next to the traffic lane(s) for use from each direction of travel. The location of the turnouts shall permit safe turning movements and maintain adequate sight visibility. (Ord. 1952, § 1, 12/17/1991)

(c) All gates providing access from a road to a driveway shall open to allow a vehicle to stop without obstructing traffic on that road. (Ord. 1952, § 1, 12/17/1991)

(d) Where a one-way road with a single traffic lane provides access to a gated entrance, a forty (40) foot turning radius shall be used. (Ord. 1952, § 1, 12/17/1991 ; amended by Ord. 2540, Section 1, 11/17/2015)

(e) Security gates shall not be installed without approval and where security gates are installed, they shall have an approved means of emergency operation acceptable to CAL FIRE and the local fire agency. The security gates and the emergency operation shall be maintained operational at all times. (Added by Ord. 2540, Section 1, 11/17/2015)

CHAPTER 3

SIGNING AND BUILDING NUMBERING

3113-1. SIGNING AND BUILDING NUMBERING - INTENT.

To facilitate locating a fire and to avoid delays in response, all newly constructed or approved roads, streets, and building shall be designated by names or numbers, posted on signs clearly visible and legible from the roadway. This section shall not restrict the size of letters or numbers appearing on street signs for other purposes. (Ord. 1952, § 1, 12/17/1991)

3113-2. SIZE OF LETTERS, NUMBERS AND SYMBOLS FOR STREET AND ROAD SIGNS.

Notwithstanding any other provisions of the Code, the size of letter, numbers, and symbols for street and road signs shall be a minimum 4 inch letter height, 1/2 inch stroke, reflectorized, and contrasting with the background color of the sign. Wooden street and road signs meeting the standards for letter height, stroke, and contrast shall be permitted in all locations with an exception issued pursuant to Sections 3111-7 through 3111-10 of this ordinance. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3113-3. VISIBILITY AND LEGIBILITY OF STREET AND ROAD SIGNS.

Street and road signs shall be visible from both directions of vehicle travel for a distance of at least 100 feet. (Ord. 1952, § 1, 12/17/1991)

3113-4. HEIGHT OF STREET AND ROAD SIGNS.

Height of street and road signs shall be uniform county wide, and meet the visibility and legibility standards of these regulations. (Ord. 1952, § 1, 12/17/1991)

3113-5. NAMES AND NUMBERS ON STREET AND ROAD SIGNS.

Newly constructed or approved public and private roads and streets must be identified by a name or number consistent with the Uniform Numbering System as set forth in Humboldt County Code Sections 442-1 through 441-11. All signs shall be mounted and oriented in a uniform manner. (Ord. 1952, § 1, 12/17/1991)

3113-6. INTERSECTING ROADS, STREETS AND PRIVATE LANES.

Signs required by these regulations identifying intersecting roads, streets and private lanes shall be placed at the intersection of those roads, streets, and/or private lanes. (Ord. 1952, § 1, 12/17/1991)

3113-7. SIGNS IDENTIFYING TRAFFIC ACCESS LIMITATIONS.

A sign identifying access flow limitation, including but not limited to weight or vertical clearance limitations, dead-end road, one way road or single lane conditions, shall be placed: (Ord. 1952, § 1, 12/17/1991)

(a) at the intersection preceding the traffic access limitation, and (Ord. 1952, § 1, 12/17/1991)

(b) no more than 100 feet before such traffic access limitation. (Ord. 1952, § 1, 12/17/1991)

3113-8. INSTALLATION OF ROAD, STREET AND PRIVATE LANE SIGNS.

Road, street and private lanes signs required by these regulations shall be installed prior to final acceptance by the County of road improvements. (Ord. 1952, § 1, 12/17/1991)

3113-9. ADDRESSES FOR BUILDINGS.

All buildings shall be issued an address in accordance with the County Uniform Numbering System, Humboldt County Code Section 442 et seq. Accessory buildings will not be required to have a separate address; however, each dwelling unit within a building shall be separately identified. (Ord. 1952, § 1, 12/17/1991)

3113-10. SIZE OF LETTERS, NUMBERS AND SYMBOLS.

Notwithstanding Humboldt County Code Section 442-1, the size of letters numbers and symbols for addresses shall be a minimum 4 inch letter height, 1/2 inch stroke, reflectorized, and contrasting with the background color of the sign. Addresses shall use Arabic numbers and alphabetical letters. Wooden address signs meeting the standards for letter height, stroke, and contrast shall be permitted in all locations with an exception issued pursuant to Sections 3111-7 through 3111-10 of this ordinance. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3113-11. INSTALLATION, LOCATION AND VISIBILITY OF ADDRESSES.

(a) All buildings shall have a permanently posted address, which shall be placed at each driveway entrance and visible from both directions of travel along the road fronting the property. In all cases, the address shall be posted at the beginning of construction and shall be maintained thereafter, and the address shall be visible and legible from the road on which the address is located. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) Address signs along one-way roads shall be visible from both the intended direction of travel and the opposite direction. (Ord. 1952, § 1, 12/17/1991)

(c) Where multiple addresses are required at a single driveway, they shall be mounted on a single post. (Ord. 1952, § 1, 12/17/1991)

(d) Where a roadway provides access and to a single commercial or industrial business, the address sign shall be placed at the nearest road intersection providing access to that site. (Ord. 1952, § 1, 12/17/1991)

CHAPTER 4

EMERGENCY WATER STANDARDS

3114-1. WATER STANDARDS - INTENT.

Emergency water for wildfire protection shall be available, accessible, and maintained in quantities and locations specified in statute and these regulations, in order to attack a wildfire and defend property from a wildfire. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3114-2. APPLICATION.

The provisions of this chapter shall apply in the tentative and parcel map process when new parcels are approved by the County. When a water supply for structure defense is required to be installed, such protection shall be installed and made serviceable before and during the time of construction except when alternative methods of protection are provided and approved by the local authority having jurisdiction. A water source on an adjacent parcel for which the subject property has access by means of a recorded easement shall be accepted as meeting the intent of this section. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3114-3. GENERAL STANDARDS.

(a) Water systems that comply with the below standard or standards meets or exceed intent of these regulations:

Water systems equaling or exceeding the National Fire Protection Association (NFPA) Standard 1142, "Standard on Water Supplies for Suburban and Rural Fire Fighting," 2012 Edition, hereby incorporated by reference, or California Fire Code, California Code of Regulations, title 24, part 9, shall be accepted as meeting the requirements of this section. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(b) Notwithstanding the above water system standards, a water system serving an individual residential dwelling which meets the 2,500 gallon emergency water supply requirements of the County's Alternative Owner Builder Ordinance, Humboldt County Code Section 331.5-13(h), and which conforms to the minimum pipe size and valving requirements set forth in these regulations, shall be accepted as meeting the requirements of this section. (Ord. 1952, § 1, 12/17/1991)

(c) Such emergency water may be provided in a fire agency mobile water tender, or naturally occurring or manmade containment structure, as long as the specified quantity is immediately available. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(d) Nothing in these regulations prohibits the combined storage of emergency wildfire and structural firefighting water supplies unless so prohibited by local ordinance or specified by the local fire agency. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(e) Where freeze protection is required by the County or local fire agency, such measures shall be provided. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3114-4. HYDRANT/FIRE VALVE.

(a) The hydrant or fire valve shall be eighteen (18) inches above grade, eight (8) feet from flammable vegetation, no closer than four (4) feet nor farther than twelve (12) feet from a roadway, and in a location where fire apparatus using it will not block the roadway. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

The hydrant serving any building shall: (Ord. 1952, § 1, 12/17/1991)

(1) be not less than fifty (50) feet nor more than 1/2 mile from the building it is to serve, except that a hydrant serving any building on a lot less than ten (10) acres in acre shall be located within 500 feet of the building; provided that the local fire agency may allow a hydrant to be located up to 1000 feet from the building when site conditions warrant. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(2) be located at a turnout or turnaround, along the driveway to that building or along the road that intersects with that driveway. (Ord. 1952, § 1, 12/17/1991)

(b) The hydrant head shall be brass or other corrosion resistant material with 2-1/2 inch National Hose male thread with a cap for pressure and gravity flow systems, and 4-1/2 inch National Hose male thread for draft systems. Such hydrants shall be wet or dry barrel as required by the delivery system. Crash protection meeting the requirements of the Uniform Mechanical Code shall be installed as required by the County. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) All pipes supplying water to hydrants must be at least 3 inches in diameter; however, a pipe having a diameter of less than 3 inches may be used provided it can demonstrate the capability of supplying a minimum 200 gallon per minute (gpm) flow from the hydrant connection. (Ord. 1952, § 1, 12/17/1991)

3114-5. SIGNING OF WATER SOURCES.

Each hydrant/fire valve or access to water shall be identified as follows:

(a) if located along a driveway, except where the residence is served with an individual water supply, a reflectorized blue marker with a minimum dimension of three (3) inches shall be located on the driveway address sign and mounted on a fire retardant post; or

(b) if located along a driveway where a residence is served with an individual water supply, a wooden sign with a minimum three (3) inch letter height, 3/8 inch stroke, contrasting with the background color of the sign, with the wording "FIRE WATER" mounted on a wooden post or compliance with section (a) above shall be acceptable with an exception issued pursuant to Sections 3111-7 through 3111-10 of this ordinance, or (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

(c) if located along a street or road, (Ord. 1952, § 1, 12/17/1991)

(1) a reflectorized blue marker, with a minimum dimension of three (3) inches, shall be mounted on a fire retardant post. The sign post shall be within three (3) feet of said hydrant/fire valve, with the sign no less than three (3) feet nor greater than five (5) feet above the ground, in a horizontal position and visible from the roadway, or (Ord. 1952, § 1, 12/17/1991)

(2) as specified in the State Fire Marshal's Guidelines for Hydrant Markings Along State Highways and Freeways, May 1988. (Ord. 1952, § 1, 12/17/1991); amended by Ord. 2540, Section 1, 11/17/2015)

CHAPTER 5

FUEL MODIFICATION STANDARDS

3115-1. FUEL MODIFICATION - INTENT.

To reduce the intensity of wildfire by reducing the volume and density of flammable vegetation, the strategic siting of fuel modification and greenbelts shall provide (1) increased safety for emergency fire equipment and evacuating civilians by its utilization around structures and roads, including driveways; and (2) a point of attack or defense from a wildfire. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

3115-2. SETBACK FOR STRUCTURE DEFENSIBLE SPACE.

(a) Notwithstanding other provisions of this Code, all parcels one (1) acre and larger shall provide a minimum 30 foot setback for buildings and accessory buildings from all property lines and/or the center of a road, except as provided herein: (Ord. 1952, § 1, 12/17/1991)

(1) a building or accessory building may be located closer than 30 foot to a property line where a maintenance and open space easement for the benefit of the subject parcel has been recorded over the adjoining lot. The extent of the adjustment shall be no greater than the width of the easement, and no exception from minimum setbacks as specified in other provisions of this Code are granted pursuant to this section. (Ord. 1952, § 1, 12/17/1991)

(2) a detached accessory building may be located within the 30 foot setback when it is constructed using non-combustible or fire resistive materials, and is located not closer than 20 feet to another building. (Ord. 1952, § 1, 12/17/1991)

The required specific distance between buildings or structures and property lines or the centerline of the road shall be measured perpendicularly in a horizontal plane extending across the complete length of said property line or lines and/or roadway. (Ord. 1952, § 1, 12/17/1991)

(b) For parcels less than one (1) acre, the County shall provide for the same practical effect (Ord. 1952, § 1, 12/17/1991)

Methods of achieving the "same practical effect" include but are not limited to: (Ord. 1952, § 1, 12/17/1991)

(1) development of a community water system meeting the specifications as set forth in Section 3114-3 (a-c); (Ord. 1952, § 1, 12/17/1991)

(2) establishment of a County Service Area or other acceptable form of district or association to provide maintenance of defensible space measures, including vegetation modification; (Ord. 1952, § 1, 12/17/1991)

(3) use of non-combustible or fire-resistive materials in construction of buildings or installation of sprinklers within buildings; (Ord. 1952, § 1, 12/17/1991)

(4) development of greenbelts in strategic locations around the subdivision or parcels; or (Ord. 1952, § 1, 12/17/1991)

(5) road development which provides for travel lanes and parking lanes that exceed the minimum requirements of these regulations. (Ord. 1952, § 1, 12/17/1991)

3115-3. DISPOSAL OF FLAMMABLE VEGETATION AND FUELS.

Disposal, including chipping, burying, burning or removal to a landfill site approved by the County, of flammable vegetation and fuels caused by site development and construction, road and driveway construction, and fuel modification shall be completed prior to completion of road construction or final inspection of a building permit or initiation of a use under a use permit. (Ord. 1952, § 1, 12/17/1991)

3115-4. GREENBELTS.

Subdivisions and other developments, which propose greenbelts as a part of the development plan, shall locate said greenbelts strategically, as a separation between wildland fuels and structures. The locations shall be approved by the inspection authority and should be consistent with the CAL FIRE Unit Fire Management Plan, where in effect. (Ord. 1952, § 1, 12/17/1991; amended by Ord. 2540, Section 1, 11/17/2015)

CHAPTER 6

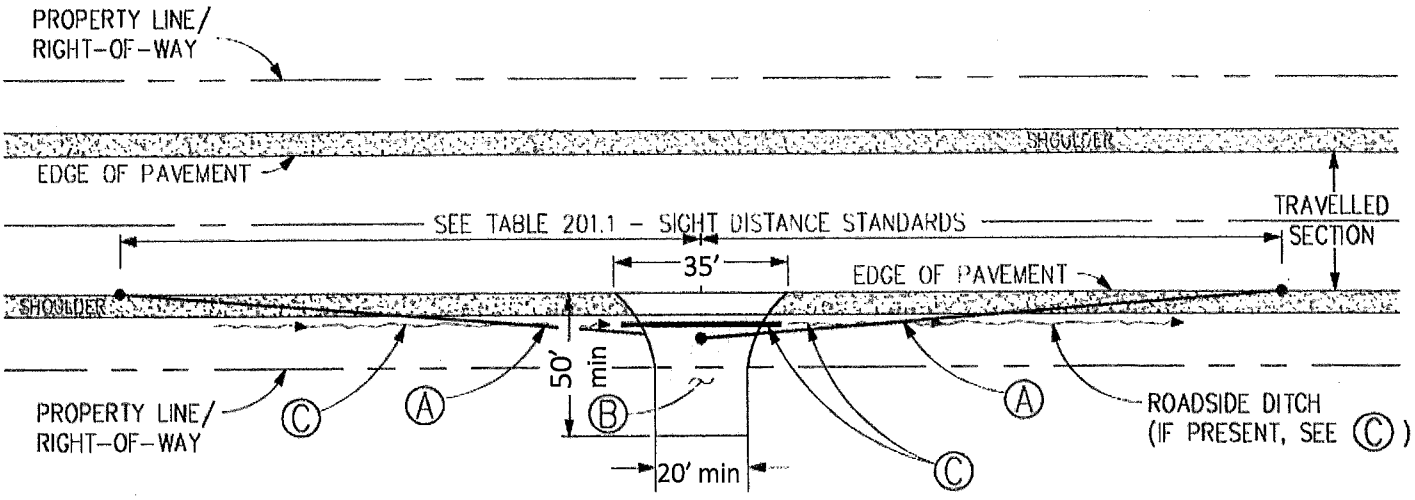
ENFORCEMENT

3116-1. VIOLATION.

The following provisions shall apply to violations of the regulations as contained in this ordinance. All of the remedies provided for in this section shall be cumulative and no inclusive. (Ord. 1952, § 1, 12/17/1991)

(a) Penalty. Any person, whether principal, agent, employee or otherwise, violating or causing or permitting the violation of any of the provisions of this Code shall be guilty of a misdemeanor and shall be subject to the penalties provided for in Section 112-5 of the Humboldt County Code. (Ord. 1952, § 1, 12/17/1991)

(b) Public Nuisance. Any new development operated or maintained contrary to the provisions of this Code shall be the same hereby is declared to be a public nuisance and shall be subject to injunction and abatement as such. (Ord. 1952, § 1, 12/17/1991)



Commercial Road
or
Driveway Approach

NOTE

All proposed driveway or road encroachments onto any County maintained road of within County right-of-way will be reviewed by the Department of Public Works on a case-by-case basis. This policy may result in modification to the standards or requirements set forth on this sheet.

Ⓐ SIGHT VISIBILITY LINE (TRIANGLE)

An area of unabstructed sight visibility shall be established and maintained beginning at a point 8 feet back from the edge of the existing pavement and extending each direction from the centerline of the new driveway approach.

Ⓑ DRIVEWAY APPROACH SURFACING

If the existing County road surface is paved, the new driveway approach shall be paved with 2 inches of Type B asphalt concrete (or sufficient seal coat) on top of a minimum of 4 inches of aggregate base. The paved area shall extend a minimum of 50' feet back from the edge of the existing pavement and be flared approximately 35' feet at the intersection with the County road. The driveway shall intersect the County road at a 90° angle. The driveway grade shall not exceed 2% in the first 25 feet.

Ⓒ ROADSIDE DRAINAGE

The construction of any driveway approach shall not adversely impact or alter existing roadside drainage. The installation of a culvert pipe under the driveway approach in the existing ditch may be required if flow levels warrant it. Pipe size, length and location shall be determined by the Department of Public Works.

SIGHT DISTANCE STANDARDS

Design Speed [1] (mph)	Stopping [2] (mph)	Passing [3] (mph)
20	125	800
25	150	950
30	200	1100
35	250	1300
40	300	1500
45	360	1650
50	430	1800
55	500	1950
60	580	2100
65	660	2300
70	750	2500
75	840	2600
80	930	2700

(1) See Topic 101 for selection of design speed.
(2) Increase by 20% on sustained downgrades >3%

COUNTY OF HUMBOLDT
DEPARTMENT OF PUBLIC WORKS
1106 SECOND STREET * EUREKA * CA * 95501
TEL (707) 445-7377 * FAX (707) 445-7409

Commercial Rural Driveway No. 1

STD DWG

SHT 1 OF 1

PUBLICATION 8262

Rural Roads: A Construction and Maintenance Guide for California Landowners

SUSAN D. KOCHER, UC Cooperative Extension Natural Resources Advisor, El Dorado County; **JARED M. GERSTEIN**, Staff Research Associate, Center for Forestry, University of California, Berkeley; and **RICHARD R. HARRIS**, UC Cooperative Extension Specialist, University of California, Berkeley

UNIVERSITY OF CALIFORNIA
Division of Agriculture and Natural Resources
http://anrcatalog.ucdavis.edu

Many thousands of miles of privately maintained rural roads extend throughout California, and they are used for resource management as well as residential and recreational access by over 500,000 landowners (fig. 1). The California Department of Forestry and Fire Protection (CAL FIRE) estimates that another 2.7 million acres of forest and rangeland will be developed over the next 40 years, requiring the construction of thousands of miles of new roads (CAL FIRE 2003). Poorly located, designed, or maintained roads are the primary cause of water quality degradation in rural watersheds.

This publication is designed to help rural landowners understand how to improve and maintain existing roads. It also provides guidance on planning new roads. It is written for people who have little to no previous experience in managing a road. If you have recently purchased a rural parcel or have become responsible for road maintenance on an existing parcel—or otherwise feel unprepared for maintaining roads—this publication should help you. It mainly addresses single-lane dirt or rock-surfaced rural roads, also known as "low-volume" roads because they are not expected to carry high traffic levels.

This publication should enable you to

- understand the basic principles of good road design and maintenance
- recognize current and potential road erosion and drainage problems
- consider remedial treatments that may be needed
- develop rough estimates for the costs of road improvements and maintenance
- communicate clearly with contractors who may perform work on your roads

Figure 1. Low-volume road that has been newly graveled and out-sloped, San Bernardino County. *Photo:* Richard Harris.

UC PEER REVIEWED

Figure 2. This cross drain delivers sediment from the roadside ditch under the road surface to a nearby stream. The road fill is also eroding. *Photo:* Jared Gerstein.

WHY WORRY ABOUT ROAD DESIGN AND MAINTENANCE?

Road maintenance should be considered an unavoidable necessity of living in a rural area. Landowners should take the time to learn about roads because when they are well designed and maintained they have fewer impacts on the environment, are more reliable, and cost less to maintain than problem roads.

Environmental impacts

Rural roads are a major source of sediment that ends up in stream channels (fig. 2). This is especially true for unpaved roads located near streams that are used year-round. Sediment delivered to streams from roads causes streams to run muddy and take a long time to clear after storms. Sediment can end up depositing in pools and adversely affect habitat for fish and other aquatic organisms.

Reliability

Poorly designed, located, or maintained roads have a higher risk of failing during storms than roads that are well constructed and maintained. Adequately sized culverts, free-flowing ditches, and properly drained road surfaces are essential elements of a reliable road network. Without these elements in place, even a moderate winter storm can render a road impassable.

Cost of repetitive maintenance

The bottom line is that it can be extremely expensive to maintain roads that are designed, located, or constructed poorly. It is usually more cost effective to identify and remedy chronic road problems than to treat only the symptoms of the problem year after year. For example, it will cost less in the long run to install proper drainage structures and rock surfacing on a road that gets muddy and rutted every winter than to regrade the road surface every spring.

UNDERSTANDING ROAD COMPONENTS

Although roads vary in their configuration and design, they have common elements that affect their functionality and durability. Roads must create a flat surface for vehicle travel on sloped land. To do this, part of the hillslope is cut away (the *cut slope*) and the removed soils are placed below (the *fill slope*) and compacted to create a flat bench or *traveled way*. This is called *cut-and-fill* construction (fig. 3). A *balanced cut-and-fill* project uses all the cut material to generate the fill. In *full-bench* construction, the cut is made wide enough to accommodate the entire traveled way (fig. 4). The cut mate-

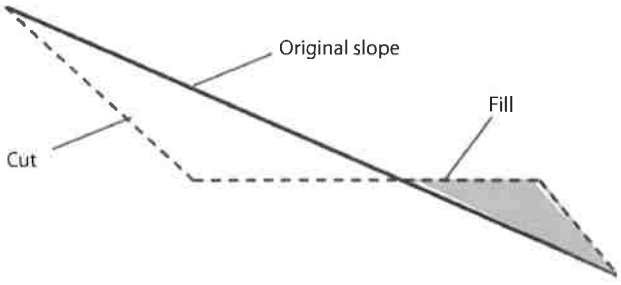


Figure 3. Cut-and-fill road construction design. *Source:* Kramer 2001.

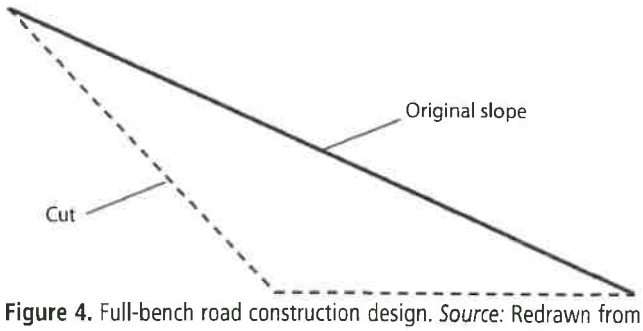


Figure 4. Full-bench road construction design. *Source:* Redrawn from Kramer 2001.

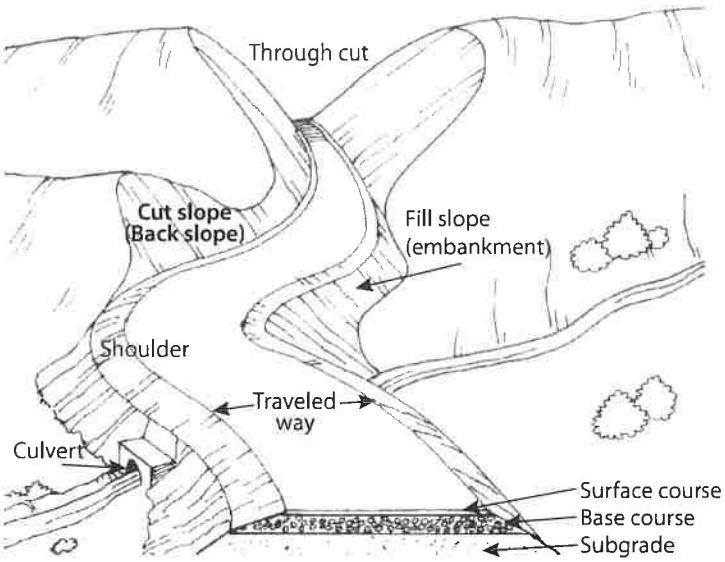


Figure 5. Components of a road. *Source:* Keller and Sherar 2003.

rial is not used in the road construction and must be hauled (*end-hauled*) to an off-site disposal area. Full-bench construction reduces the risk of fill slope failure but is usually more expensive due to hauling costs.

Ideally, a road should consist of three layers (fig. 5). The *subgrade* is the bottommost layer at the level of the in-place material. The *base course* is the main load-spreading layer and typically consists of gravels or gravelly soils, with sand and/or clay intermixed. The *surface course* or *surfacing* may consist of native materials, imported rock, or asphalt. It is placed on top of the base course to improve rider comfort, provide structural support, and weatherproof the road for wet season use. As a practical matter, many rural roads are not constructed in this way but consist entirely of native materials encountered during grading. This can be a factor contributing to poor performance.

All roads must incorporate features to drain water off the road surface and allow it to cross from one side to the other. Road drainage is the key to a road's integrity. *Culverts* are metal, concrete, or plastic pipes set beneath the road surface to drain ditches, springs, or streams crossed by the road. Culverts move water from the inside of the road (next to the cut slope) through a pipe to the outside of the road (to the fill slope or edge of bench). *Ditches* are used to collect water that accumulates from the road surface or hillslope on the inside or cut-slope side of an in-sloped road. *Ditch relief culverts* drain the accumulated water from the inside ditch to the outside of the road.

Besides culverts, common stream-crossing structures include bridges and low-water crossings or fords. *Bridges* usually cause fewer environmental impacts than culverts because they may not alter the natural channel form or require placement of fill in the channel. However, they are often more expensive to install than culverts. *Low-water fords* involve modifying and sometimes hardening a swale or stream channel to allow vehicles to drive through during low-flow periods (figs. 6 and 7). Less fill is introduced to the stream channel; however, vehicles driving through may input sediment to the stream continuously. Fords are typically impassable during high flows and so are rarely suitable for permanent roads.

Figure 6. Low-water crossing on a perennial stream, San Bernardino County. *Photo:* Richard Harris.

Figure 7. Concreted low-water crossing placed on bedrock outcrop in intermittent stream. *Photo:* Angela Wilson, Central Valley Regional Water Quality Control Board.

Figure 8. Rolling dips installed to drain an out-sloped road. *Source:* Bill Weaver, Pacific Watershed Associates.

Figure 9. Water bars installed on a road after timber harvesting. *Source:* Angela Wilson, Central Valley Regional Water Quality Control Board.

Rolling dips are constructed breaks in the road grade designed to drain water directly from the road surface to the outside of a road without using an inside ditch or ditch relief culvert (fig. 8). They require vehicles to slow their speed of travel.

A *water bar* is a mound of soil and an accompanying ditch on the road surface that interrupts water flow and diverts it off the road surface (fig. 9). It is typically not passable by vehicles and so is not used on permanent roads. A *berm* is a ridge of rock, soil, or asphalt usually found on the outside of a road shoulder to control surface water. It directs runoff to specific locations where water can be discharged without causing erosion. *Armoring* is the placement of a layer of rock on cut or fill slopes or ditches to prevent water from eroding the soil.

UNDERSTANDING ROAD DESIGN AND DRAINAGE

Draining water from the road surface quickly, without letting it concentrate, is key to preventing erosion and thus to maintaining a stable driving surface. Two characteristics influence how well water drains from the road surface: the steepness of the road (i.e. its *grade* or *gradient*), and the shape and cross slope of the traveled way. The gradient of the road is determined by its location and routing; thus, it cannot be changed without moving the road. The cross-sectional shape and slope of a road are the primary design features that may be manipulated to improve drainage.

Figure 10. These ruts were created by wet-weather use of an unsurfaced, poorly drained road. *Photo:* Angela Wilson, Central Valley Regional Water Quality Control Board.

Gradient

Roads with a gentle gradient are easiest to maintain as long as the slope is adequate to drain the water off the road surface. In general, road grades need to be a minimum of two percent to facilitate drainage, so that water will not accumulate on the surface and saturate the subgrade. Saturated subgrades in combination with repetitive splash erosion due to vehicle traffic are responsible for potholes and ruts (fig. 10). Steeper roads drain water more quickly, but this allows the water to develop more erosive power, necessitating measures to prevent erosion and destabilization.

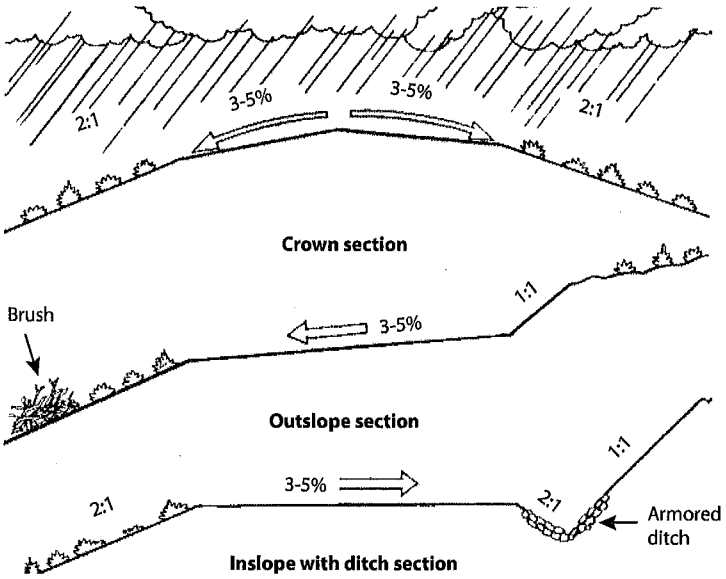


Figure 11. Typical road drainage options. *Source:* Keller and Sherar 2003.

Shape and slope of the surface

The shape and slope of the road surface determines how water will drain from it (fig. 11). In-sloped, out-sloped, and crowned roads drain water differently. The surface of an *in-sloped* road has a gentle tilt towards the cut slope of the hillside. Water collecting on the surface is drained into a ditch constructed between the road surface and the cut slope. Until recently, most roads in California were designed and constructed as in-sloped roads. When constructed in native materials, in-sloped roads are prone to erosion. Erosion can occur in the ditch, due to concentrated flow; on the road surface when ditch capacity is exceeded; or at the outfalls of culverts and cross drains receiving ditch flow. Ditch relief culverts must be installed frequently to accept ditch flow and dispose of it in a nonerosive manner.

Out-sloped roads are built with a slight angle of the road surface towards the fill slope. This allows the road surface runoff to sheet flow in a dispersed manner over the fill slope onto the adjacent hillside. Continuously concentrated runoff is avoided. Assuming that the fill slope and hillside are adequately vegetated or otherwise protected, no erosion occurs. Without a ditch, no ditch relief culverts are needed. This minimizes costs, reduces the chance of road failure due to culvert plugging, and may require less road width. Fill slopes may be armored to avoid erosion. Out-sloped roads may be difficult to drain on steep hillslopes and on road grades over 10 to 12 percent. They may be unsafe in areas with slippery soils or snow cover or in places where roads become icy, especially on curves where momentum would carry vehicles to the edge.

Crowned roads disperse water to each side of the road. They often require a system of ditches and cross drains which can be difficult to create and maintain. Therefore, they work best on two-lane roads with gentle grades or on the crest of hills.

UNDERSTANDING THE TYPE OF ROAD NEEDED

Deciding what kinds of roads you need for access to and on your property is an important step towards good stewardship. This includes considering whether or not existing roads are adequately designed for the intended uses. In some cases, existing roads may need to be upgraded to accommodate your uses or entirely new roads may be required.

The appropriate road design depends on the intended use. Roads with relatively high traffic levels, heavy truck use, or all-season use require a higher design standard and possibly a higher level of maintenance. In any case, the guiding principles should be to minimize erosion and ensure that the road is designed and maintained according to its use.

All-season roads

These are used year-round and are intended to be in continuous service for the foreseeable future. In rural subdivisions, these tend to be the "community roads" that run across multiple parcels and collect traffic from individual driveways. On timberlands or ranches, these permanent roads are the "haul roads" that can be used year-round, but receive most traffic during the dry season. Typically, all-season roads have rock

Figure 12. Grass cover on the surface of a road used for dry-season access. *Source:* Julie Bawcom, California Geological Survey.

or other surfacing (at least on steep hills and near stream channels) and bridges or culverts at stream crossings. They may be in-sloped, out-sloped, or crowned alone or in combination. They may be graded and resurfaced regularly to maintain a smooth running surface.

Seasonal roads

These may be constructed to a lower standard because they are used only during the dry season (fig. 12). They are often permanent roads so they require provisions for drainage even if they are not used in the winter. Rock surfacing may not be required. Fords, rather than culverts or bridges, may be used at stream crossings, particularly if the streams do not flow in the summer. Seasonal roads may have a steeper gradient than all-season roads and utilize an out-sloping drainage design. They may be closed after seasonal use and winterized by installation of water bars and revegetation of the road surface.

Temporary roads

These are used for only a short time and for a dedicated purpose, such as a timber harvest. Use is generally confined to the dry season and design standards may be minimal. Construction should minimize the volume of material excavated by following existing contours and cutting as little as possible. The road is closed after use, although the road bed may be retained for future use. Adequate closure should include removal of stream-crossing structures and associated fills along with installation of water bars to prevent any accumulation of water on the road surface. If vegetation cannot grow back on the road surface, it may be necessary to break up compaction and loosen the soil by 'ripping' it with a bulldozer. When closed, the entrance to the road should be blocked off to prevent all vehicle access.

ROAD DESIGN PRINCIPLES

Construction

- Minimize the number and length of roads in the watershed.
- Minimize the width of the road and the area disturbed during construction.
- Minimize road gradient. Gradient should be 12 percent or less.
- Use balanced cut-and-fill construction in gentle terrain.
- Avoid construction on steep slopes over 60 percent. Use full-bench construction where slopes over 60 percent cannot be avoided.
- Minimize cuts, fills, and vegetation clearing. Construct cut slopes on a ¾:1 or flatter slope.
- Build fill slopes on a 1½:1 or flatter slope.

Streams

- Stay as far away from streams as possible and minimize the number of crossings.
- Design crossings with adequate capacity to pass the 100-year storm flow plus the debris and sediment carried through the culvert during the storm.

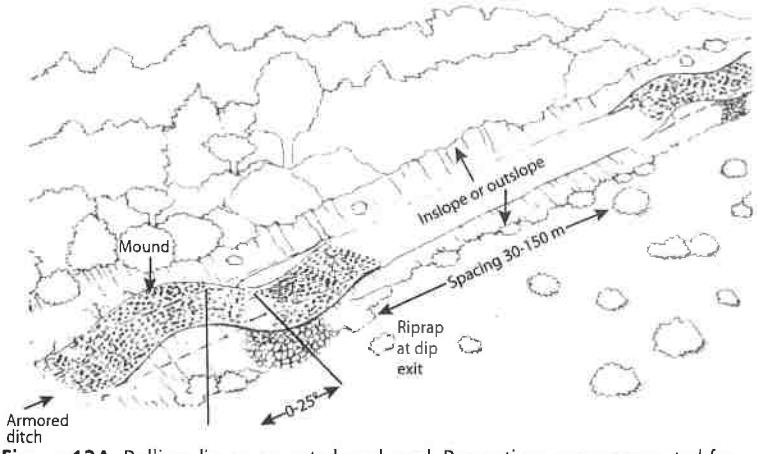


Figure 13A. Rolling dip on an out-sloped road. Proportions are exaggerated for clarity. (In practice, rolling dips can be subtle and still be effective.) *Source:* Keller and Sherar 2003.

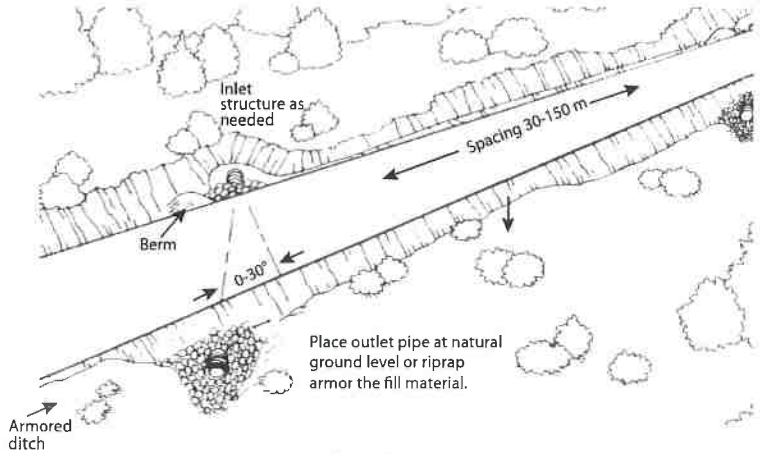


Figure 13B. Installation of ditch relief culverts on an in-sloped road section. *Source:* Keller and Sherar 2003.

- Reduce the potential for streams to be diverted onto the road surface by installing dips and trash barriers on streams that are not fish bearing.
- Protect crossing outlets with erosion control measures or downspouts.
- Facilitate fish passage, preferably by installing bridges, on fish-bearing streams.
- Use special techniques to cross meadows and other wet areas.

Drainage

- Provide adequate road surface drainage and minimize the concentration of runoff.
- Out-slope roads whenever practical. Road surfaces should slope 3 to 5 percent for road grades less than 10 percent. Install rolling dips for drainage (fig. 13A).
- In-slope road surfaces at an angle of 3 to 5 percent. Install ditch relief culverts (fig. 13B).
- Crown road sections with gentle slopes to prevent standing water on the road.
- Avoid wet and unstable areas.

Table 1. Rolling dip and ditch relief culvert recommendations

Road grade (%)	Soil erodibility	
	Low to non-erosive soils (ft)	Erosive soils (ft)
0–3	400	250
4–6	300	160
7–9	250	130
10–12	200	115
12+	160	100

Source: Adapted from Keller and Sherar 2003.

Table 2. Water bar spacing recommendations

Road or trail grade (%)	Soil erodibility	
	Low to non-erosive soils (ft)	Erosive soils (ft)
0–5	250	130
6–10	200	100
11–15	150	65
16–20	115	50
21–30	100	40
30+	50	30

Source: Adapted from Keller and Sherar 2003.

LOW-VOLUME ROAD DRAINAGE PRINCIPLES

Situating and designing roads correctly from the outset will save a landowner years of worry and maintenance costs caused by avoidable road problems. The key to proper road design is to abide by established guidelines and hire good help. These guidelines can also be used to address maintenance problems on existing roads.

It is often said that the three most important considerations for road design are drainage, drainage, drainage! Drainage features should include ditch relief culverts for in-sloped roads and rolling dips for out-sloped roads. Rolling dips or ditch relief culverts of at least 12 inches in diameter should be spaced as necessary to effectively drain the road, and no further apart than every 400 feet (table 1). Adequate drainage control during the winter is also critical for seasonal and temporary roads. Water bars should be installed every 250 feet or closer when the road is closed (table 2). Drainage features should be spaced more closely on roads with steep grades or erodible soils composed of silt or fine sands. (A conversion table is provided at the end of this publication for calculating equivalents between English and metric systems of measurement.)

Figure 14. This fill slope erosion was caused by a plugged cross-drain inlet that diverted ditch flow over the road surface. *Photo:* Angela Wilson, Central Valley Regional Water Quality Control Board.

RECOMMENDED ROAD MAINTENANCE PRACTICES

Even properly designed and constructed roads need inspection and maintenance to function well and avoid road and environmental damage. Maintenance should be performed when needed. The longer the delay in needed maintenance, the more damage will occur and the more costly the repairs will be (fig. 14).

Maintenance should focus on correcting problems that may lead to road failure. This involves ensuring that the established drainage system is not compromised. Culverts plugged with debris often lead to ditch or stream water flowing on to the road surface, which can cause surface erosion or even wash away the entire road prism. Preventing such occurrences should be a top priority. Closing a road during the rainy season can reduce damage caused by vehicles and avoid substantial maintenance costs.

KEY MAINTENANCE PRACTICES

- Inspect roads regularly, especially before the winter season and following heavy rains.
- Keep ditches and culverts free from debris.
- Remove slide material from the road or ditches where it blocks normal drainage.
- Regrade and shape the road surface periodically to maintain proper surface drainage.
  - Keep rolling dips shaped and graded.
  - Keep the downhill side of the road free of berms unless they are intentionally placed to control water or traffic.
  - As necessary, apply surfacing such as aggregate or pavement to protect the roadbed.
- Avoid disturbing soil and vegetation in ditches, shoulders, and on cut-and-fill slopes.
- Maintain an erosion-resistant surfacing such as grass or rock in ditches.
- Close the road during very wet conditions.
- Carry a shovel in your vehicle during the rainy season to clean out ditches, redirect water off the road surface, etc.

The key to good maintenance is identification of maintenance needs through frequent inspections. Road inspections should focus on identifying areas where problems may occur in future storms (fig. 15). All parts of the road including the road surface and cut-and-fill slopes should be inspected, as well as drainage structures such as culverts, bridges, and water bars. Ideally, inspections should be done in time to allow for repairs before the rainy season.

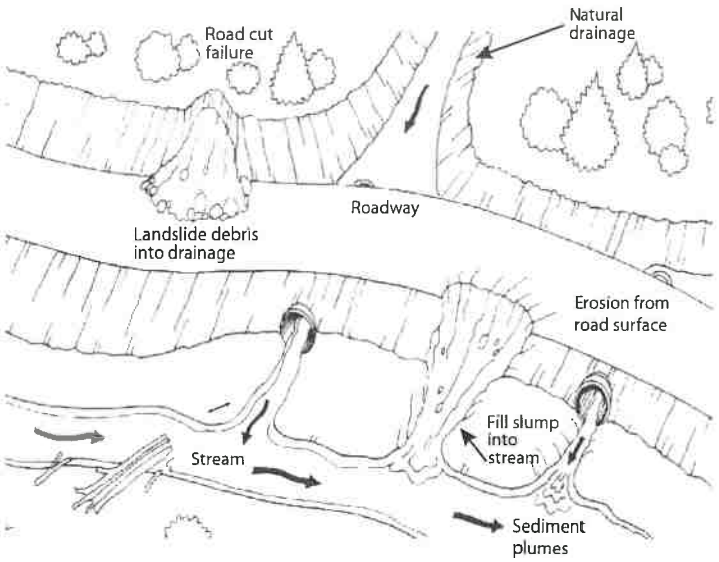


Figure 15. Road system problems to look for during a road inspection. *Source:* Keller and Sherar 2003.

Figure 16. Culvert plugged with sediment at inlet. *Photo:* Angela Wilson, Central Valley Regional Water Quality Control Board.

Figure 17. Culvert with rusted bottom and breakage caused by sediment. *Photo:* Angela Wilson, Central Valley Regional Water Quality Control Board.

WHAT TO LOOK FOR DURING A ROAD INSPECTION

- Culverts: Clear debris and sediment from culvert inlets (see figs. 16 and 17). Straighten bent culvert ends. If erosion has occurred at outlets, install energy dissipaters or armoring.
- Bridges: Inspect bridge abutments. Remove logs or branches lodged in the bridge structure.
- Water bars: Confirm that the water bars are working properly and directing drainage off the side of the road. Inspect the area downslope of the water bars for evidence of rills or gullies indicating that the slope requires additional protection from concentrated roadside drainage.
- Rolling dips: If erosion has occurred at the outside edge of the dip, install energy dissipaters or armoring.
- Inside ditches: Use a shovel to clear debris from the ditch. Avoid grading in ditches.
- Cut-and-fill slopes: Inspect for rilling, slumping, or cracks. Install more drainage structures if problems are found. Remove unstable material with an excavator.

RECOGNIZING AND FIXING COMMON ROAD PROBLEMS

Many road problems are quite easy to detect because they result in reduced driving comfort (e.g., rutting, potholes or wash boarding, erosion of portions of the roadbed, and deposition of soil on the road surface). Obvious problems such as these may cause impacts to streams and aquatic organisms by, for example, depositing sediment or creating barriers to fish passage. Road treatments can be designed to alleviate problems for traffic as well as aquatic habitat without much additional cost. Appropriate treatments for specific kinds of problems are identified here. Before initiating a treatment on your property, it is advisable to consult a professional erosion control or geotechnical specialist.

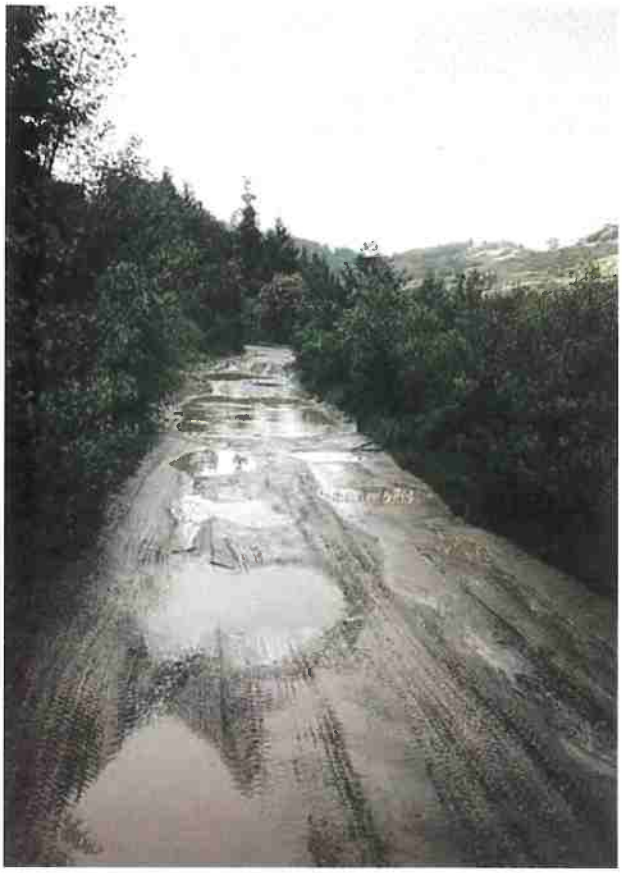


Figure 18. Water collecting on a forest road because of poor drainage. *Photo:* Jared Gerstein.

Potholes, Gullies, Extensive Rilling, Mud, and Other Road Surface Problems

Symptom

Potholes, ruts, and mud on the surface of the road are symptoms of drainage problems (fig. 18). A properly designed and maintained road will have very little standing or running water on the road surface, even during rain storms.

Finding the underlying problem

In order to locate the source of the problem, follow the water. Water may be originating from springs in the cut bank or under the road, from small creeks diverted onto the road surface, or from retained rain water due to improper drainage. The problem may also be caused by a combination of these.

First, look for springs on the cutbank or under the road. Water-loving vegetation, such as ferns or rushes, is a good indicator of the existence of springs. After a storm ends, puddles will dry out elsewhere on the road but remain much longer where you have springs. If no springs are found, look for streams diverting water onto the road surface. Small swales that are dry most of the year may flow during rain storms; go look for them while it is raining. Look for the original stream on the downhill side of the road.

If the road is retaining rain water on the surface during and shortly after rains, the road may need to be reshaped in order to drain water more efficiently. It is common for roads that have been poorly maintained for years to develop berms on one or both sides of the road, preventing water from draining from the road surface.

Solutions

Possible treatments for spring seepage onto roads are installing deeper inboard ditches and culverts to drain the water under the road, building up the road surface with base rock, or others as appropriate. Stream diversions onto the road surface may be treated by installing a culvert or rocked dip to place the stream back in its natural channel. Standing water due to poor drainage should be treated by changing the shape of the road to out-sloped, in-sloped, or crowned. Breach berms at strategic nonerosive locations to allow drainage and prevent their re-creation during grading. Out-sloping roads and installing rolling dips should be done whenever possible. Rock surfacing may also need to be added.

Dysfunctional Ditches

Symptom

One of the liabilities of a ditch system is the possibility of ditches plugging with debris, causing water to flow onto the road surface. Ditch water "captured" by the road surface can cause severe erosion (fig. 19) and even wash out the road completely.

Finding the underlying problem

Water may flow out of a ditch onto a road when the capacity of the ditch is exceeded. This occurs when the volume of runoff exceeds the ditch capacity or, more commonly, when a ditch relief culvert is plugged with debris. In the latter instance, the plugged cul-

Figure 19. Erosion caused by ditch water leaving the ditch and traveling across the road. *Photo:* Susan Kocher.

vert may be located at the point where water flows onto the road or it may be uphill from there. Once the plugged culvert is located, examine its size and alignment. If a culvert plugs regularly, especially with sediment, there may be a design problem. If the culvert is less than 18 inches in diameter, it may be too small. If the culvert is installed at too sharp of an angle at the inlet, ditch water may not be directed into the culvert at high flow. If the cross-drain grade is too flat, sediment may settle out in the culvert rather than passing through it, causing blockage.

Solution

Once the plugged culvert is located, material blocking the culvert inlet should be removed. If this is the first time the culvert has plugged and the blockage was caused by a recently fallen tree or branch, simply removing the blockage may be sufficient. If the culvert repeatedly plugs, it may be undersized or misaligned and need to be replaced or realigned. In some cases, excess sediment may be evidence of upslope instabilities that need to be addressed.

Symptom

Another liability of ditch systems can be inadequate cross drains. Without a sufficient number of cross drains or ditch relief culverts, ditch water may become increasingly concentrated, gain erosive power, and cause ditch erosion in larger storms. Deeply incised ditches can be a hazard to driving, especially when they become large enough to accommodate a car tire (fig. 20).

Finding the underlying problem

Ditches incise when they carry too much flow for their design capacity and they erode rather than spill water out onto the road. Too much flow in the ditch occurs because there are not enough ditch relief structures and/or because there are sources of water other than road runoff contributing to ditch flow. Examine the ditch system to see if the ditch has captured the flow from a stream channel or spring and diverted it down the ditch. If not, the most likely problem is too few ditch relief culverts or cross drains.

Figure 20. Eroding inboard ditch on an in-sloped road. This is a symptom of inadequate cross drains for conveying ditch flow across the road. *Photo:* Richard Harris.

Solution

Ditch-captured stream channels should be treated by installing a culvert under the road and reconnecting the stream channel to its original course below the road. Problems arising from inadequate drainage should be treated by adding more ditch relief culverts. A more effective long-term solution may be to out-slope the road, if feasible, and remove the ditch altogether. Armoring ditches without treating the underlying drainage problem may reduce erosion in the short term but is not considered a permanent solution.

Symptom

Ditches may become filled in with sediment, rock, or woody debris (fig. 21). This reduces their

Figure 21. Cut bank failure blocking inboard ditch. Cut bank failures cause operational and maintenance problems, especially when chronic. *Source:* Keller and Sherar 2003.

capacity to convey ditch flow. The inlets to ditch relief culverts can become filled with sediment, causing ditch water to flow over and erode the road surface.

Finding the underlying problem

Examine the cut slope along the road to identify the source of the sediment. A slump or failure in the cut slope may have delivered dirt and rocks to the ditch. Or, a tree or branch may have fallen into the ditch, causing sediment to accumulate. Sediment may have accumulated in sections of ditch that have a flat gradient.

Solution

Filled-in ditches should be cleaned out with hand tools or heavy equipment, depending on the scale of the problem. If this is a recurring problem, the cut slope may need treatment to reduce its chances of slumping. A number of slope stabilization techniques are available and can be developed with the help of a professional erosion control or geotechnical specialist. Road surface sediment can be reduced by rocking the road. A ditch relief culvert may need to be installed before the grade flattens out, to carry water through the culvert before the sediment settles out in the ditch.

Gullies Caused by Roads

Symptom

Gullies are caused when increased or concentrated flow from the road system flows onto erosive soil. Most often, gullies originate from a road system's drainage features. They can be identified by their bare dirt banks and occurrence in places where natural streams do not occur, such as smooth hillslopes or ridges (fig. 22). Gullies may or may not threaten the roadbed itself, but they are always a significant source of sediment and thus a detriment to streams.

Figure 22. Gully caused by through-cut on road at base of steep road section. *Photo:* Jared Gerstein.

Finding the underlying problem

Inspect for gullies at the outlets of ditch relief culverts and rolling dips or where inboard ditches leave the road at a corner. Most gullies are caused by a concentration of water from the road and ditch system. Walk the road system to identify the drainage structures releasing flow that leads to gullies. Gullies can also occur when a stream has been diverted out of its natural channel. If this is the case, it is important to locate the original stream channel by walking up the gully to find where it starts.

Another cause of gullies can be culverts that have been installed improperly, with outlets set on the hillside rather than back in the natural channel. Examine culverts located at the origin of the gully flow to see if misalignment is causing the erosion.

Solution

The solution to gullies is to remove the concentrated flow from the soil it is eroding. Gullies should be dewatered by returning the flow to a controlled conveyance, either back into the ditch or stream system from which the flow escaped, or by realigning the culvert that allowed its escape. Alternatively, flow can be rerouted around the most erosive soils by installing downspouts. The goal of the treatment is typically to stabilize the gully and halt further erosion since it usually is not feasible or cost effective to fill in and restore a gully's original slope.

Stream Crossings

Stream crossings on roads can be the most significant source of sediment to streams. They are also the most likely locations to become impassable during a storm. Because of their importance to both stream health and accessibility, these sites should be carefully watched and maintained. Typical problems include culvert plugging, fill eroding, outlet scouring, and blocking of the migration of fish and other aquatic life such as amphibians.

Symptom

Culverts that convey streams under roads must be large enough to transport the flow plus the tree branches, sediment, and rocks that often accompany the flow during large rain storms (fig. 23). Stream culverts may plug when debris blocks the inlet, allowing water to overtop the crossing and possibly wash out the crossing and road altogether.

Finding the underlying problem

Culverts that plug frequently with debris may be undersized for the flow of the stream and the debris it carries, or they may be misaligned, blocking the flow of water and debris through the culvert. When material collects behind a culvert, it is likely that the culvert is too small.

Figure 23. This culvert is nearly plugged by woody debris, endangering the road. *Photo:* Angela Wilson, Central Valley Regional Water Quality Control Board.

Solution

The ideal treatment for an undersized culvert is replacement with a larger one, capable of carrying flow and debris. Appropriately sizing a culvert for the stream and watershed it drains is a fairly technical task and should be done by a knowledgeable professional (Cafferata et al. 2004). In some relatively simple cases, it may be feasible to install trash and debris racks upstream from the culvert to capture and retain the debris so that it does not flow into the culvert (fig. 24). This, however, should be discouraged on fish-bearing watercourses because debris accumulations may become a barrier to migrating fish. Remember that debris racks need to be cleaned regularly to continue to function.

Symptom

Installing a culvert to convey a stream under a road involves placing a significant amount

Figure 24. A trash rack installed upstream to protect a culvert from plugging. *Source:* Keller and Sherar 2003.

Figure 25. Eroding fill slope and culvert failure due to plugging at inlet and diversion of flow across the road. *Photo:* Bill Weaver, Pacific Watershed Associates.

of fill in the channel above and below the culvert, and then building the road base on that fill. The fill over the culvert may erode, narrowing the traveled way (fig. 25).

Finding the underlying problem

Road fill is most often eroded by water plunging from the outlet of a culvert that is too short. "Shotgun" culverts shoot the water down to the streambed while eroding the fill under the culvert. Inspect road culverts at the downslope ends, looking for any that stick out into the air rather than carry their flow to the base of the fill slope.

Solution

The most thorough solution to shotgun culverts is to replace them with longer pipes that are placed at the grade of the natural stream channel rather than high in the fill above the stream. Alternatively, a downspout or rock armor can be added below the outlet if erosion has not been too severe (fig. 26).

Symptom

Culverts may create barriers to fish migration (fig. 27). Problems include excessive water velocity, insufficient water depth, lack of a downstream jump pool, and excessive jump height. Culverts that are relatively

Figure 26. Rock armoring at ditch relief culvert outfall to reduce potential for downstream erosion. Note also the berm around the fill slope to prevent road runoff from eroding it. Also, straw mulch has been placed on the fill slope to reduce erosion. *Photo:* Jared Gerstein.

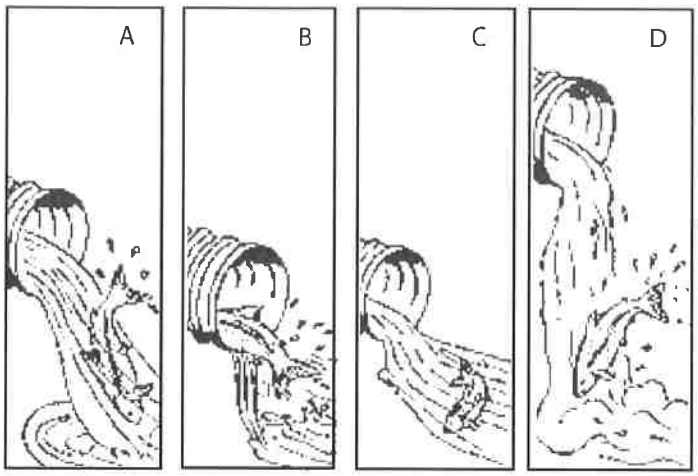


Figure 27. Barriers to fish migration caused by culverts. *Source:* Keller and Sherar 2003.

small for the size of the stream accelerate the speed of the flow, sometimes rendering it too fast for an adult or juvenile fish to swim against when heading upstream (fig. 27A). Culverts too large for the stream they carry may dissipate the flow to the point where it is too shallow for the fish to navigate (fig. 27B). Culverts with no natural resting place downstream may not allow fish to find a spot from which to make their jump (fig. 27C). Some culverts may be positioned too high above the stream and so require a jump that is too high for an adult or juvenile fish to make (fig. 27D).

Finding the underlying problem

All culverts and bridges over fish-bearing streams should be inspected for the existence of problems such as those shown in figure 27. Some barrier problems will be quite obvious. Unfortunately, many are not. Therefore, the best way to identify whether your crossings are blocking fish is to consult a fisheries biologist from a state, federal, or local agency.

Solution

Replacement of problem culverts with bridges and arched culverts of adequate size is preferred because they modify the channel less and so avoid many problems that can block migration (fig. 28). Appropriate assistance should be sought in designing and constructing crossings where migrating fish must be accommodated. Contact your local Department of Fish and Game office. In some cases, passage through existing culverts may be improved by installing baffles or weirs to slow and funnel stream water. In other cases, the upstream and/or downstream channels may be modified to create resting pools and reduce the jump height.

GETTING ROAD WORK DONE

There are some things that a landowner can do to maintain his or her roads and there are other actions that are best left to professionals. If you are contemplating new road construction or major road upgrading and you are not experienced with this work, you need to get help. County public works and planning departments, your local California Department of Forestry and Fire Protection or Resource Conservation District office, UC Cooperative Extension Office, and your neighbors may be able to recommend someone who can help you plan and implement a road construction or improvement project. Depending on your location and the type of work, you may even qualify for grants and cost sharing programs (see "Sources").

Figure 28. An arched pipe installed on a fish-bearing stream to minimize impacts on fish habitat and migration. *Source:* Keller and Sherar 2003.

Before undertaking extensive road work, it is important to have a good plan. You may retain professionals trained in road assessment to evaluate your roads in relation to your land management and use objectives. The objectives might be to reduce maintenance costs, to reduce sediment production, to protect natural resources, or to

Figure 29. Bulldozer clearing out a road ditch. *Photo:* Jared Gerstein.

Figure 30. Installation of a new culvert after the old one was excavated. *Photo:* Jared Gerstein.

assure accessibility in all conditions. A road assessment may be used to help decide whether a road is worth maintaining in its current condition and location. Many roads were built in locations because of property boundaries, with little regard for geologic, geomorphic, biologic, or hydrologic conditions. If the road is tied to an easement and there are multiple landowners, relocation may not be an option. If a road is a chronic problem, however, relocation should be considered because it may be the cheapest and most effective remedy. A thorough road assessment will help you decide the best course of action and develop a plan for implementing road work.

Constructing or upgrading a road may require the services of a licensed civil engineer. Especially difficult projects may require other professionals including a licensed geologist or structural engineer. Simpler projects may only require a qualified equipment operator or grading contractor. When choosing an engineer or a contractor, it is important to carefully review their qualifications to do the work, their experience, and their ability to perform on time and on budget. Always ask for references and always follow up by checking them. Never hire someone who is not adequately insured against liabilities resulting from the work. You also want to make sure your contractor is licensed. Get the contractor's license number, and check with the State Contractors Licensing Board to see if there are any complaints or violations for the operator you intend to hire.

Routine road maintenance is another matter and there are many things you can do to ensure that your roads function well under all weather conditions. In some instances when a road is shared by several landowners, there may already be a road association or homeowners' association that is responsible for road maintenance. Generally, if you do not know if you are part of a road association, you probably are not. Road and homeowners' associations assess landowners a fee used to offset costs for road maintenance. The fee is either paid on a yearly basis or as the need for maintenance arises. If you have a neglected road that serves several properties and there is no road maintenance agreement between them, you might consider initiating one. One of the major problems in rural areas is "orphan roads" that no one takes responsibility for maintaining.

For the roads on your property that are your sole responsibility, the key to good maintenance is a system of inspection and record-keeping. Inspections should be performed on all your roads and stream crossings before the winter, during storm events, and after the winter. Use the diagnostic tips previously described to identify

maintenance needs. Simple tasks such as culvert and ditch clearing can be performed by most landowners (fig. 29). More complex tasks, such as roadside brushing, remedial grading repair, or installation of culverts (fig. 30), will probably require outside assistance. Keeping good maintenance records can help landowners evaluate the cost of correcting on-going problems and judge whether road upgrading projects would be cost effective. It is also essential for tax purposes.

ELEMENTS OF GOOD ROAD MAINTENANCE RECORD KEEPING

- Identify and prepare sketch maps of problem areas and treatments applied.
- For each site, describe the problem, when it started, and what caused it.
- Document the things done to fix the problem.
- List the equipment and labor hours needed to fix the problem.
- Quantify the amount of armor or rock imported to fix the problem (cubic yards).
- Quantify the amount of sediment or spoils removed (cubic yards).
- Measure the length, width, and depth of any erosion features.
- Take photos before and after the maintenance activities.

PERMITS FOR ROAD WORK

Depending on where you live, extensive road work may require a grading permit from the county public works or planning department, particularly if the project involves new road construction. Not all counties have grading ordinances but all have stipulations in their building codes that apply to grading for home sites and driveways. These are typically triggered by the extent of planned disturbance. Before undertaking any grading on your property, check with your county planning staff.

If you are planning on crossing or otherwise altering a stream or creek, you may be required to obtain a Streambed Alteration Agreement from the California Department of Fish and Game. Activities requiring these agreements include installing culverts, bridges, or fords; rip-rapping the banks of stream channels; or skidding logs across temporary crossings. Many projects that require a Streambed Alteration Agreement will also require a permit from the U.S. Army Corps of Engineers. If the project involves a stream that has anadromous fish (i.e., salmon, cutthroat trout, or steelhead), additional consultation or permits may be required from the National Marine Fisheries Service or from the U.S. Fish and Wildlife Service. Your local Department of Fish and Game staff should be aware of the permit requirements of these agencies.

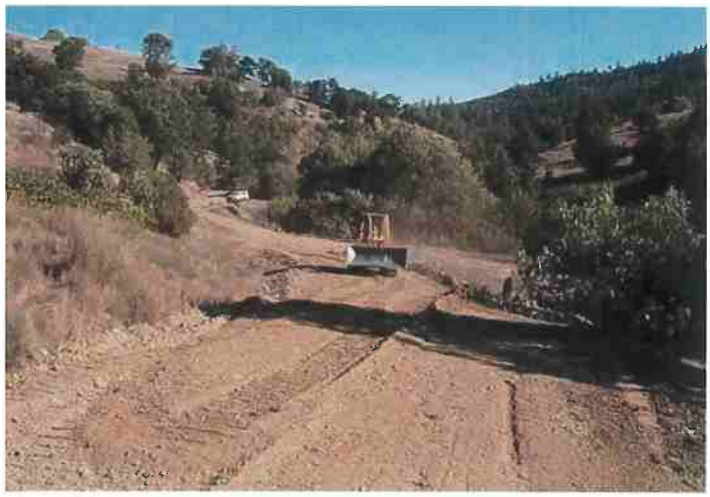


Figure 31. Bulldozer reshaping road surface to out-sloped condition to improve drainage. *Photo:* Jared Gerstein.

ESTABLISHING A WRITTEN CONTRACT FOR ROAD WORK

Landowners should establish a clear written contract for contractors providing road services. Contracts should include the necessary road specifications and standards to be constructed or maintained. The various parts of a new road to be constructed should be listed, including the subgrade and surface and the cut-and-fill slope. The standards to which these should be built, including the width of the subgrade and surface, slope of cut and fill, and depth and size of the base and surface rock, should be specified.

TYPES OF EQUIPMENT USED IN ROAD MAINTENANCE

A variety of heavy equipment may be used when constructing or maintaining a road. *Bulldozers* are often used to make road cuts, shape the road, and develop the subgrade (fig. 31). *Excavators* can be used to replace crossings and develop new road alignments (fig. 32). *Backhoes* have many uses, including replacing small crossings, loading rock, and road shaping. *Graders* are used for final road shaping, spreading surface rock, and smoothing the surface (fig. 33). *Dump trucks* are used to transport rock to the construction site and to haul away any excess cut materials (fig. 33). *Rollers* are specialized to roll over the road surface and compact rock and road materials.

ROAD WORK COSTS

Upgrading an existing road is less expensive than constructing a new one, but may still involve substantial costs. Cost depends on the heavy equipment used, hourly equipment rental or contract rates, the skill and experience of the operator, design standards of the road, and the choice of the specific drainage structures and features to be installed. Examples of costs for road improvements are listed in table 3. When

Table 3. Costs to modify and improve existing roads

Activity	Ideal equipment	Cost rate*	Production rates†	Costs
out-sloping road and filling ditch	motor grader with rippers	$140/hr	500 ft/hr for a 20 ft wide road	$280/1,000 ft
installing rolling dip	small dozer with rippers (John Deere 450)	$130/hr	1 hr each (30 to 40 ft long on flat roads) 2 hr each (50 to 100 ft long on steep roads)	$130 to $260 each
removing berm or cleaning ditch	motor grader	$140/hr	1,000 ft/hr	$140/1,000 ft
rock-surfacing road (1.5 in. minus crushed)	dump truck spread	$25 to $50/ yd³ delivered‡	4 in. deep × 20 ft wide = 250 yd³/1,000 ft road	$6,250 to $12,500/1,000 ft
installing ditch relief culvert (40 ft of 18 in. culvert)	backhoe or tractor, laborer	$120/hr or $95/hr $55/hr	3 hr each + culvert ($35/ft + $25 coupler + $165 labor)	$1,950 each
installing stream crossing (36 in. × 40 ft culvert with 200 yd³ fill)	excavator, small dozer, water truck, laborer	$175/hr $130/hr $95/hr $55/hr	$2,350 culvert (w/coupler) + $1,225 excavator +$910 dozer + $190 water truck + $165 labor + $125 tamper	$4,965 each
installing culvert downspout	hand labor, equipment (>24 in. culvert)	$55/hr $125/hr	2 hr labor for 20 ft × 24 in. 3 hr labor for 40ft × 36 in.	$110 + materials $375 + materials
straw mulching of bare soils areas	labor	$55/hr $7.50/straw bale incl. tax/delivery	1 bale/600 ft² to 700 ft² + spreading at 4 bales/hr	$36 to $40/1,000 ft²
upgrading road completely	motor grader, skip loader, dump truck water truck riding compactor	$140/hr $110/hr $85/hr $95/hr $95/hr	Average mid-slope road requiring stream crossing upgrades	$45,000 to $77,000 per mi

Source: Adapted from CDFG 2004 by Joe Carri Jr.
Notes: *Additional equipment mobilization costs apply (4-hour minimum for small equipment and an 8-hour minimum for large equipment).
†Production rates do not account for rocky soil or soft soil conditions.
‡Trucking and material costs for bulk rock or sand assume a round trip time from 1 to 2½ hours. Longer hauls require additional trucking costs.

Figure 32. Excavator removing a crossing, including culvert and fill. *Photo:* Jared Gerstein.

Figure 33. A grader spreading the gravel on the road surface placed by a dump truck. *Source:* Joe Hoffman, Plumas National Forest.

Figure 34. Outlet of a concrete culvert (30 inches in diameter) before the project. The culvert was placed too high in the fill, resulting in a 10-foot drop to the channel at the outlet. This caused erosion of the road fill and stream banks, eventually undermining the outer section of the culvert. *Photo:* Jared Gerstein.

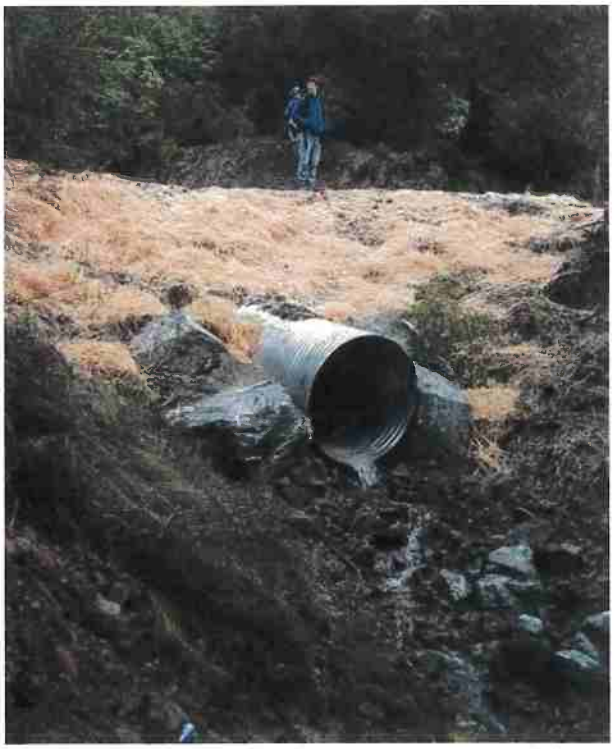


Figure 35. The culvert was replaced with a metal pipe (48 inches in diameter) at the correct slope. The road surface was lowered, reducing the fill volume by 100 cubic yards. The outlet and fill were armored to prevent future diversion. *Photo:* Jared Gerstein.

using different equipment, the rates for some treatments may differ from those listed here. Tasks accomplished by manual labor, such as culvert downspout installation and straw mulching for erosion control, are much less expensive than tasks requiring heavy equipment. Installing rolling dips is substantially less expensive than installing ditch relief culverts because only one type of equipment and one worker is needed, and there is no culvert to purchase. The most expensive aspect of building or upgrading a permanent rural road is placing rock on the roadbed and road surface. The drainage structures and road shaping need to be done first, but rock surfacing is the final ingredient necessary to make the road durable for year-round travel.

ROAD WORK CASE STUDIES

Some examples of road upgrading projects are described below. These projects were undertaken by private landowners, the U.S. Forest Service, and the University of California.

Tom Long Watershed

The Tom Long Watershed in Humboldt County is like many other rural areas that have been subdivided for residential use. The road system was put in for harvesting timber during the 1950s and '60s. Harvesting was only done during the dry season and roads were only intended to handle seasonal access. In the 1970s the watershed was subdivided into 40-acre parcels with the layout based largely on the location of the original logging roads. No formal road association or methods for funding road betterment or maintenance were established in the subdivision process. After the subdivision, roads were maintained on an emergency basis, meaning that bridges and culverts were only replaced if the road was no longer passable. Roads were rarely graded and rock surfacing was seldom if ever applied. The watershed became notorious for some of the worst roads in the region.

In the late 1990s residents organized in response to the threat of increased water quality regulation and out of exasperation with degraded road conditions. Following an evaluation of the road system, a number of sites were identified for remedial treatment. The highest priority sites were problem roads and crossings nearest the fish-bearing reaches of Tom Long Creek (figs. 34 and 35). Eventually, remedial work included replacing and upgrading 17 culverts and fixing two active creek diversions at a cost of approximately $120,000. The majority of the work was funded with a combination of local, state, and federal grant dollars intended to improve fisheries and water quality conditions.

These efforts addressed major issues, but road surfacing, drainage, and other needed improvements have not been completed. All this work requires funding, especially for equipment operators, and funds available from grant programs are limited. Gradually, the work will get accom-

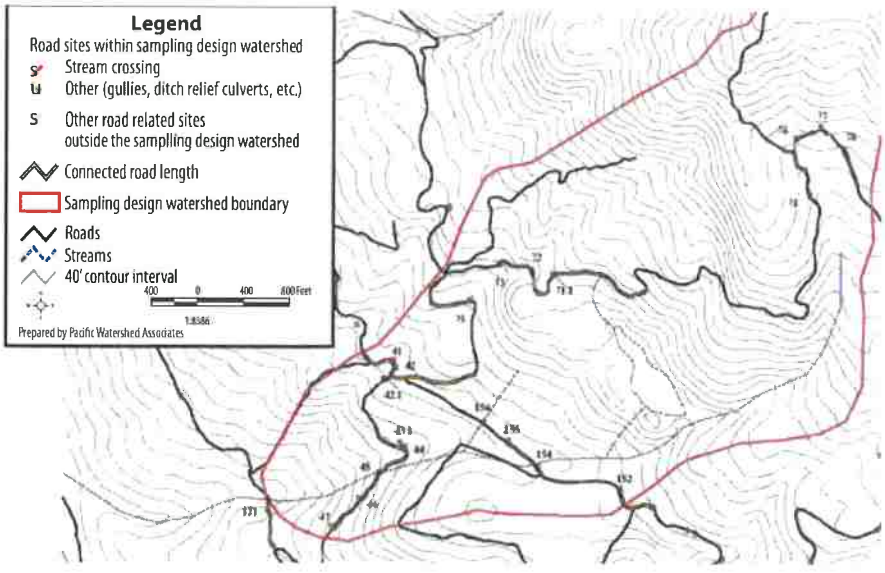


Figure 36. Road upgrading sites at the experimental watershed, Hopland Field Research and Extension Station. *Source:* Bill Weaver, Pacific Watershed Associates.

plished. As one resident said, "The grant resources enabled us to complete the root canals in the watershed and now we have to find the money to pay for the routine cleanings."

University of California Hopland Field Station Research and Extension Center

Over a period of about five years, beginning in the late 1990s, the University of California implemented a program to upgrade the road system at Hopland Field Station Research and Extension Center, located in Mendocino County. The work was largely funded by grants from the Department of Fish and Game (1999 SB 271 funds), Fisheries Restoration Grant Program. After an inventory and assessment of roads throughout the property, over 200 stream crossings and sections of road were prioritized for remedial treatment (fig. 36). Proposed treatments included replacement of culverts, installation of rolling dips and ditch relief culverts, and other measures intended to improve drainage, reduce sediment production, and generally reduce maintenance problems.

The entire program was implemented successfully by 2004. Although some newly installed culverts and fills experienced significant erosion during the first winter after construction, most post-project adjustments have diminished over time. Nearly all treatments have performed well, with a few fill failures at the outlets of rolling dips during spring 2006 (with very high precipitation). Maintenance needs and costs have declined dramatically. Personnel at the Field Station Center are especially satisfied with the superior performance of rolling dips as an alternative to cross drains for both reducing maintenance requirements and adequately draining road surfaces.

Pinchard Creek Project

The U.S. Forest Service partnered with Sierra Pacific Industries and Plumas County to upgrade a section of national forest road with serious erosion problems. The road's native surface was very erosive and lacked drainage structures. The surface was heavily rutted with rills over 2 inches deep and over 20 feet long (fig. 37). Road cut banks were unstable and eroding with more than 5 cubic yards of material moved, 40 percent of which was delivered to the stream channel. Roadside ditches were overloaded and degrading. One stream-crossing culvert entrance was more than 30 percent blocked with sediment and debris.

The project involved out-sloping the road surface, covering it with crushed rock, and installing drainage dips (fig. 38). Two years after the completion of the project, no surface ruts or road bank erosion has occurred, roadside drainage ditches are stable with little or no sediment delivery to the stream, and culvert entrances remain clear (fig. 39). The cost of the project was $221,603, with 35 percent from National Forest road maintenance funds, 9 percent from Sierra Pacific Industries, and 56 percent from the Plumas County Resource Advisory Committee.

Figure 37. Pinchard Creek road with rilling along the road surface before the project, 2002. *Photo:* Joe Hoffman, Plumas National Forest.

Figure 38. Pinchard Creek road immediately after project construction, 2002. *Photo:* Joe Hoffman, Plumas National Forest.

Figure 39. Pinchard Creek road two years after project construction, 2004. Note that the road surface remains in good shape without additional maintenance. *Photo:* Joe Hoffman, Plumas National Forest.

BEST MANAGEMENT PRACTICES DURING CONSTRUCTION

Construction of a new road necessarily involves a great deal of earth moving and soil disturbance. It is important that construction be managed wisely to avoid environmental impacts and damage to your property. One important thing a landowner can do is visit the site regularly during construction to ensure that the job is being done correctly. Sometimes plans made before construction are no longer feasible due to site constraints, and new decisions must be made. You need to be accessible to your contractor to help make these decisions when the situation arises.

Some general principles for best practices during construction are listed below:

- Minimize grading and soil disturbance.
- Develop an erosion control plan that includes measures on cut-and-fill slopes, drainage outlets, and disturbed areas (fig. 40).
- Avoid construction and soil disturbance in the winter.
- If construction does occur in the rainy season, ensure that the site has been storm proofed with erosion control measures when rains are forecast.
- Avoid incorporating logs or brush in the fill slope.
- Haul away excess sediment generated rather than side cast it onto the slope.
- Locate any stockpiled sediment in areas where it can be protected from erosion and will not deliver sediment to streams.
- Do not service or fuel heavy equipment where spills could enter a watercourse.

POST-PROJECT ADJUSTMENT

No matter how well planned and executed a road project has been, winter rains and traffic will lead to some adjustment of the final as-built condition during the first winter after improvements are made. Assuming that the road is in otherwise stable terrain, the adjustments will usually be minor and easily corrected. Adjustments may include some erosion of cut-and-fill slopes or culvert inlets and outlets (fig. 41). Road inspections should be done frequently during the new road's first winter season to identify any emerging problems for remediation. Developing problems may be averted with timely action. Plan for follow-up maintenance and put aside funds to perform the maintenance.

Figure 40. Using a portable blower to spread straw mulch on a disturbed road site. *Photo:* Julie Bawcom, California Geological Survey.

Figure 41. Fill surface erosion occurring after a road upgrading project. *Photo:* Bill Weaver, Pacific Watershed Associates.

SOURCES

For information on grants and cost sharing programs, check the online guides at

http://ceres.ca.gov/foresteward/html/financial.html
http://www.calwatershedfunds.org/
http://cwp.resources.ca.gov/grant_programs.html

For more information on road design and maintenance, consult the following resources:

Caferrata, P., T. Spittler, M. Wopat, G. Bundros, and S. Flanagan. 2004. Designing watercourse crossings for passage of 100-year flood flows, wood and sediment. California Forestry Report No. 1. Sacramento: California Department of Forestry and Fire Protection.

California Department of Forestry and Fire Protection (CAL FIRE). 2003. The changing California: Forest and range 2003 assessment. Sacramento: Fire and Resource Assessment Program (FRAP).

California Department of Fish and Game (CAL FIRE). 2004. Salmonid stream habitat restoration manual, part X: Upslope assessment and restoration practices. Sacramento: California Department of Fish and Game, Inland Fisheries Division.

Keller, G., and J. Sherar. 2003. Low volume roads engineering: Best management practices field guide. USDA Forest Service/USAID. National Transportation Library Web site, http://ntl.bts.gov/lib/24000/24600/24650/Index_BMP_Field_Guide.htm

Kramer, B. 2001. Forest road contracting, construction, and maintenance for small woodland owners. Research Contribution No. 35, Corvallis: Oregon State University, Forest Research Laboratory.

USDA Forest Service. Riparian roads video short course. Oregon State University Forestry Sciences Laboratory Web site, http://www.fsl.orst.edu/geowater/RRR/.

Weaver, W. E., and D. K. Hagans. 1994. The handbook for forest and ranch roads: A guide for planning, designing, constructing, reconstructing, maintaining and closing wildland roads. Ukiah, California: Pacific Watershed Associates for the Mendocino County Resource Conservation District.

Wiest, R. L. 1998. A landowner's guide to building forest access roads. Radnor, PA: U.S. Department of Agriculture, Forest Service. Northeastern Area, State and Private Forestry NA-TP-06-98.

Metric Equivalents

English unit	Metric equivalent
1 inch (in)	2.54 centimeters cm)
1 foot (ft)	0.3048 meters (m)
1 mile (mi)	1.609 kilometers (km)
1 acre	0.4047 hectares (ha)

FOR FURTHER INFORMATION

To order or obtain printed ANR publications and other products, visit the ANR Communication Services online catalog at http://anrcatalog.ucdavis.edu. You can also place orders by mail, phone, or FAX, or request a printed catalog of our products from

University of California
Agriculture and Natural Resources
Communication Services
6701 San Pablo Avenue, 2nd Floor
Oakland, California 94608-1239
Telephone: (800) 994-8849 or (510) 642-2431
FAX: (510) 643-5470
E-mail inquiries: danrcs@ucdavis.edu

An electronic version of this publication is available on the ANR Communication Services Web site at http://anrcatalog.ucdavis.edu.

Publication 8262

ISBN-13: 978-1-60107-483-6

© 2007 by The Regents of the University of California, Division of Agriculture and Natural Resources. All rights reserved.

To simplify information, trade names of products have been used. No endorsement of named or illustrated products is intended, nor is criticism implied of similar products that are not mentioned or illustrated.

The University of California prohibits discrimination or harassment of any person on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including childbirth, and medical conditions related to pregnancy or childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (covered veterans are special disabled veterans, recently separated veterans, Vietnam era veterans, or any other veterans who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized) in any of its programs or activities. University policy is intended to be consistent with the provisions of applicable State and Federal laws.

Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action/Staff Personnel Services Director, University of California, Agriculture and Natural Resources, 1111 Franklin Street, 6th Floor, Oakland, CA 94607-5201, (510) 987-0096. **For a free catalog of other publications, call (800) 994-8849. For help downloading this publication, call (530) 297-4445.**

This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by the ANR Associate Editor for Natural Resources.

pr-8/07-LR/CM

Exhibit G

Lake and Streambed Alteration Agreement Notification

Exhibit H

Updated Photographs of Monitoring Points Originally Photographed and Identified in 2016 in the WRPP

Photograph 1a: MP4, 2016

MP #4: Photo 4d

Photograph 1b: MP4, 2020

Photograph 2a: MP5, 2016

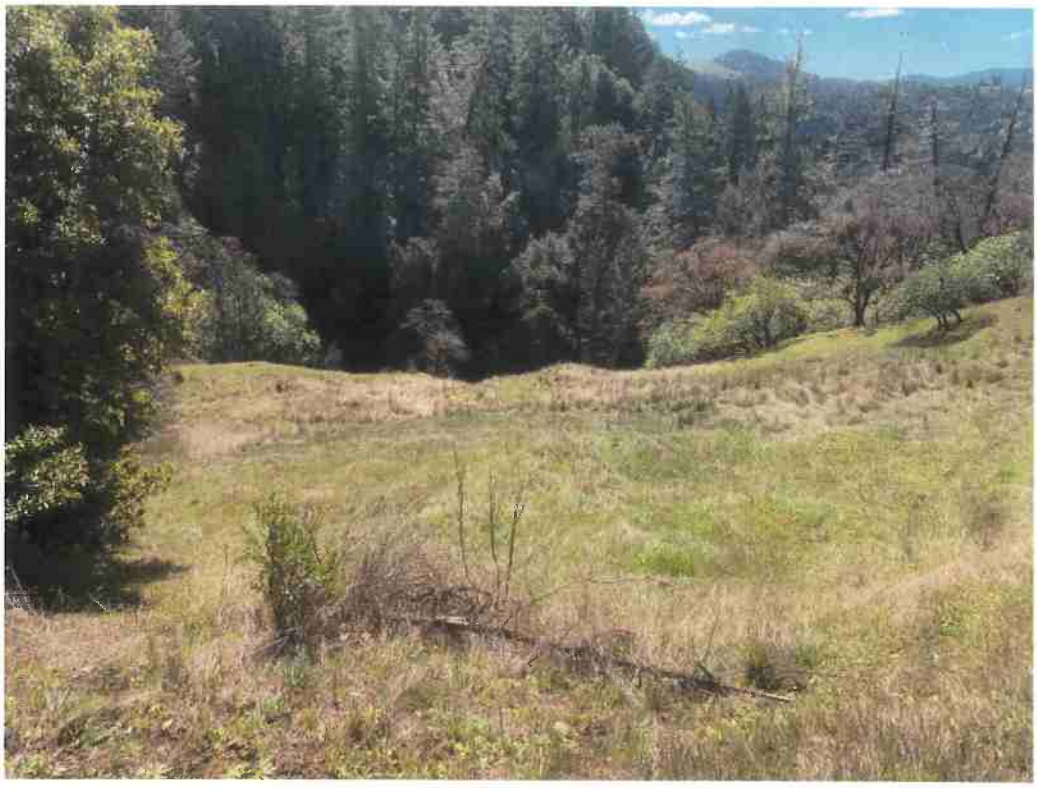
MP #5: Photo 5a

Photograph 2b: MP5, 2020

Photograph 3a: MP23, 2016

MP #23: Photo 23b

Photograph 3b: MP23, 2020



Photograph 4a: MP25, 2016

MP #25: Photo 25a

Photograph 4b: MP25, 2020

Photograph 5a: MP26, 2016

Photo 26a

Photograph 5b: MP26, 2020

Exhibit I

STATEMENT OF CONTINGENT AND LIMITING CONDITIONS CONCERNING THE PREPARATION AND USE OF REPORTS ADDRESSING GENERAL WASTE DISCHARGE REQUIREMENTS UNDER ORDER WQ 2019-0001-DWQ

1. This document has been prepared for the property within APNs 216-082-002 and 216-082-006, in Humboldt County, for enrollment in the General Waste Discharge Order WQ 2019-0001-DWQ.
2. Mika Cook and/or AgDynamix do not assume any liability for the use or misuse of the information in this document.
3. The information is based upon conditions apparent to Mika Cook and/or AgDynamix based on client interviews, photographs and published USGS, USDA FSA, USDA Humboldt County GIS, and Esri maps at the time data was collected. Changes due to land use activities or other factors occurring after the submittal of this report, have not been considered in this document.
4. The conditions presented in this document may differ from those made by others or from changes on the property occurring after inspections were conducted. Mika Cook and/or AgDynamix do not guarantee this work against such differences.
5. Mika Cook and/or AgDynamix did not conduct an investigation on a legal survey of the property.
6. Persons using this document are advised to contact Mika Cook and/or AgDynamix prior to such use.
7. Mika Cook and AgDynamix will not discuss this document or reproduce it for anyone other than the Client for which this document was prepared without authorization from the Client.

Kevin Peak

Owner

Peaksview

STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF WATER RESOURCES
NORTHERN REGION OFFICE
2440 MAIN STREET
RED BLUFF, CA 96080-2356

RECEIVED
DEC 11 2020
Humboldt County
Building Division

December 6, 2018

Ms. Kelly Flores
CalCan Licensing
2306 Albee Street
Eureka, California 95501

Dear Ms. Flores:

This letter is in response to your request for a Well Completion Report (WCR) received on November 28, 2018, for Humboldt County assessor's parcel number 216-082-002 and 216-082-006.

The Department of Water Resources (DWR) has performed a search of our records and are unable to locate a WCR that corresponds with the information you provided on the attached request. **Please note the history of ownership, specifically the property owners name at time of drilling, is necessary for us to perform a complete search of our records. If incomplete or inaccurate information is submitted on the request form, DWR cannot say with certainty that we do not have the record.**

If you have any questions or need additional information, you may contact me at (530) 529-7385.

Sincerely,

Amber Sanchez
Junior Engineering Technician
Department of Water Resources

Attachment

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY EDMUND G. BROWN JR, Governor

DEPARTMENT OF WATER RESOURCES

NORTHERN REGION
2440 Main Street
Red Bluff, CA 96080
(530)-529-7300
(530) 529-7322 (Fax)
April.Scholzen@water.ca.gov

NORTH CENTRAL REGION
3500 Industrial Blvd.
West Sacramento, CA 95691
(916) 376-9612
(916) 376-9676 (Fax)
NCRO_WCR@water.ca.gov

SOUTH CENTRAL REGION
3374 E. Shields Ave Ste A7
Fresno, CA 93726
(559) 230-3300
(559) 230-3301 (Fax)
Chris.Guevara@water.ca.gov

SOUTHERN REGION
770 Fairmont Avenue
Glendale, CA 91203
(818) 549-2307
(818) 543-4604 (Fax)
waterdata@water.ca.gov

WELL COMPLETION REPORT REQUEST FORM

California Water Code Section 13752 allows for the release of copies of well completion reports to governmental agencies and to the public. The department may charge a fee for the provision of a report to cover the cost of researching and preparing the well completion reports for distribution. Please contact the appropriate DWR regional office for more details.

Type of Request: ☐ Government Agency ☐ Public Request (Owner of well: ☐ Yes ■ No)
(Note: Consultant requests are Public Requests.)

Project Name: Peaksview Well County: Humboldt

Well/ Project Location: Bell Springs Road, Uninc, Humboldt

For A Single Well:
Owner at time of drilling: Unknown Driller: Unknown

APN: 216-082-002/ 006 Year Drilled: _____ Depth of Well: _____ Casing Diameter: _____

For a Radius Search:
Search Radius: _____ ☐ft ☐mi List of Township, Range, and Sections: T4S,R4E
SEC25

Additional Information related to your search request (Maps, Coordinates, etc.):
Owners: Kevin Peak, Toby Arthur, Buck Mountain Ranch

Requestor's Contact Information:
Name (Please print): Kelly Flores Company: CalCan Licensing

Address: 2306 Albee St Phone: 707-500-2420

City, State, and Zip Code: Eureka,CA 95501 Fax: _____

Email: info@calcanlicense.com Date: <todays date>

FOR DWR USE ONLY
TRS: _____ Cost of Search: _____

PQ Check: _____ Initials: _____ Date: _____ Time: _____ PMT Received: _____

September 18, 2015

12/06 - Letter

Received 11/28/18

RECEIVED
NOV 17 2020
CDFW - EUREKA

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE
REGION 1 – NORTHERN REGION
619 Second Street
Eureka, CA 95501

RECEIVED
DEC 11 2020
Humboldt County Planning Division

STREAMBED ALTERATION AGREEMENT
NOTIFICATION NO. 1600-2019-0159-R1
Unnamed Tributaries to Rancheria Creek, Tributary to East Branch South Fork Eel River, Tributary to South Fork Eel River, Tributary to the Eel River and the Pacific Ocean

Kevin Peak
Peak Water Diversion and Stream Crossings Project
15 Encroachments

This Lake or Streambed Alteration Agreement (Agreement) is entered into between the California Department of Fish and Wildlife (CDFW) and Kevin Peak (Permittee).

RECITALS

WHEREAS, pursuant to Fish and Game Code (FGC) section 1602, the Permittee initially notified CDFW on March 6, 2019, with additional information obtained during a July 23, 2019 CDFW site visit, and revised on June 25, 2020, that the Permittee intends to complete the project described herein.

WHEREAS, pursuant to FGC section 1603, CDFW has determined that the project could substantially adversely affect existing fish or wildlife resources and has included measures in the Agreement necessary to protect those resources.

WHEREAS, the Permittee has reviewed the Agreement and accepts its terms and conditions, including the measures to protect fish and wildlife resources.

NOW THEREFORE, the Permittee agrees to complete the project in accordance with the Agreement.

PROJECT LOCATION

The project is located within the South Fork Eel River watershed, approximately 6.2 miles east southeast of the town of Garberville, County of Humboldt, State of California; Section 25, T4S, R4E, Humboldt Base and Meridian, in the Harris, CA U.S. Geological Survey 7.5-minute quadrangle; Assessor's Parcel Numbers 216-082-002 & 216-082-006; latitude 40.0836 N and longitude 123.6774 W at the point of diversion (POD).

PROJECT DESCRIPTION

This Agreement relies on the Notification materials and a CDFW site inspection by Environmental Scientist Gregory O'Connell on July 23, 2019.

The project is limited to 15 encroachments (Table 1). One encroachment is for water diversion from an unnamed tributary to Rancheria Creek. Water is diverted for domestic use. Work for the water diversion will include use and maintenance of the water diversion infrastructure. The 14 other proposed encroachments are to upgrade stream crossings. Work for these encroachments will include excavation, removal of the failing crossings, replacement with new properly sized crossings, backfilling and compaction of fill, and rock armoring as necessary to minimize erosion.

Table 1. Project Encroachments Covered by this Agreement with Description

ID	Latitude/Longitude	Description
POD-1	40.0836, -123.6774	Water diversion
Crossing-2	40.0830, -123.6761	Replace existing culvert with properly sized culvert that will pass 100-year storm flow and debris.
Crossing-4	40.0817, -123.6759	Replace existing culvert with minimum 30" diameter culvert.
Crossing-8	40.0786, -123.6733	Replace existing culvert with minimum 24" diameter culvert.
Crossing-11	40.0784, -123.6744	Replace existing culvert with minimum 30" diameter culvert.
Crossing-13	40.0781, -123.6787	Replenish existing rocked ford crossing to prevent erosion.
Crossings-14 &15	40.0773, -123.6801	Install rocked ford crossings to realign streams into native channels.
Crossing-16	40.0779, -123.6813	Maintain existing culvert and install rock armoring at the outlet as notified.
Crossing-20	40.0814, -123.6853	Upgrade existing dirt ford crossing to a rocked ford crossing as notified.
Crossing-21	40.0816, -123.6856	Replace existing culvert with a rocked ford crossing.
Crossing-22	40.0826, -123.6863	Replace existing culvert with a rocked ford crossing. Alternatively, replace existing culvert with minimum 84" diameter culvert.
Crossing-26	40.0842, -123.6826	Maintain existing crossing.
Crossing-27	40.0836, -123.6785	Upgrade crossing as notified with downspout.
Map Point 28	40.0836, -123.6781	Install minimum 18" diameter culvert to realign stream to native channel.
Crossing-34	40.0830, -123.6728	Upgrade existing dirt ford to minimum 18" diameter culvert.

Permittee disclosed an additional 20 stream crossings, and the Notification states that these stream crossings are in good condition and meeting current performance standards. Existing stream crossings disclosed in the Notification, but not included as 1602 projects with fees, are not covered under this Agreement. If maintenance (such as

armoring) and/or replacement becomes necessary, that work must be covered by a major amendment or a separate Notification.

The Notification also discloses the use of two water wells located at: Well #1: 40.0815, -123.6763; and Well#2: 40.0832, -123.6804. CDFW did not evaluate hydraulic connection of the well to surface water, nor was a hydrogeologic evaluation prepared by a licensed geologist provided for CDFW review. Based on the available resources, and the site inspection, the wells may be hydraulically connected to streams and/or springs and shall be evaluated for potential impacts from commercial cannabis irrigation use through Humboldt County's cannabis cultivation permit (PLN-11506-SP).

No other projects that may be subject to FGC section 1602 were disclosed. This Agreement does not retroactively permit any constructed reservoirs (including "ponds"), stream crossings, water diversions, modifications to riparian buffers, or other encroachments not described in Table 1.

PROJECT IMPACTS

Existing fish or wildlife resources the project could substantially adversely affect include **Chinook Salmon** (*Oncorhynchus tshawytscha*), **Coho Salmon** (*O. kisutch*), **Steelhead Trout** (*O. mykiss*), **Western Brook Lamprey** (*Lampetra richardsoni*), **Pacific Lamprey** (*Entosphenus tridentatus*), **Southern Torrent Salamander** (*Rhyacotriton variegatus*), **Pacific Giant Salamander** (*Dicamptodon tenebrosus*), **Foothill Yellow-legged Frog** (*Rana boylii*), **Coastal Tailed Frog** (*Ascaphus truei*), **Western Pond Turtle** (*Actinemys marmorata marmorata*), amphibians, reptiles, aquatic invertebrates, mammals, birds, and other aquatic and riparian species.

The adverse effects the project could have on the fish or wildlife resources identified above include:

Impacts to water quality:
increased water temperature;
increased turbidity;
increased sedimentation (chronic or episodic);

Impacts to bed, channel, or bank and direct effects on fish, wildlife, and their habitat:
loss or decline of riparian habitat;
loss or decline of instream channel habitat;
direct impacts on benthic organisms;
direct and/or incidental take of aquatic and/or terrestrial organisms;

Impacts to natural flow and effects on habitat structure and process:
reduced instream flow;
cumulative effect of diversions in the watershed;

impediment of up- or down-stream movement;
water quality degradation; and
damage to aquatic habitat and function.

MEASURES TO PROTECT FISH AND WILDLIFE RESOURCES

1. Administrative Measures

Permittee shall meet each administrative requirement described below.

1.1 Documentation at Project Site. Permittee shall make the Agreement, any extensions and amendments to the Agreement, and all related notification materials and California Environmental Quality Act (CEQA) documents, readily available at the project site at all times and shall be presented to CDFW personnel, or personnel from another state, federal, or local agency upon request.

1.2 Providing Agreement to Persons at Project Site. Permittee shall provide copies of the Agreement and any extensions and amendments to the Agreement to all persons who will be working on the project at the project site on behalf of Permittee, including but not limited to contractors, subcontractors, inspectors, and monitors.

1.3 Notification of Conflicting Provisions. Permittee shall notify CDFW if Permittee determines or learns that a provision in the Agreement might conflict with a provision imposed on the project by another local, state, or federal agency. In that event, CDFW shall contact Permittee to resolve any conflict.

1.4 Project Site Entry. Permittee agrees to allow CDFW employees access to the Project site for the purpose of inspecting and/or monitoring, provided CDFW: a) provides 24 hours advance notice; and b) allows Permittee or representatives to participate in the inspection and/or monitoring. This condition does not apply to CDFW law enforcement personnel.

1.5 Applicable Permits. Land development or alterations may be subject to additional federal, state and local laws, regulations, and permitting requirements, including but not limited to the following:

- The Clean Water Act (CWA) as implemented through permits, enforcement orders, and self-implementing requirements. When needed per the requirements of the CWA, Permittee shall obtain a CWA section 404 (33 U.S.C. § 1344) permit from the United States Army Corps of Engineers (Army Corps) and a CWA section 401 (33 U.S.C. § 1341) water quality certification from the State Water Board or the Regional Water Board with jurisdiction.

- The California Water Code as implemented through applicable water quality control plans (often referred to as Basin Plans), waste discharge requirements (WDRs) or waivers of WDRs, enforcement orders, and self-implementing requirements issued by the State Water Resources Control Board (State Water Board) or Regional Water Quality Control Boards (Regional Water Boards).
- All applicable state, city, county, or local regulations, ordinances, or license requirements including, but not limited to those for grading, construction, and building.
- All applicable requirements of the California Department of Forestry and Fire Protection (CAL FIRE), including the Board of Forestry.

1.6 Cannabis Cultivation Policy. If commercial cannabis cultivation occurs on the project parcel, the State Water Resources Control Board (SWRCB) requires enrollment in the Cannabis Cultivation General Order and compliance with the Cannabis Cultivation Policy - Principles and Guidelines for Cannabis Cultivation, available at: https://www.waterboards.ca.gov/water_issues/programs/cannabis/cannabis_policy.html

1.6.1 Site Management Plan and Related Technical Reports. Permittee shall submit to CDFW the initial preparation and subsequent updates to the project's Site Management Plan and related technical reports prepared in conformance with the SWRCB Cannabis Cultivation Policy.

1.7 Water Rights. This Agreement does not constitute a valid water right. All water diversion facilities that Permittee owns, operates, or controls shall be operated and maintained in accordance with current law and applicable water rights. Water rights are administered by the State Water Resources Control Board as described here: https://www.waterboards.ca.gov/waterrights/water_issues/programs/registrations/.

1.8 Change of Conditions and Need to Cease Operations. If conditions arise, or change, in such a manner as to be considered deleterious by CDFW to the stream or fish and wildlife, operations shall cease until corrective measures approved by CDFW are taken. This includes new information that indicates bypass flows, diversion rates or other measures provided in this Agreement are not providing adequate protection to keep aquatic life downstream in good condition or to avoid "take" or "incidental take" of federal or State listed species.

1.9 Notification Materials. Permittee's Notification of Lake or Streambed Alteration, together with all maps, plans, photographs, drawings, and all other supporting documents submitted with the Notification and received on March 6, 2019, with additional information obtained during a July 23, 2019 CDFW site visit, and revised on June 25, 2020 is hereby incorporated by reference into this Agreement. Permittee shall conduct project activities within the work areas, and using the

protective measures, described in the Notification and supporting documents, unless such project activities, work areas or protective measures are modified by the provisions of this Agreement, in which case the activities shall be conducted as described in this Agreement.

2. Avoidance and Minimization Measures

To avoid or minimize adverse impacts to fish and wildlife resources identified above, Permittee shall implement each measure listed below.

Work Periods and Pre-Project Notice

2.1 Work Period. All work, not including authorized diversion of water, shall be confined to the period **June 15 through October 15** of each year. Work within the active channel of a stream shall be restricted to periods of **dry weather**. Permittee shall monitor precipitation forecasts and potential increases in stream flow when planning construction activities. Construction activities shall cease, and all necessary erosion control measures shall be implemented prior to the onset of precipitation. A notice of completed work, including dates of activities and photographs of each site, shall be submitted to CDFW within seven (7) days of project completion.

2.2 CDFW Notification of Work Initiation and Completion. Permittee shall contact CDFW in writing within the 7-day period preceding the beginning of work permitted by this Agreement. Information provided shall include Agreement number, and the anticipated start date. Subsequently, Permittee shall notify CDFW in writing no later than seven (7) days after the project is fully completed. **Notification of completion will include photographs of the completed work, erosion control measures, waste containment and disposal, and a summary of any CNDDB submissions as required below.**

2.3 Work Period Extension Requests. If Permittee needs more time to complete the project, CDFW may grant a work period extension on a day-to-day basis. Extension requests shall be made in writing before **October 5** of each year and shall: 1) describe the extent of work already completed; 2) detail the uncompleted activities; 3) detail the time required to complete each remaining activity; and 4) provide photographs of the completed work site(s) and remaining work. Requests shall describe the effects of increased stream flows, rain delays, increased erosion control measures, access constraints caused by saturated soils, and anticipated effects of climatic conditions on growth of erosion control grasses. Work period extensions are issued at the discretion of CDFW. CDFW will review the written request and may require additional measures to protect fish and wildlife resources.

General Stream Protection Measures

2.4 Prohibition of Live Stream Work. No work is authorized in a live flowing stream. All work shall be conducted when the stream is dry. Permittee shall notify CDFW if it determines that work in a live flowing stream is required to complete a project and will submit a diversion plan.

2.5 Maintain Passing of Fish Up and Down Stream. It is unlawful to construct or maintain in any stream any device or contrivance that prevents, impedes, or tends to prevent or impede, the passing of fish (as defined in FGC Section 45 "fish" means a wild fish, mollusk, crustacean, invertebrate, amphibian, or part, spawn, or ovum of any of those animals) up and down stream pursuant to FGC section 5901.

2.6 Decontamination. Permittee shall ensure all project personnel adhere to the Northern Region California Department of Fish and Wildlife Aquatic Invasive Species Decontamination Protocol for all field gear and equipment that will be in contact with water. Heavy equipment and other motorized or mechanized equipment that contacts water shall adapt watercraft decontamination protocols found in the AIS Decontamination Protocol.
https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=92821&inline

2.7 Staging and Storage. Staging and storage areas for equipment, materials, fuels, lubricants and solvents shall be located outside of the stream channel and banks, and away from riparian vegetation. Structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the ordinary high-water mark before such flows occur or at the end of the yearly work period, whichever occurs first.

2.8 Equipment and Vehicle Leaks. Equipment or vehicles operated in or near the stream shall be checked and maintained daily to prevent leaks. Stationary equipment (e.g. motors, pumps, generators, welders, etc.) in or near the stream shall be positioned over drip pans. Stationary heavy equipment shall have sufficient containment to manage catastrophic spills or leaks.

2.9 Hazardous Substances. Debris, soil, silt, bark, slash, sawdust, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any substance or material deleterious to fish, plant life, mammals, or bird life, or their habitat, shall be prevented from contaminating the soil and/or entering the waters of the State, pursuant to FGC Sections 5650 and 5652. Permittee shall ensure hazardous or toxic materials are stored in watertight containers and promptly removed from the worksite.

2.10 Spill Containment and Cleanup. All authorized activities performed in or near a stream shall have on-site cleanup equipment (e.g. boom, skimmers, etc.) and absorbent materials for spill containment and cleanup prior to the start of work and

for the duration of the project. In the event of a spill, Permittee shall immediately notify the California Office of Emergency Services State Warning Center at 1-800-852-7550 and initiate clean-up. Permittee shall immediately notify CDFW of any spills and shall follow CDFW cleanup procedures and guidance.

2.11 Stockpiled Materials. Materials shall not be stockpiled where they may wash into the stream or cover aquatic or riparian vegetation. Permittee shall monitor the National Weather Service (NWS) 72-hour forecast for the project area and cover stockpiles if NWS predicts precipitation.

2.12 Erosion Control. Permittee shall implement erosion control measures throughout all phases of operation where sediment delivery could occur. Silt fences, straw bales, gravel or rock lined ditches, water check bars, broadcasted weed-free straw, or other approved erosion control measures shall be used wherever sediment has the potential to leave the work site and enter the stream.

2.13 Silt Laden Runoff. At no time shall silt laden runoff enter the stream or be directed to where it may enter the stream. Silt control structures shall be monitored for effectiveness and shall be repaired or replaced as needed.

2.14 Disposal and Removal of Material. Permittee shall remove from the work area, and relocate outside of the stream and riparian area, all spoils and construction debris prior to inundation. All removed material and debris shall be disposed of according to State and local laws and ordinances.

2.15 Waste Containment and Disposal. Permittee shall contain all refuse in enclosed, wildlife proof, storage containers, at all times, and relocate refuse to an authorized waste management facility, in compliance with State and local laws, on a regular and ongoing basis. All refuse shall be removed from the site and properly disposed of at the close of the cultivation season and/or when the parcel is no longer in use.

2.16 Wash Water. Water containing mud, silt, or other pollutants from equipment washing or other activities, shall not be allowed to enter a lake or flowing stream or placed in locations that may be subjected to high storm flows.

2.17 Allow Wildlife to Leave Unharmed. Permittee shall allow any wildlife encountered to leave the project area unharmed. This Agreement does not allow for the trapping, capture, or relocation of any state or federally listed species.

2.18 Escape Ramp in Trench. At the end of each work day, Permittee shall place an escape ramp at each end of any open trench deeper than six inches with walls greater than 30 degrees to allow entrapped animals to escape. The ramp may be constructed of either dirt fill, non-treated wood, or other suitable material placed at an angle no greater than 30 degrees.

2.19 Prohibition Against Use of Plastic Netting in Erosion Control Measures. Permittee shall not use erosion control devices containing plastic, including photo- or biodegradable plastic netting. Erosion control mats, blankets, and straw or fiber wattles shall consist entirely of natural fiber.

2.20 Remove Temporary Flagging, Fencing, and Barriers. Permittee shall remove all temporary flagging, fencing, and/or barriers from the project site and vicinity of the stream upon completion of project activities.

Special Status Species Avoidance and Minimization

2.21 Prohibition on Take of Listed Species. This agreement does not authorize the take or incidental take of any State or Federal listed threatened or endangered listed species. State Listed or Fully Protected Species include any native plant species listed as rare under the Native Plant Protection Act (FGC, § 1900 et seq.; Cal. Code Regs., tit. 14, § 670.2), any species that is listed or is a candidate for listing under the California Endangered Species Act (FGC Code, § 2080 et seq.; Cal. Code Regs., tit. 14, §§ 670.2, 670.5), or any fully protected species (FGC, §§ 3511, 4700, 5050, 5515). Permittee shall consult with the appropriate agency prior to commencing the project.

2.22 Avoidance of Nesting Birds. Permittee shall avoid nests occurring within and near the project site pursuant to the Migratory Bird Treaty Act of 1918 and FGC section 3503. Vegetation maintenance/removal shall be confined to the period **September 1 to January 31** of any year in which this Agreement is valid, provided the work area is outside the stream. Vegetation maintenance/removal may continue during precipitation events provided stream flows have not risen into work areas and sediment delivery will not result.

2.23 Nesting Bird Survey Before Commencement. If vegetation removal or other project-related improvements that could impact nesting birds are scheduled during the nesting season (typically **February 1 to August 31**), Permittee shall contact CDFW's Environmental Scientist [insert contact name] to determine if a biologist is needed for the project. If approved by CDFW, the biologist shall survey for active bird nests within seven (7) days prior to the beginning of project-related activities. Surveys shall begin prior to sunrise and continue until vegetation and nests have been sufficiently observed. The results of the survey shall be submitted to CDFW by email within three (3) business days of survey completion. Survey results shall include a description of the area surveyed, time and date of surveys, ambient conditions, species observed, active nests observed, evidence of breeding behaviors (e.g., courtship, carrying nesting material or food), and a description of any outstanding conditions that may have impacted survey results (e.g. weather conditions, excess noise, predators present). If an active nest is found, the Permittee shall avoid disturbance and destruction of the nest by implementing avoidance measures. If the nest cannot be avoided, the Permittee shall consult

with CDFW regarding appropriate action to comply with the Fish & Game Code section 3503. If a lapse in project-related work of seven (7) days or longer occurs, another focused survey and if required, consultation with CDFW, will be required before project work can be reinitiated.

2.24 Special-Status Plants. If Special-Status plants (State listed and taxa that meet the definition of Rare or Endangered under CEQA Guidelines 15380) may occur on the project site, the Designated Biologist shall conduct seasonally-appropriate surveys of the area to document potential effects prior to the implementation of Project-related activities. If populations of any of these species are found:

2.24.1 Exclusion fencing shall be installed a minimum of 100 feet from the location of special-status plants, and no Project activity shall occur within the area occupied by special-status plants or the 100-foot buffer area around these plants.

2.24.2 If special-status plant populations are found on the Project site and it is not feasible to avoid them during Project-related activities, the Project applicant shall consult with CDFW to determine if the project may be covered under this Agreement. Separate notification pursuant to FGC section 1602 may be required in some instances.

Vegetation Management

2.25 Riparian Buffers. Riparian buffers shall be not be modified, unless authorized by CDFW in writing.

2.26 Minimum Vegetation Removal. No native riparian vegetation shall be removed, except where authorized by CDFW. Permittee shall limit the disturbance or removal of native vegetation to the minimum necessary to achieve design guidelines and standards for the authorized activity. Permittee shall take precautions to avoid damage to vegetation outside the work area.

2.27 Vegetation Maintenance. Permittee shall limit vegetation management (e.g., trimming, pruning, or limbing) and removal for the purpose of the authorized activity to the use of hand tools. Vegetation management shall not include treatment with herbicides.

2.28 Invasive Plant Species. Permittee shall not plant, seed or otherwise introduce invasive plant species within the Project area. Invasive plant species include those identified in the California Invasive Plant Council's inventory database, which is accessible at: https://www.cal-ipc.org/plants/inventory/.

2.36 Intake Screens on Non-Fish Bearing Streams. All intakes shall be screened and openings in the screen shall not exceed 1/8 inch diameter (horizontal for slotted or square openings) or 3/32 inch for round openings.

2.37 Intake Shall Not Impede Aquatic Species Passage. Water diversion structures shall be designed, constructed, and maintained such that they do not constitute a barrier to upstream or downstream movement of aquatic life.

2.38 Exclusionary Devices. Permittee shall keep diversion-related structures covered at all times to prevent the entrance and entrapment of amphibians and other wildlife.

2.39 Diversion Intake Removal. Permittee shall plug, cap, block (e.g., with a shut-off valve located near the source), or remove all intakes when no water diversion is planned for a period of one week or longer.

2.40 Heavy Equipment Use. No heavy equipment shall be used in the excavation or replacement of the existing water diversion structure. Permittee shall use hand tools or other low impact methods of removal/replacement. All project materials and debris shall be removed from the project site and properly disposed of off-site upon project completion.

Diversion to Storage

2.41 Water Storage. All water storage facilities (WSFs) (e.g., reservoirs, storage tanks, mix tanks, and bladders tanks), except those specifically authorized by CDFW and included as encroachments in a current Agreement, shall be located outside the active 100-year floodplain. Covers/lids shall be securely affixed to water tanks to prevent entry by wildlife. Permittee shall cease all water diversion at the POD when WSFs are full.

2.42 Water Storage Maintenance. WSFs shall have float valves to prevent overfilling. Water shall not leak, overflow, or overtop WSFs at any time. Permittee shall regularly inspect all WSFs and water diversion infrastructure, and immediately repair leaks.

2.43 Water Conservation. Permittee shall make best efforts to minimize water use, and to follow best practices for water conservation and management.

2.44 Limitations on Impoundment and Use of Diverted Water. Permittee shall impound and use water in accordance with a valid water right, including any limitations on when water may be impounded and used, the purpose for which it may be impounded and used, and the location(s) where water may be impounded and used.

Stream Crossings

2.45 Road Approaches. Permittee shall treat road approaches to new or re-constructed crossings to minimize erosion and sediment delivery to the stream. Permittee shall ensure road approaches are hydrologically disconnected to the maximum extent feasible to prevent sediment from entering the crossing site, including during the construction or reconstruction of a stream crossing. Road approaches shall be armored from the crossing for a minimum of 50 feet in both directions, or to the nearest effective water bar or point where road drainage does not drain to the crossing, with durable, clean, screened, angular rock.

2.46 Excavated Fill. Excavated fill material shall be placed in upland locations where it cannot deliver to a watercourse. To minimize the potential for material to enter the stream, all excavated and relocated fill material shall be tractor contoured (to drain water) and tractor compacted to effectively incorporate and stabilize loose material into existing road and/or landing features.

2.47 Runoff from Steep Areas. Permittee shall make preparations so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential, or contained behind erosion control structures. Erosion control structures such as straw bales and/or siltation control fencing shall be placed and maintained until the threat of erosion ceases. Frequent water checks shall be placed on dirt roads, cat tracks, or other work trails to control erosion.

2.48 No Equipment in Wetted Areas. No heavy equipment shall enter the wetted stream channel.

2.49 Fill Materials. No fill material, other than clean rock, shall be placed in the stream channel.

2.50 Material Sizing. Rock shall be sized to withstand washout from high stream flows and extend above the ordinary high-water level.

2.51 Crossing Maintenance. Permittee shall provide site maintenance for the life of the structures, including, but not limited to, re-applying erosion control to minimize surface erosion and ensuring drainage structures, streambeds and banks remain sufficiently armored and/or stable. Permanent culverts shall be maintained and kept open year-round. Permittee is responsible for such maintenance as long as the culvert remains in the stream.

2.52 Armoring. The placement of armoring shall be confined to the work period when the stream is dry or at its lowest flow.

2.53 Armor Placement. Rock armoring shall not constrict the natural stream channel width and shall be keyed into a footing trench with a depth sufficient to prevent instability.

2.54 Crossing Decommissioning. When stream crossings and fills are removed, all fill shall be excavated down to the original stream channel and outwards, horizontally, as wide as or wider than the natural channel to form a channel as close as feasible to the natural stream grade and alignment. The restored stream bank slopes shall be no steeper than a 2:1 slope (horizontal: vertical) or natural slope. Restored slopes shall be stabilized to prevent slumping and to minimize soil erosion that could lead to sediment deposition into Waters of the State.

Culvert Installation

2.55 Permanent Culvert Sizing. Permanent culverts shall be sized to accommodate the estimated 100-year flood flow [i.e. ≥1.0 times the width of the bankfull channel width or the 100-year flood size, whichever is greater], including debris, culvert embedding, and sediment loads (Cafferata et al. 2017, Designing Watercourse Crossings for Passage of 100-Year Flood Flows, Wood, and Sediment). http://timbertraining.resources.ca.gov/mod/resource/view.php?id=378

2.56 Critical Dips. Where diversion potential exists, a critical dip shall be installed to direct flood flow over the crossing fill and back into the channel. Critical dips shall be constructed to accommodate the entire estimated 100-year flood flow and may be installed by lowering the existing fill over the crossing or by constructing a deep, broad rolling dip over the crossing surface to prevent flood flow from diverting down the road.

2.57 Culvert Materials in High Fire Zones. If the project is located in a high to very high Fire Hazard Severity Zone as designated by CAL FIRE, CDFW recommends culvert materials consist of corrugated metal pipe. Use of High-Density Polyethylene pipe is discouraged. https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/

2.58 Fill Material. Existing fill material in the crossing shall be excavated down vertically to the approximate original channel and outwards horizontally to the approximate crossing hinge points (transition between naturally occurring soil and remnant temporary crossing fill material) to remove any potential unstable debris and voids in the older fill prism.

2.59 Culvert Grade. Culvert shall be installed to grade (not perched or suspended), aligned with the natural stream channel, and extend lengthwise completely beyond the toe of fill. If culvert cannot be set to grade, it shall be placed in the lower third of the fill face, and a downspout or energy dissipator (such as boulders, rip-rap, or rocks) shall be installed above or below the outfall as needed to effectively control stream bed, channel, or bank erosion (scouring, headcutting, or downcutting). Permittee shall ensure basins are not constructed and channels are not widened at culvert inlets.

2.60 Culvert Bed. Culvert bed shall be composed of either compacted rock-free soil or crushed gravel. Bedding beneath the culvert shall provide for even distribution of the load over the length of the pipe, and allow for natural settling and compaction to help the pipe settle into a straight profile. The crossing backfill materials shall be free of rocks, limbs, or other debris that could allow water to seep around the pipe, and shall be compacted. No geotextile fabric shall be placed in the culvert bed, streambed, bank or channel.

2.61 Culvert Armoring. Culvert inlet, outlet (including the outfall area), and fill faces shall be armored where stream flow, road runoff, or rainfall energy is likely to erode fill material and the outfall area.

Fords, Armored, and Vented Crossings

2.62 Design Capacity. Fords, armored, and vented crossings are considered permanent watercourse encroachments and shall be designed and sized to accommodate the 100-year flood flow plus associated sediment and debris.

2.63 Crossing Maintenance. Fords, armored, and vented crossings and hydrologically-connected road approaches shall be maintained as necessary to avoid delivery of fine sediment to the watercourse below.

2.64 Outslope Crossings. Fords, armored, and vented crossings shall be sufficiently outsloped to minimize aggradation of suspended sediments at the crossing.

2.65 Crossing Alignment. The lowest point of fords, armored, and vented crossings shall be constructed within or directly over the original stream channel, to the extent feasible, in order to contain high flows up to twice bankfull and to avoid diversion potential.

2.66 Crossing Materials. Armor material shall be comprised of durable angular screened quarry rock of sufficient size and placement to minimize mobilization during a 100-year storm event. Wood may be used for armoring if sound, tight-grained, redwood is applied and sufficiently keyed into the fillslope to resist movement during a 100-year storm event.

2.66.1 If maximum fill heights exceed 15 feet or fill volumes exceed 500 cubic yards, rock sizing, armoring thickness, chute width and chute depth shall be calculated and sized using the nomograph provided in Figure 23 (Simplified Design of Rock-armored Crossings) of Cafferata et al. (2017).

2.67 Scour Prevention. Stream crossing spillway fill slopes shall be armored from roadbed to the natural channel in a manner sufficient to prevent scour or removal of armor during high flows. Scour is expected through road surface rock cap.

2.68 No Geotextiles in Stream. No geotextile fabric shall be placed in the streambed, bank or channel.

2.69 Ford Use. Fords shall only be used when the fording surface is dry.

3. Reporting Measures

Permittee shall meet each reporting requirement described below.

3.1 CDFW Notification of Work Initiation. Permittee shall contact CDFW within the seven-day period **preceding the beginning of work** permitted by this Agreement. Information to be disclosed shall include Agreement number, and the anticipated start date.

3.2 Work Completion. The proposed work shall be completed by no later than **October 15, 2024. Notification of completion will include dates work occurred, photographs of work stages and the completed work, erosion control measures, waste containment and disposal, and a summary of any CNDDB submissions** and shall be submitted to CDFW, LSA program at 619 Second Street, Eureka, CA 95501 **within seven (7) days** of project completion.

3.3 Project Inspection. The Project shall be inspected a by licensed professional to ensure that the stream crossings were installed and functioning as designed and in accordance with this Agreement, and/or the stream restoration was implemented and is functioning as designed and/or the diversion infrastructure complies with the terms of this Agreement. A copy of the inspection report, including photographs of each site, shall be submitted to CDFW within 90 days of completion of each separate project. Permittee shall submit the **Project Inspection Report** to CDFW, LSA Program at 619 Second Street, Eureka, CA 95501.

3.4 Measurement of Diverted Flow. Copies of the **Water Diversion Records** shall be submitted to CDFW, LSA Program at 619 Second Street, Eureka, CA 95501 no later than **March 31** of each year beginning in **2021,** to report the preceding year's diversion.

3.5 Site Management Plan and Related Technical Reports. Permittee shall submit to CDFW the project's current draft of the Site Management Plan and related technical reports if it was not included in the Notification. If the Site Management Plan and/or related technical reports are still in preparation, Permittee shall submit it and all subsequent revisions and updates within **30 days** of submittal to the SWRCB.

3.6 Notification to the California Natural Diversity Database. If any special status species are observed at any time during the project, the Designated Biologist shall submit California Natural Diversity Data Base (CNDDB) forms to the CNDDB

within **five (5) working days** of the sightings. A summary of CNDDB submissions shall be included with the completion notification. Forms and instructions for submissions to the CNDDB may be found at: https://www.wildlife.ca.gov/Data/CNDDB/Submitting-Data.

CONTACT INFORMATION

Any communication that Permittee or CDFW submits to the other shall be submitted as follows:

To Permittee:

Kevin Peak
PO Box 1951
Redway, California 95560
kevindpeak@gmail.com

To CDFW:

Department of Fish and Wildlife
Northern Region
619 2nd Street
Eureka, California 95501
Attn: LSAA#1600-2019-0159-R1

LIABILITY

Permittee shall be solely liable for any violation of the Agreement, whether committed by the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents or contractors and subcontractors, to complete the project or any activity related to it that the Agreement authorizes.

This Agreement does not constitute CDFW's endorsement of, or require the Permittee to proceed with the project. The decision to proceed with the project is the Permittee's alone.

SUSPENSION AND REVOCATION

CDFW may suspend or revoke in its entirety this Agreement if it determines that the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, is not in compliance with the Agreement.

Before CDFW suspends or revokes the Agreement, it shall provide the Permittee written notice by certified or registered mail that it intends to suspend or revoke. The notice shall state the reason(s) for the proposed suspension or revocation, provide the

Permittee an opportunity to correct any deficiency before CDFW suspends or revokes the Agreement, and include instructions to the Permittee, if necessary, including but not limited to a directive to immediately cease the specific activity or activities that caused CDFW to issue the notice.

ENFORCEMENT

Nothing in the Agreement precludes CDFW from pursuing an enforcement action against the Permittee instead of, or in addition to, suspending or revoking the Agreement.

Nothing in the Agreement limits or otherwise affects CDFW's enforcement authority or that of its enforcement personnel.

OTHER LEGAL OBLIGATIONS

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with, or obtaining any other permits or authorizations that might be required under, other federal, state, or local laws or regulations before beginning the project or an activity related to it. For example, if the project causes take of a species listed as threatened or endangered under the Endangered Species Act (ESA), such take will be unlawful under the ESA absent a permit or other form of authorization from the U.S. Fish and Wildlife Service or National Marine Fisheries Service.

This Agreement does not relieve Permittee or any person acting on behalf of Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, from complying with other applicable statutes in FGC including, but not limited to, FGC sections 2050 *et seq*. (threatened and endangered species), section 3503 (bird nests and eggs), section 3503.5 (birds of prey), section 5650 (water pollution), section 5652 (refuse disposal into water), section 5901 (fish passage), section 5937 (sufficient water for fish), and section 5948 (obstruction of stream).

Nothing in the Agreement authorizes the Permittee or any person acting on behalf of the Permittee, including its officers, employees, representatives, agents, or contractors and subcontractors, to trespass.

AMENDMENT

CDFW may amend the Agreement at any time during its term if CDFW determines the amendment is necessary to protect an existing fish or wildlife resource.

The Permittee may amend the Agreement at any time during its term, provided the amendment is mutually agreed to in writing by CDFW and the Permittee. To request an

amendment, the Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the corresponding amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

TRANSFER AND ASSIGNMENT

This Agreement may not be transferred or assigned to another entity, and any purported transfer or assignment of the Agreement to another entity shall not be valid or effective, unless the transfer or assignment is requested by the Permittee in writing, as specified below, and thereafter CDFW approves the transfer or assignment in writing.

The transfer or assignment of the Agreement to another entity shall constitute a minor amendment, and therefore to request a transfer or assignment, the Permittee shall submit to CDFW a completed CDFW "Request to Amend Lake or Streambed Alteration" form and include with the completed form payment of the minor amendment fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5).

EXTENSIONS

In accordance with FGC section 1605, subdivision (b), Permittee may request one extension of the Agreement, provided the request is made prior to the expiration of the Agreement's term. To request an extension, Permittee shall submit to CDFW a completed CDFW "Request to Extend Lake or Streambed Alteration" form and include with the completed form payment of the extension fee identified in CDFW's current fee schedule (see Cal. Code Regs., tit. 14, § 699.5). CDFW shall process the extension request in accordance with FGC section 1605, subdivisions (b) through (e).

If Permittee fails to submit a request to extend the Agreement prior to its expiration, Permittee must submit a new notification and notification fee before beginning or continuing the project the Agreement covers (Fish & G. Code § 1605, subd. (f)).

EFFECTIVE DATE

The Agreement becomes effective on the date of CDFW's signature, which shall be: 1) after the Permittee signature; 2) after CDFW complies with all applicable requirements under CEQA; and 3) after payment of the applicable FGC section 711.4 filing fee listed at: https://www.wildlife.ca.gov/Conservation/CEQA/Fees.

TERM

This Agreement shall **expire five (5) years** from date of execution, unless it is terminated or extended before then. All provisions in the Agreement shall remain in force throughout its term. The Permittee shall remain responsible for implementing any

provisions specified herein to protect fish and wildlife resources after the Agreement expires or is terminated, as FGC section 1605, subdivision (a)(2) requires.

AUTHORITY

If the person signing the Agreement (signatory) is doing so as a representative of Permittee, the signatory hereby acknowledges that he or she is doing so on Permittee's behalf and represents and warrants that he or she has the authority to legally bind Permittee to the provisions herein.

AUTHORIZATION

This Agreement authorizes only the project described herein. If Permittee begins or completes a project different from the project the Agreement authorizes, Permittee may be subject to civil or criminal prosecution for failing to notify CDFW in accordance with FGC section 1602.

CONCURRENCE

The undersigned accepts and agrees to comply with all provisions contained herein.

FOR KEVIN PEAK

K Peak
Kevin Peak (Nov 16, 2020 16:03 PST)

Kevin Peak

Nov 16, 2020

Date

FOR DEPARTMENT OF FISH AND WILDLIFE

Cheri Sanville
Senior Environmental Scientist Supervisor

Date

Prepared by: Andrew Orahoske, Environmental Scientist, October 2, 2020

BLAIR FORESTRY CONSULTING

Providing Professional Forestry Services

PO Box 2517
McKinleyville, CA 95519

CELL 707.834.2990
EMAIL blairforestry@gmail.com

RECEIVED
DEC 11 2020

August 14, 2020

Teisha M. Mechetti - Ag Dynamics Consulting
512 I St.
Eureka, CA 95501

Dear Teisha:

Please see the attached initial biological scoping report for APNs 216-082-002 and 216-082-006. We have conducted a review of relevant databases and literature regarding the possible presence of special status plant and animal species within the project area. A site inspection was conducted to review site conditions and to evaluate the potential for the presence of sensitive biological resources in your project area. This report is intended to provide you and your client with information to aid in projecting project feasibility and cost concerning environmental constraints.

Please contact us with any questions or if you need any additional assistance.

Sincerely,
Blair Forestry Consulting

Thomas F. Blair, Registered Professional Forester 2607

I. Introduction

This Initial Biological Scoping Inspection and Report is intended to provide the landowner with information to aid in projecting project feasibility and cost concerning environmental constraints. The Initial Biological Scoping Inspection and Report is not to be mistaken as a full-on Biological Assessment. A review of relevant biological databases and literature concerning the possible presence of special status plant and animal species and natural communities was conducted prior to visiting the property. The subsequent site visit was done in order to assess site-specific conditions and determine whether required or preferred habitat characteristics were present for special status plants, animals, and natural communities. This information can be used to determine the likelihood of the project having negative impacts to biological resources moving forward. A site inspection was conducted by Alexander Powell B.S. on June 16, 2020. All information concerning existing and proposed cultivation activities in this scoping report was provided by the landowner.

II. Project Descriptions

The Peak Cannabis Cultivation Project, operating under Peaksview, INC, involves existing (Project Area #1) and proposed (Project Area #2) marijuana growing operations on Assessor's Parcel Numbers (APN) 216-082-002 & 216-082-006, respectively. The project area is located near the community of Harris, approximately 6 air miles east of the town of Garberville, in Humboldt County, California. To access the property, drive 8.6 miles up Alderpoint Rd., take Bell Springs Road approximately 1.4 miles to a gate on the right. The legal description of the property is Section 25 of Township 4 South, Range 4 East, HBM. The parcels are situated along the southwest side of Mail Ridge about 0.9 miles west of the small community of Harris (See Figures 1 and 2, General Location Map and Property and Project Overview Map).

APN 216-082-002

Project Area #1 is currently operating on a 151-acre parcel (APN 216-082-002) under an Interim permit (APPS No: 11506). Because existing cannabis operations on this permit were in present prior to 2016, potentially negative effects to biological resources would be assessed under the Commercial Medical Marijuana Land Use Ordinance (CMMLUO), also referred to as "Ordinance 1.0". This project proposes 4,440 sq. ft. of existing wholesale nursery space (Cultivation Site B) and proposes to reconstruct pre-existing nursery for wholesale use in the amount of 9,600 sq. ft. (Cultivation Site C). Currently existing operations in the 8,460 sq. ft. greenhouse (Cultivation Site A) will be decommissioned along the eastern side where they fall within the 50 ft. riparian setback of a Class III watercourse.

The 8,640 sq. ft. greenhouse system at the existing primary Cultivation Site A is a hard-walled polycarbonate sided structure manufactured by Conley's Greenhouse Manufacturing and Sales. The greenhouses have been constructed on a sloped concrete pad to manage excess water. The system appears self-contained and somewhat sealed and isolated from outdoor elements. The system is automated to regulate temperature using a series of six (6) intake fans along the west side and a swamp cooler system along the east side. Light depravation covers inside the structure work on an automated

accordion-like system that blocks all light from entering or exiting when fully extended. Blackout tarps are manually pulled over the existing nursery greenhouse at Cultivation Site B.

Power for operations at Project Area A is supplied by two (2) MQ Power Whisperwatt generators (36 kW and 220 kW). Water for cultivation come from an existing well and water storage capacity is approximately 25,000 gallons. There is a house, a garage/office, and other smaller outbuildings for generators, fuel storage water, and water treatment located on the parcel (See Figure 3, Project Area #1 Biological Assessment Map). Figure 4 shows a Plot Plan map produced by Humboldt Drafting Services showing detailed locations of existing and proposed components of cultivation operations on APN 216-082-002.

APN 216-082-006

Project Area #2 is a proposed cannabis cultivation project on a 173-acre parcel (APN 216-082-006) and is approximately 2,000 feet northwest of Project Area #1. Potentially negative effects to biological resources to new proposed cannabis projects are assessed under the Commercial Cannabis Land Use Ordinance (CCLUO), also referred to as "Ordinance 2.0". This project proposes 43,200 sq. ft. of mixed-light cannabis cultivation and a 12,960 sq. ft. mixed light nursery, both using artificial supplemental lighting.

The property owner intends to mimic and expand the greenhouse system currently utilized at Cultivation Site A on Project Area #1 and explained above. Water would come from a proposed rainwater catchment system and a 1-million-gallon pond the landowner is proposing to build on the eastern side of the parcel. Power for artificial lighting would presumably involve generators (at least as back-up to solar power if solar is proposed). Figure 5 shows a Plot Plan map produced by Humboldt Drafting Services showing planned locations of components for proposed cultivation on APN 216-082-006.

Habitat for some sensitive biological resources, such as plants and animals, is present on the property and surrounding areas. As such, the landowner has requested that Blair Forestry, LLC provide a biological scoping report addressing the environmental constraints concerning the potential presence of special status plants and animals on, and adjacent to, the Project Areas.

III. Definitions

Sensitive Biological Resources

<u>Special Status Species</u>

Special status species include animals and plants that are listed under the Endangered Species Act (ESA) and/or the California Endangered Species Act (CESA), in addition to species that meet the definition of rare or endangered under the California Environmental Quality Act (CEQA). This includes CDFW Species of Special Concern (SSC) and Fully Protected (FP) and other species that warrant protection based on local or biological significance. Plants with a California Rare Plant Ranks (CRPR) of 1A, 1B, 2A, or 2B are also considered to be Special Status Species.

Special Status Natural Communities

Special status plant communities are communities with limited distribution that may be vulnerable to environmental impacts. Natural communities recognized as sensitive are provided on the Sensitive *Natural Communities List* (California Department of Fish and Wildlife (CDFW 2018). The list is based on the vegetation classification in *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009). Natural communities with G or S ranks of 3 or lower are considered sensitive. However, they may not warrant protection under CEQA unless they are considered high quality. Human disturbance, invasive species, logging, and grazing are common factors considered when judging whether the stand is high quality and warrants protection.

Sensitive Aquatic Resources

Streamside Management Areas (SMAs)

The Humboldt County General Plan (Humboldt County 2017) recognizes Streamside Management Areas (SMAs) along all streams, which are defined as:

> "100 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of perennial streams."
>
> "50 feet, measured as the horizontal distance from the top of bank or edge of riparian drip-line whichever is greater on either side of intermittent streams."

Waters of the United States

Waters of the United States include any tributaries to waters used for interstate or foreign commerce including wetlands. The Army Corp of Engineers regulates the Waters of the United States and has jurisdiction in waters such as creeks and rivers and includes the area below the ordinary high water mark, which is the line on the bank established by fluctuations of water that leave physical characteristics such as a distinct line on the bank, shelving, destruction of terrestrial vegetation, and presence of debris. The Corp defines wetlands as:

"...areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas."

Waters of the State

Waters of the state are regulated by the State Water Resources Control Board (State Water Board) under the Porter-Cologne Water Quality Control Act. Waters of the state are defined as:

> "...any surface water or groundwater, including saline waters, within the boundaries of the state."

Waters of the State includes water in both natural and artificial channels.

The Water Board defines an area as wetland as:

> *"An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation."*

IV. Environmental Setting

Regionally, habitat on and around both parcels 216-082-002 and 216-082-006 consists of a mix Douglas-fir forest, California oak woodland, and grassland prairie. Habitat at both Project Areas #1 and #2 can be characterized as oak woodland/Douglas-fir mixed forest interlaced with prairie openings. Most of the road system has been in place for some time. Douglas-fir encroachment, particularly associated with drainages, is increasing on a landscape level. There were no observed specific special habitat characteristics such as large snags, fish bearing streams, large bodies of water, wetlands, caves, cliffs or serpentine soils associated with the Project Areas.

A road evaluation was performed in 2019 by DTN Engineering and Consulting addressing access to both Project Areas on both parcels. On APN 216-082-002, few noticeable habitat changes associated with cannabis cultivation at Project Area #1 have occurred on. Minor tree removal and grading has occurred on Project Area #1 to facilitate the 2 mixed-light greenhouses and other structures. Cultivation Site A at Project Area #1 is situated between two intermittent (or Class III) watercourses and may be within County mandated watercourse setbacks.

Soils, topography and hydrology

The soil type mapped in the Project Area is Coolyork – Yorknorth complex (673). Elevation on the project property ranges from 1,520 to 2,760 feet in elevation. Project Areas #1 and #2 are midslope on the property at approximately 2,320 and 2,440 feet, respectively. Slopes were around 30 to 40% at Project Area #1 and about 22% at Project Area #2. The parcel has a south to southwestern aspect. There are multiple Class II and Class III drainages on the parcels which are the uppermost reaches of Rancheria Creek. This drainage system flows to the East Branch South Fork Eel River and into Benbow Lake on the South Fork of the Eel River.

V. Methods

A site visit was conducted by Alexander Powell on June 16, 2020 to evaluate site specific conditions and whether sensitive plant and animal resources have the potential to occur on the existing and proposed Project Areas. Mr. Powell has a B.S. in Wildlife Management from Humboldt State University and over

15 years of experience in plant and animal species identification and conducting botanical and wildlife surveys in the Pacific northwest. Mr. Powell has experience identifying habitats that have potential to harbor special status plants and animals such as wetlands, natural communities, and other landscape features. This bio-scoping report also involved brief consultation with Troy Leopardo, a wildlife biologist and "Spotted Owl Expert" (SOE) who has consulted in forest-wildlife matters since 1990 and specializes in biological investigations for protected and sensitive species in compliance with State and Federal law.

Biological Resources

A list of special status animals (Table 1) and plants (Table 2) that could potentially occur in the Project Areas was generated using the *California Natural Diversity Database* (CDFW 2020) and the CNPS *Inventory of Rare and Endangered Plants* (California Native Plant Society 2020). Both scoping lists include special status plant and animal species with documented occurrences on the Harris USGS quadrangle and the 8 surrounding adjacent quadrangles (9-quadrangle search). Additionally, a smaller CNDDB biological scoping assessment was conducted out to 1.3 miles from the Project Areas and can be viewed on Figure 6.

Aquatic Resources

The Project Area and surrounding habitat was inspected for aquatic resources such as wetlands, streams, ponds and other water bodies and associated riparian habitat.

VI. Results and Discussion

Analysis provided on Tables 1 and 2 indicates that Project Areas #1 and #2 have moderate potential to harbor habitat for special status plants and animals. Proposed Project Area #2 contains special status plant habitat. A seasonally appropriate botanical survey was conducted on APN 216-082-006 on June 24, 2020 in the area of the proposed Project Area #2 and the area of a proposed pond (see Figure 5) with negative results. The exact footprint of the proposed Project Area #2 would need to be verified in the field.

Structures associated with Cultivation Site A at Project Area #1 may be within stream setback for intermittent watercourses. There were no observed negative impacts to special status biological resources associated with cultivation activities, but this could require additional investigation. Proposed Project Area #2 is outside of any wetland or stream setbacks required by the *Humboldt County General Plan* (Humboldt County 2017) or the *Cannabis Cultivation Policy* (State Water Resources Board 2019).

While the CNDDB doesn't report special status plants or animals on or adjacent to the Project Areas (Figure 6), it only reports positive findings and doesn't necessarily indicate that a particular species or Sensitive Natural Community isn't present within a given area. According to the CNDDB, the nearest known Northern Spotted Owl (NSO) Activity Center (AC) is approximately 3.1 miles to the east. The Project Areas and surrounding landscape are marginal for NSO foraging habitat but are contiguous with more mature forest habitat to the southeast of the property.

No raptor nests or sign were present in the immediate area at the time of the site visit. No Special Natural Communities were observed associated with either Project Area. While there were no habitat

features such as old growth trees, large tree cavities, snags, ponds, cliffs, caves, old abandoned structures or other habitat with a high potential for sensitive wildlife on or immediately adjacent to the Project Areas, cultivation activities utilizing artificial light, generators and fans require mitigation (*Commercial Cannabis Land Use Ordinance* (Humboldt County 2018) sections 55.4.12.4 and 55.4.12.6). These factors are typically assessed in accordance to **"Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California (USFWS 2006)"**, where disturbance may reach the level of take when at least one of the following conditions is met:

- *Project-generated sound exceeds ambient nesting conditions by 20-25 decibels (dB).*
- *Project-generated sound, when added to existing ambient conditions, exceeds 90 dB.*
- *Human activities occur within a visual line-of-sight distance of 40 m or less from a nest.*

In lieu of conducting protocol level surveys, a light and noise attenuation plan will need to be developed. This plan should comply with Dark Sky Association guidelines for Lighting Zone 0 and Lighting Zone 1 and with the 50 decibel (dB) threshold for disturbance, at 100 feet or the edge of habitat, as specified by the CDFW for NSOs associated with cannabis cultivation in Humboldt County.

Current Operations:

Greenhouse covers described in described the Project Description above for APN 216-082-002 for Cultivation Sites A and B were present at the time of the site visit and allow the landowner to comply with Dark Sky Association guidelines for Lighting Zone 0 and 1.

Generators associated with currently permitted cultivation activities at Project Area #1 (see Project Description above for APN 216-082-002) were in present at the time of the site visit on June 16, 2020. Measuring noise levels of both generators running high capacity in the open with an EXTECH Digital Sound Level Meter Model 407730 sound meter, found the sound levels at approximately 60 decibel (dB). However, the landowner intends to put the generators into a structure which will likely reduce sound levels to well below 50 dB.

Intake fans (operating in unison) at Cultivation Site A were measured to be at approximately 50 dB at 100 ft. and/or the edge of suitable habitat.

Proposed Operations:

Proposed cultivation activities at Project Area #2 will likely require more stringent biological assessment as per CCLUO (Humboldt County 2018). In order to conduct any additional grading, the County will likely require a botanical survey (completed for Project Area #2 and the proposed pond site in July 2020). Grading activities should take place during the bird non-breeding season between September and January otherwise nesting bird surveys will be required within 14 days of the onset of grading from February to August.

With the proposed construction of a new pond, annual surveys for American bullfrogs (*Rana catesbeiana)*, an invasive species, may be requested by CDFW for the pond site in the following years after construction. If bullfrogs are found to occupy the pond site it could also be requested that the pond be drained annually.

VII. References

California Department of Fish and Wildlife (CDFW). 2020. *California Natural Diversity Database* (CNDDB). https://www.wildlife.ca.gov/Data/CNDDB/Maps-and-Data

CDFW. 2018. *California Sensitive Natural Communities List.* https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities

CalFire Watershed Mapper; accessed June 10, 2020; https://egis.fire.ca.gov/watershed_mapper/

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed June 10, 2020].

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Vicksburg, MS: U.S. Army Engineer Waterways Experimental Station.

Humboldt County. 2017. *Humboldt County General Plan* (Adopted October 23, 2017). Chapter 10 Conservation and Open Space Elements. https://humboldtgov.org/205/General-Plan

International Dark-Sky Association, accessed May 15, 2020; https://www.darksky.org/our-work/lighting/public-policy/model-lighting-laws-policy/lighting-zones/.

Jameson, E.W., and Hans J. Peeters. 2004. Mammals of California. University of California Press, Berkeley and Los Angeles, California.

Michael D. Baker, Michael J. Lacki, Greg A. Falxa, P. Lee Droppelman, Ryan A. Slack, and Scott A. Slankard "Habitat Use of Pallid Bats in Coniferous Forests of Northern California," Northwest Science 82(4), 269-275, (1 September 2008). https://doi.org/10.3955/0029-344X-82.4.269

Mayer, K.E and William F. Laudenslayer (1988). A Guide to Wildlife Habitats of California. California Dep. Of Forestry and Fire Protection, Pacific Southwest Forest and Range Experiment Station (Berkeley, Calif.)

State Water Resources Control Board. 2019. *Cannabis Cultivation Policy. Principles and Guidelines for Cannabis Cultivation.* https://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/policy/final_cannabis_policy_with_attach_a.pdf

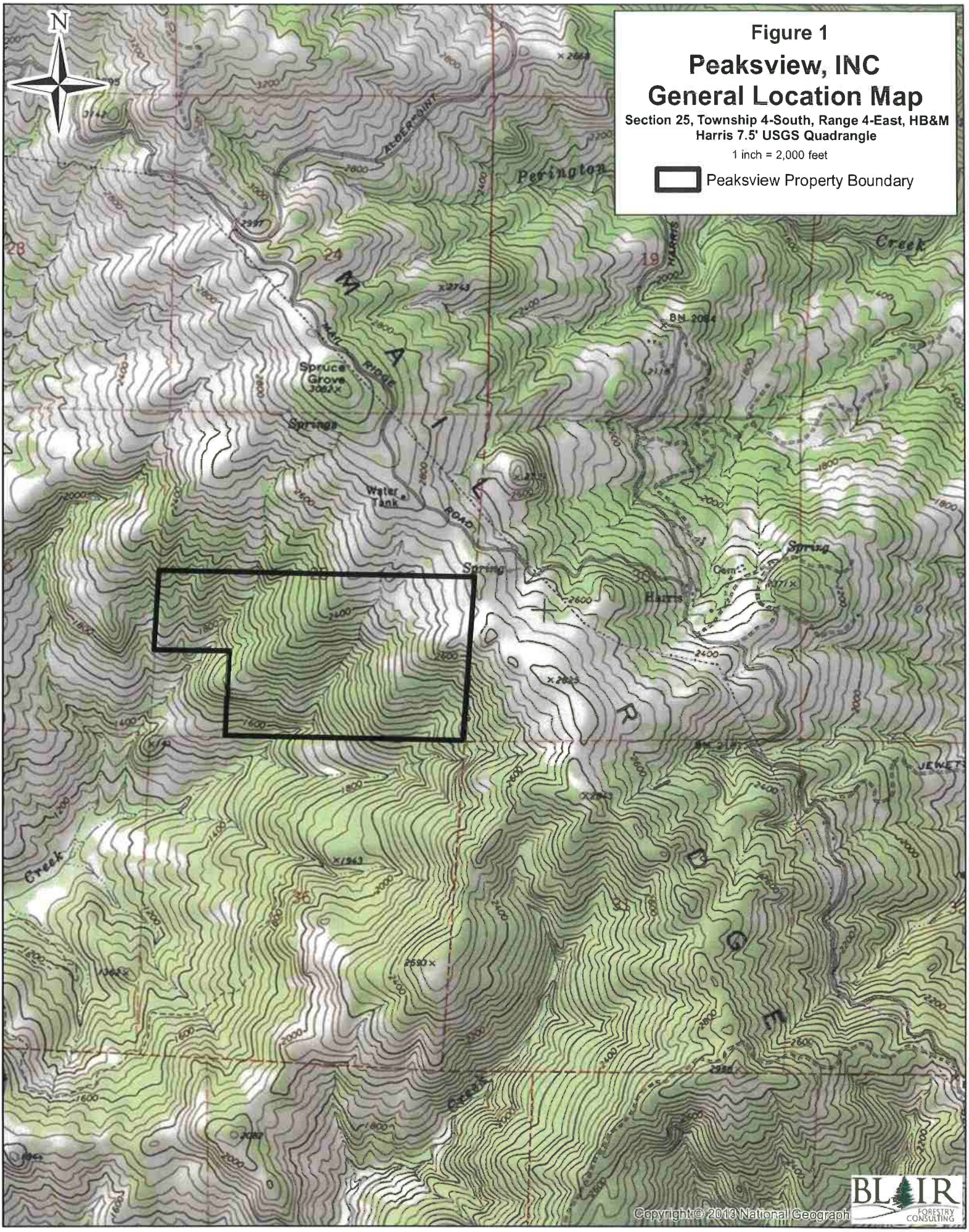
U.S. Army Corps of Engineers (Army Corps) 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual. Western Mountains, Valleys, and Coast Region (Version 2.0),* ed. J. S. Wakeley, R. W. Lichvar, and C. V. Noble. ERDC/El TR-10-3. Vicksburg, MS. Army Corps of Engineer Research and Development Center. https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7646

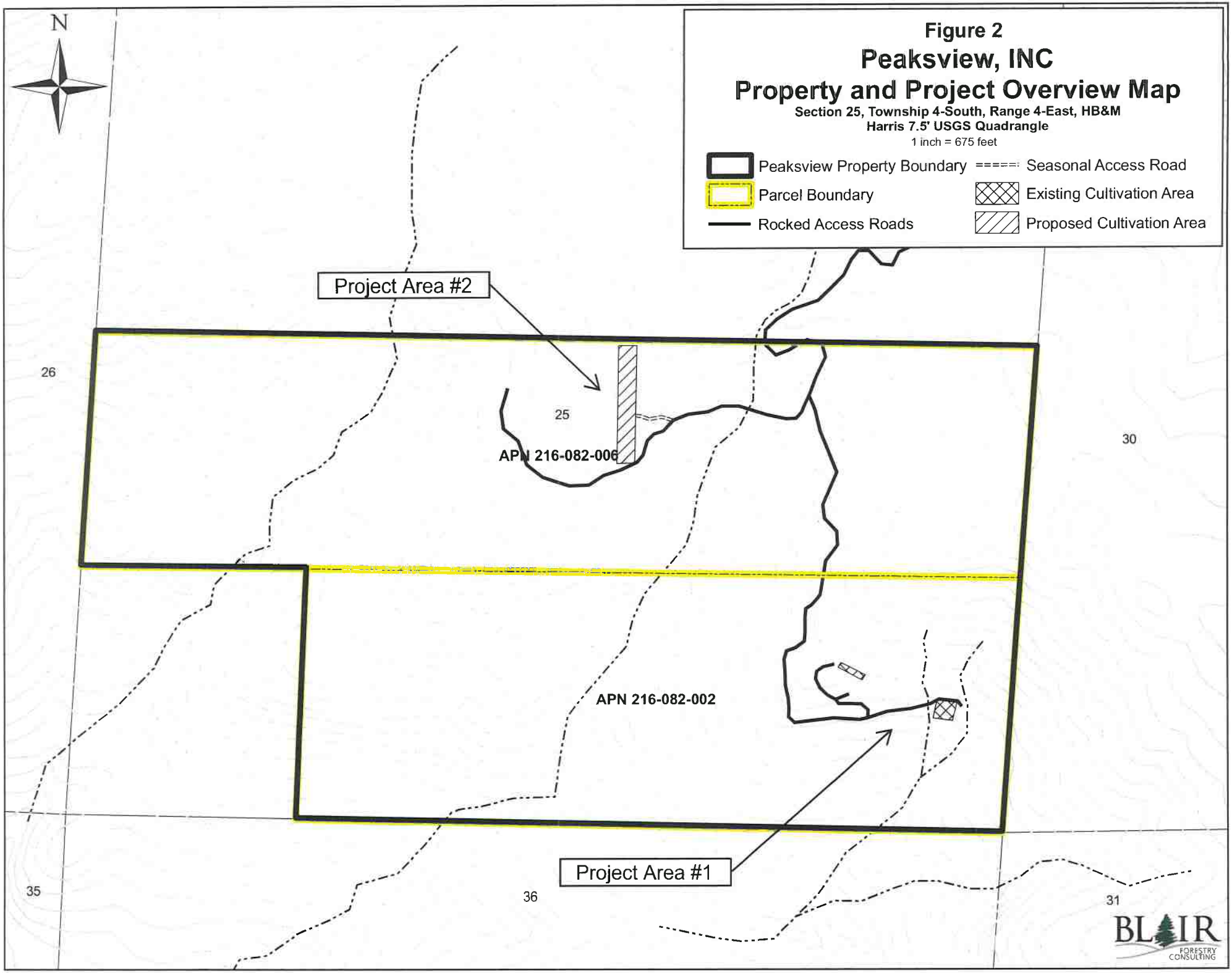
Army Corps. 2016. *Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List.* Lichvar, R.W., D.L. Banks, and N.C. Melvin. The National Wetland Plant List: 2016 Update of Wetland Ratings. Phytoneuron 2016-30: 1-17.
https://www.codot.gov/programs/environmental/wetlands/nwpl_wmvc_2016v1.pdf

United States Department of Agriculture, Natural Resource Conservation Service. 2019. *Web Soil Survey.* https://websoilsurvey.sc.egov.usda.gov

U.S. Fish and Wildlife Service. 2006. Estimating the Effects of Auditory and Visual Disturbance to Northern Spotted Owls and Marbled Murrelets in Northwestern California. July 26, 2006.

Zeiner et al. 1990. California's Wildlife, Volume II Birds. Editors. David C. Zeiner. William F. Laudenslayer, Jr. Kenneth E. Mayer. Marshall White.


N
Figure 1
Peaksview, INC
General Location Map
Section 25, Township 4-South, Range 4-East, HB&M
Harris 7.5' USGS Quadrangle
1 inch = 2,000 feet
Peaksview Property Boundary
Perington
Creek
Spruce Grove
Springs
Water Tank
Spring
Harris
Cem
Creek
Copyright © 2013 National Geograph
BLAIR FORESTRY CONSULTING


N
Figure 2
Peaksview, INC
Property and Project Overview Map
Section 25, Township 4-South, Range 4-East, HB&M
Harris 7.5' USGS Quadrangle
1 inch = 675 feet
Peaksview Property Boundary
Parcel Boundary
Rocked Access Roads
Seasonal Access Road
Existing Cultivation Area
Proposed Cultivation Area
Project Area #2
Project Area #1
APN 216-082-006
APN 216-082-002
25
26
30
35
36
31
BLAIR
FORESTRY CONSULTING

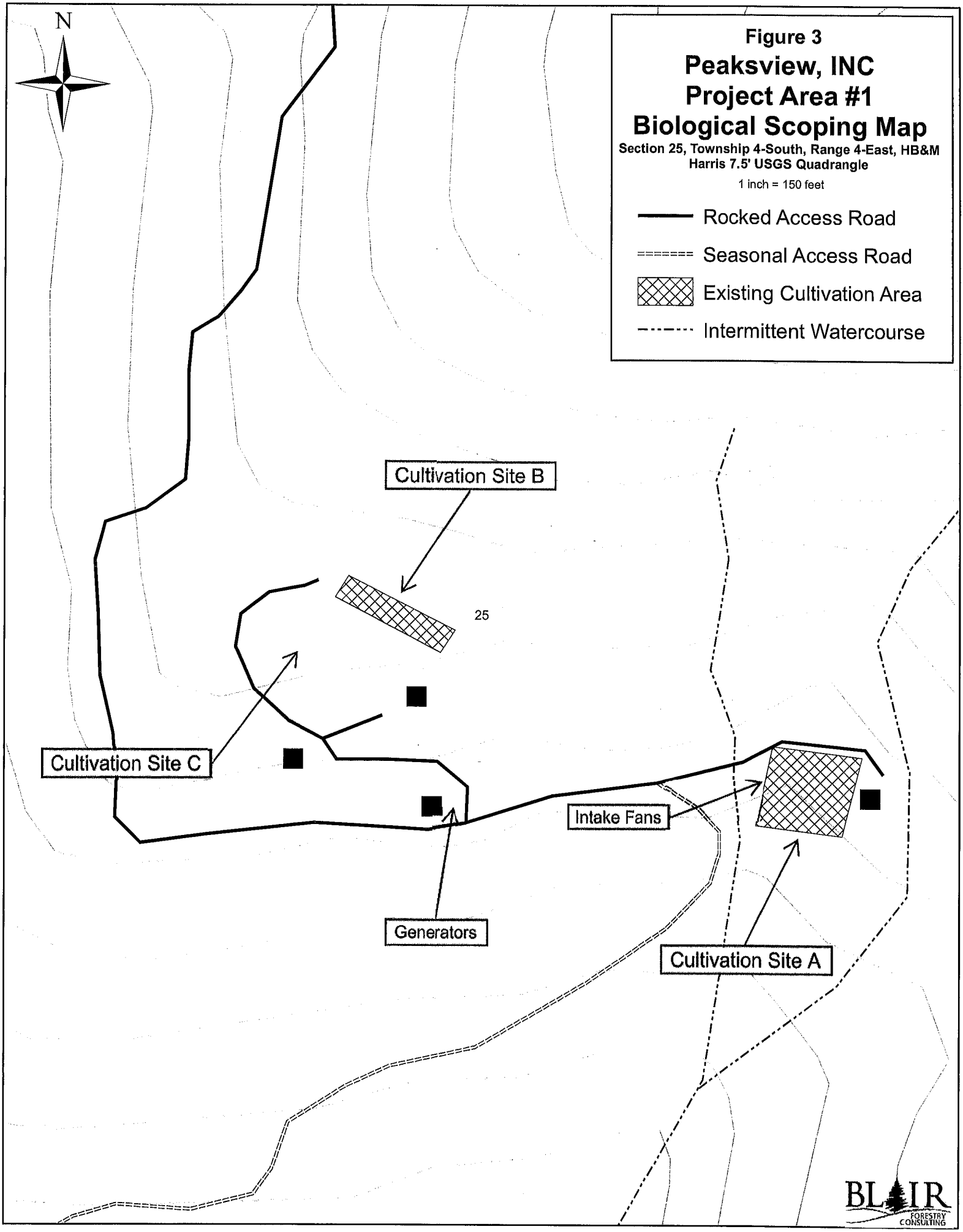
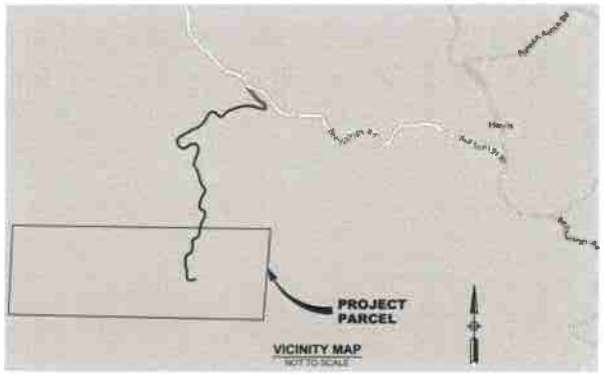

N
Figure 3
Peaksview, INC
Project Area #1
Biological Scoping Map
Section 25, Township 4-South, Range 4-East, HB&M
Harris 7.5' USGS Quadrangle
1 inch = 150 feet
Rocked Access Road
Seasonal Access Road
Existing Cultivation Area
Intermittent Watercourse
Cultivation Site B
25
Cultivation Site C
Intake Fans
Generators
Cultivation Site A
BLAIR
FORESTRY CONSULTING

Figure 4

REUSE OF DOCUMENTS: This document and the ideas and design incorporated herein, as an instrument of professional service, is the property of Humboldt Drafting Services and shall not be reused in whole or part for any other project without express written authorization.

PEAKSVIEW, INC
HUMBOLDT COUNTY
APN: 216-082-002



NOTES:

1. ALL LOCATIONS ARE APPROXIMATE. NO SURVEY WAS CONDUCTED FOR THIS PROJECT
2. PROPERTY LINES ARE APPROXIMATE
3. IMAGE SHOWN HEREON IS FROM BING
4. NO TREES WILL BE REMOVED FOR THIS PROJECT.

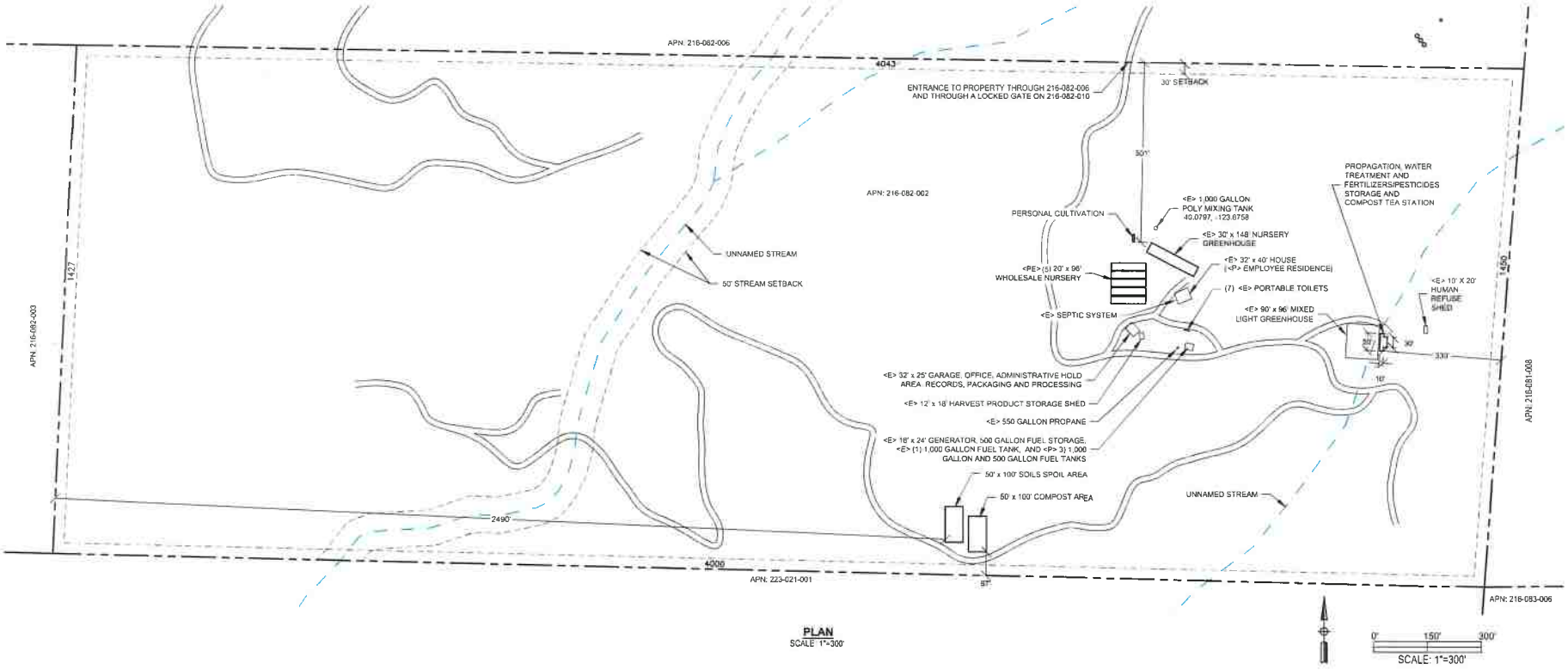
OWNER INFORMATION:

OWNER: PEAKSVIEW, INC
P.O. BOX 1951
REDWAY, CA 95560

SITE INFORMATION:

151 ACRES

SRA: YES



PLAN
SCALE: 1"=300'

NO	HISTORY / REVISION	BY	CHK	DATE

PEAKSVIEW, INC
HARRIS, CA 95542
G0.1 PLOT PLAN 216-082-002

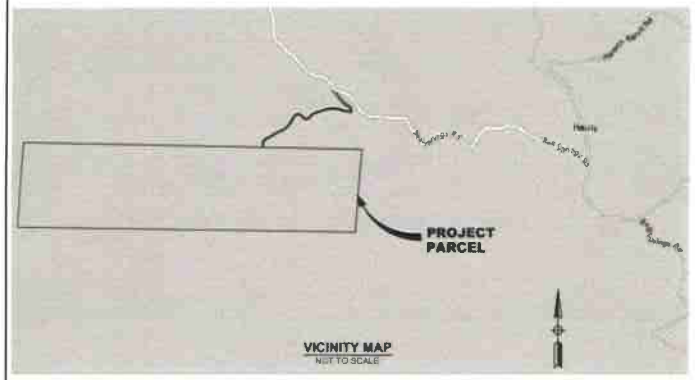
CANNABIS CULTIVATION ACTIVITIES

DRAWN	
CHECK	
APPROVED	
DATE	5/24/2
JOB NUMBER	5.24.2
SHEET	G0.1

REUSE OF DOCUMENTS: This document and the ideas and design incorporated herein, as an instrument of professional service, is the property of Humboldt Drafting Services and shall not be reused in whole or part for any other project without express written authorization.

Figure 5

PEAKSVIEW, INC
HUMBOLDT COUNTY
APN: 216-082-006



NOTES:

1. ALL LOCATIONS ARE APPROXIMATE. NO SURVEY WAS CONDUCTED FOR THIS PROJECT.
2. PROPERTY LINES ARE APPROXIMATE.
3. IMAGE SHOWN HEREON IS FROM BING.
4. NO TREES WILL BE REMOVED FOR THIS PROJECT.

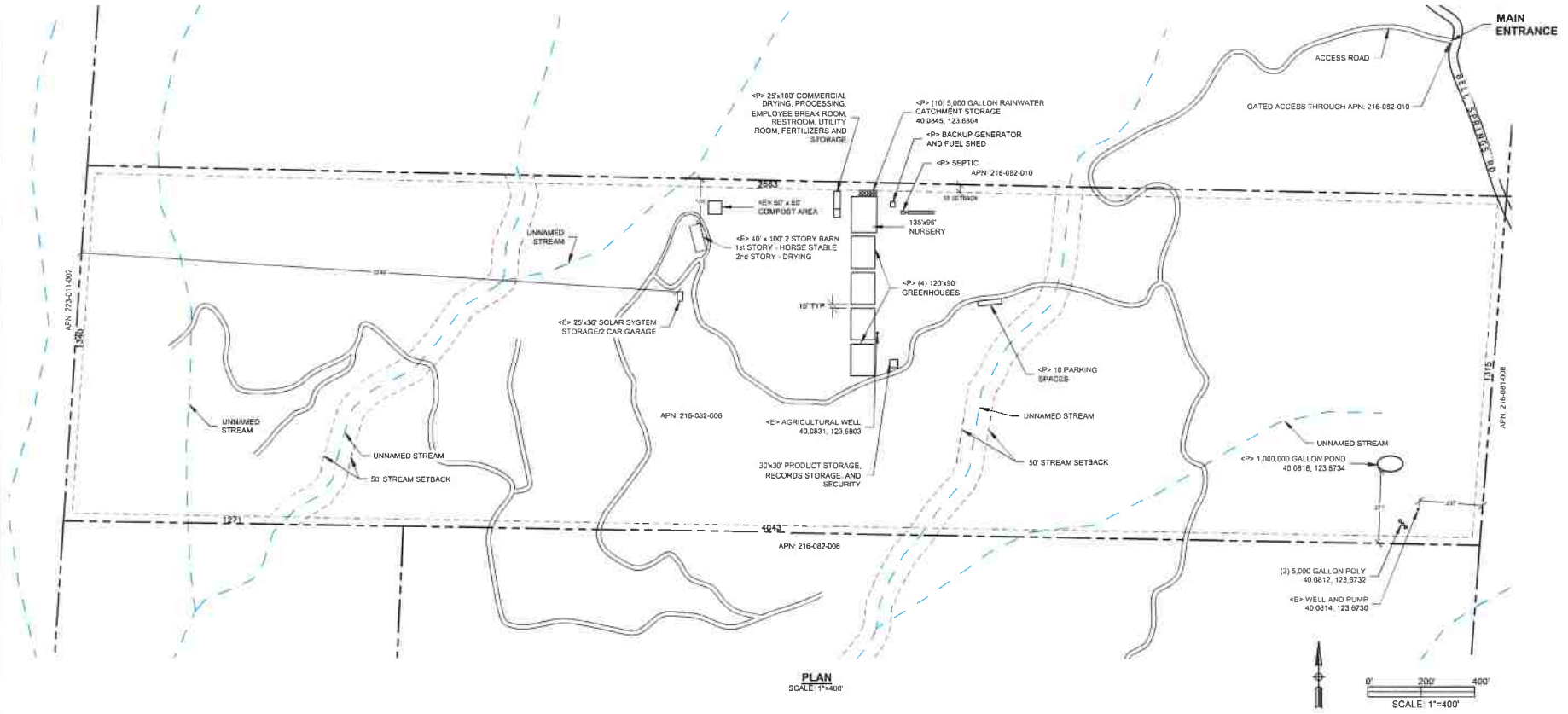
OWNER INFORMATION:

OWNER: PEAKSVIEW, MBC
P.O. BOX 1951
REDWAY, CA 95560

SITE INFORMATION:

173 ACRES

SRA: YES



HDS HUMBOLDT DRAFTING SERVICES
(707) 601-1558 humboldtdraftingservices@yahoo.com

NO.	HISTORY / REVISION	BY	CHK	DATE

PEAKSVIEW, INC
HARRIS, CA 95542
PLOT PLAN 216-082-006

CANNABIS CULTIVATION ACTIVITIES

DRAWN	JDB
CHECK	TM
APPROVED	TM
DATE	5/24-2020
JOB NUMBER	5.24.2020
SHEET	G0.2

August 2020

Peaksview Biological Scoping Report

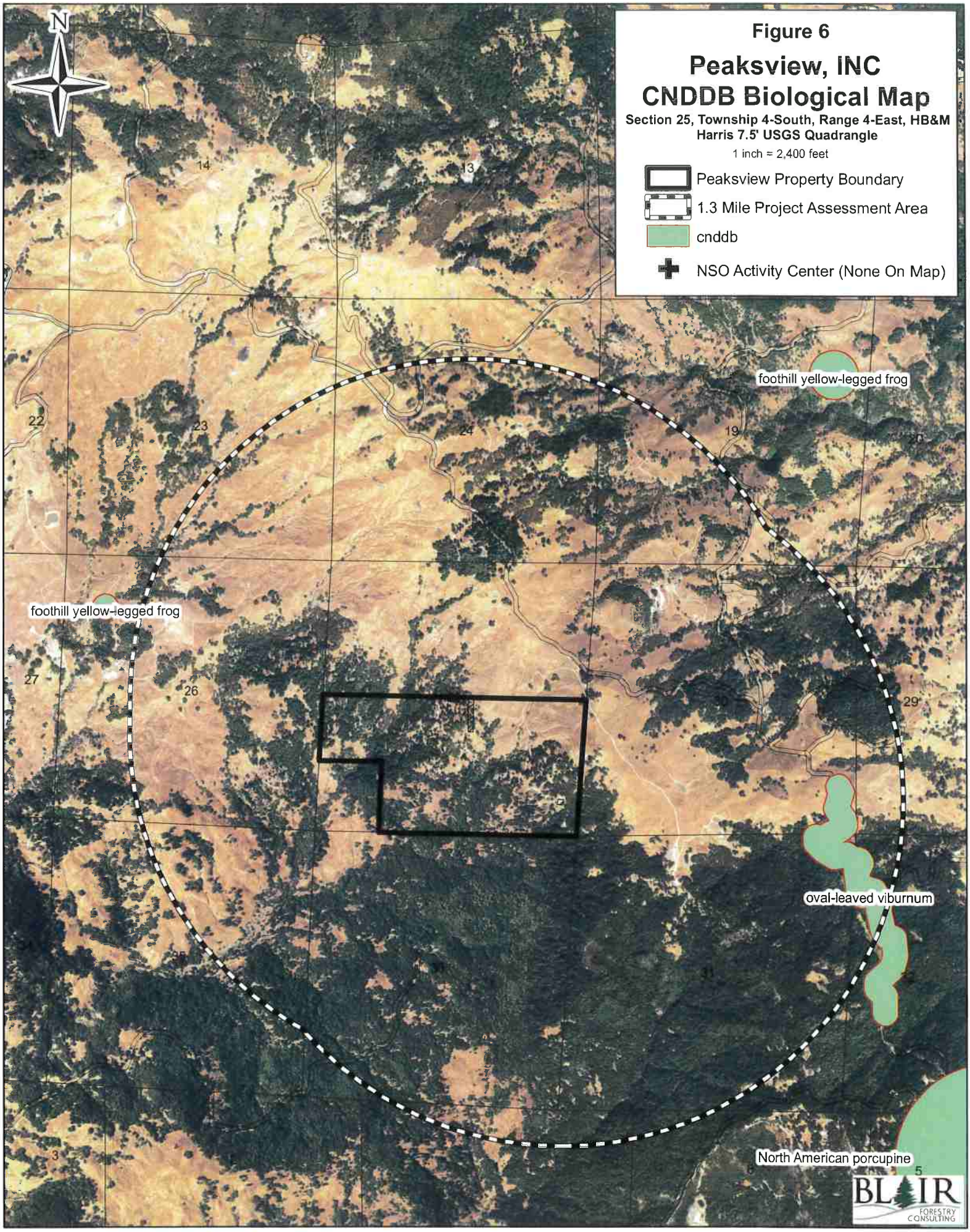

N
Figure 6
Peaksview, INC
CNDDB Biological Map
Section 25, Township 4-South, Range 4-East, HB&M
Harris 7.5' USGS Quadrangle
1 inch = 2,400 feet
Peaksview Property Boundary
1.3 Mile Project Assessment Area
cnddb
NSO Activity Center (None On Map)
foothill yellow-legged frog
foothill yellow-legged frog
oval-leaved viburnum
North American porcupine
BLAIR
FORESTRY CONSULTING

Table 1. Special Status Plant Scoping List for Peaksview, INC
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

Scientific Name	Common Name	FESA	CESA	CRPR	Blooming Period	Habitat	Elevation Low (ft)	Elevation High (ft)	Habitat Observed on Project Areas
Arabis mcdonaldiana	McDonald's rockcress	FE	CE	1B.1	May-Jul	Lower montane coniferous forest, Upper montane coniferous forest, serpentinite.	440	5905	No serpentine present
Arctostaphylos stanfordiana ssp. raichei	Raiche's manzanita	None	None	1B.1	Feb-Apr	Chaparral, Lower montane coniferous forest (openings), rocky, often serpentinite	1475	3395	No
Astragalus agnicidus	Humboldt County milk-vetch	None	CE	1B.1	Apr-Sep	Broadleafed upland forest, North Coast coniferous forest, openings, disturbed areas, sometimes roadsides.	390	2625	Marginal
Carex arcta	northern clustered sedge	None	None	2B.2	Jun-Sep	Bogs and fens, North Coast coniferous forest (mesic)	196	4593	No
Ceanothus foliosus var. vineatus	Vine Hill ceanothus	None	None	1B.1	Mar-May	Chaparral	145	1000	No
Eriogonum kelloggii	Kellogg's buckwheat	None	CE	1B.2	(May)Jun-Aug	Lower montane coniferous forest (rocky, serpentinite)	1895	4100	No serpentine present
Erythronium oregonum	giant fawn lily	None	None	2B.2	Mar-Jun(Jul)	Cismontane woodland, Meadows and seeps, sometimes serpentinite, rocky, openings.	325	3775	No
Erythronium revolutum	coast fawn lily	None	None	2B.2	Mar-Jul(Aug)	Bogs and fens, Broadleafed upland forest, North Coast coniferous forest, Mesic, streambanks.	0	5250	Marginal, Proposed Project Area #2
Frangula purshiana ssp. ultramafica	Caribou coffeeberry	None	None	1B.2	May-Jul	Serpentine. Chaparral, Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest	2706	6332	Elevation restricted, No serpentine present
Gentiana setigera	Mendocino gentian	None	None	1B.2	(Apr-Jul)Aug-Sep	Lower montane coniferous forest, Meadows and seeps, mesic.	1095	3495	No
Howellia aquatilis	water howellia	FT	None	2B.2	Jun	Marshes and swamps (freshwater)	3555	4230	No
Kopsiopsis hookeri	small groundcone	None	None	2B.3	Apr-Aug	North Coast coniferous forest	295	2905	No

Table 1. Special Status Plant Scoping List for Peaksview, INC
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

Scientific Name	Common Name	FESA	CESA	CRPR	Blooming Period	Habitat	Elevation Low (ft)	Elevation High (ft)	Habitat Observed on Project Areas
Montia howellii	Howell's montia	None	None	2B.2	(Jan-Feb)Mar-May	Meadows and seeps, North Coast coniferous forest, Vernal pools, vernally mesic, sometimes roadsides.	0	2740	Potential on property, not on Pproject Areas
Piperia candida	white-flowered rein orchid	None	None	1B.2	(Mar)May-Sep	Broadleafed upland forest, Lower montane coniferous forest, North Coast coniferous forest, sometimes serpentinite.	95	4300	Yes, Proposed Project Area #2
Pleuropogon hooverianus	North Coast semaphore grass	None	Threat ened	1B.1	Apr-Jun	Open areas, mesic, Broadleafed upland forest, Meadows and seeps, North Coast coniferous forest	32	2201	Marginal
Sedum laxum ssp. eastwoodiae	Red Mountain stonecrop	None	None	1B.2	May-Jul	Lower montane coniferous forest (serpentinite)	1965	3935	No serpentine present
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	None	None	1B.2	(Apr)May-Aug	Coastal bluff scrub, Coastal prairie, North Coast coniferous forest; often roadcuts	45	2885	Yes, Proposed Project Area #2
Tracyina rostrata	beaked tracyina	None	None	1B.2	May-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland	295	2590	Yes, Proposed Project Area #2
Viburnum ellipticum	oval-leaved viburnum	None	None	2B.3	May-Jun	Chaparral, Cismontane woodland, Lower montane coniferous forest	705	4595	Potential. Known historic occurrence (1908) associated with Bell Springs Road and a watercourse about 1 mile south of Harris. Was not observed on Project Areas on site visit June 16, 2020.

Table 2. Special Status Wildlife Scoping List for Peaksview, INC.
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

Scientific Name	Common Name	FESA	CESA	CDFW Status	Habitats	Potential to Occur in Project Area
Amphibians						
Rana aurora	northern red-legged frog	None	None	SSC	Klamath/North coast flowing waters | Riparian forest | Riparian woodland; Humid forests, woodlands, grasslands, and streamsides in northwestern California, usually near dense riparian cover; Generally near permanent water, but can be found far from water, in damp woods and meadows, during non-breeding season.	Unlikely, project occurs in uppermost reaches of drainage system. Intermittent streams within offset of Project Area #1 are dry much of the year. Proposed Project Area #2 does not have suitable stream habitat.
Rana boylii	foothill yellow-legged frog	None	Endangered	SSC	Aquatic | Chaparral | Cismontane woodland | Coastal scrub | Klamath/North coast flowing waters | Lower montane coniferous forest | Meadow & seep | Riparian forest | Riparian woodland | Sacramento/San Joaquin flowing waters; Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats; Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	Unlikely, Project area is not near suitable stream habitat.
Birds						
Accipiter cooperii	Cooper's hawk	None	None	WL	Cismontane woodland | Riparian forest | Riparian woodland | Upper montane coniferous forest; Woodland, chiefly of open, interrupted or marginal type; Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Potential to occur in the vicinity of the project area
Aquila chrysaetos	golden eagle	None	None	FP ; WL	Occupy rolling foothills and prairie and mountain areas. Numbers may increase in density in these habitats during the winter period as migrants arrive from northern habitats. Golden eagles are not generally associated with coastal forest redwood stands.	Potential to occur in the vicinity of the project area

Table 2. Special Status Wildlife Scoping List for Peaksview, INC.
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

Scientific Name	Common Name	FESA	CESA	CDFW Status	Habitats	Potential to Occur in Project Area
Haliaeetus leucocephalus	bald eagle	Delisted	Endangered	FP	Lower montane coniferous forest | Oldgrowth; Ocean shore, lake margins, and rivers for both nesting and wintering. Most nests within 1 mile of water; Nests in large, old-growth, or dominant live tree with open branches, especially ponderosa pine. Roosts communally in winter.	Unlikely, no old-growth observed, not within 1-mile large body of water.
Falco peregrinus anatum	American peregrine falcon	Delisted	Delisted	FP	Relatively uncommon breeding resident and an uncommon migrant. Peregrines tend to breed near wetlands, lakes, riparian areas or other "open" water, mostly in wetlands within forests and coastal habitats. Often utilizes a scrape or ledge on cliffs or high rock outcroppings, human made structures, and occasionally uses tree or snag cavities or old nests of other raptors	Unlikely associated with Project Areas but potential to occur in the region around the Project Areas.
Pandion haliaetus	osprey	None	None	WL	Riparian forest; Ocean shore, bays, freshwater lakes, and larger streams; Large nests built in tree-tops within 15 miles of a good fish-producing body of water.	Unlikely, project area not near prefered water bodies.
Strix occidentalis caurina	Northern Spotted Owl	Threatened	Threatened	-	This owl breeds and roosts in forests and wood-lands with large old trees and snags, high basal areas of trees and snags, dense canopies (≥70% canopy closure), multiple canopy layers, and downed woody debris (Verner et al. 1992a). Large, old trees are the key component; they pro-vide nest sites and cover from inclement weather and add structure to the forest canopy and woody debris to the forest floor. These characteristics typify old-growth or late-seral-stage habitats.	Potential to occur in the vicinity of the project area
Empidonax traillii brewsteri	little willow flycatcher	None	Endangered	-	Makes short sallies for flying insects from exposed perches in willow thickets or from low perches in adjacent meadows; Dense willow thickets are required for nesting and roosting. Low, exposed branches are used for singing posts and hunting perches. Most numerous where extensive thickets of low, dense willows edge on wet meadows, ponds, or backwaters.	Unlikely, Project Areas in generally drier climate and lack hydrologic and vegetative characteristics.

Table 2. Special Status Wildlife Scoping List for Peaksview, INC.
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

Scientific Name	Common Name	FESA	CESA	CDFW Status	Habitats	Potential to Occur in Project Area
Fish						
Entosphenus tridentatus	Pacific lamprey	None	None	SSC	Aquatic flowing waters	No suitable fishbearing streams within or near project area
Oncorhynchus kisutch pop. 2	coho salmon - southern Oregon / northern California ESU	Threatened	Threatened	-	Aquatic flowing waters; Federal listing refers to populations between Cape Blanco, Oregon and Punta Gorda, Humboldt County, California.	No suitable fishbearing streams within or near project area
Oncorhynchus mykiss irideus pop. 16	steelhead - northern California DPS	Threatened	None	-	Aquatic flowing waters; Coastal basins from Redwood Creek south to the Gualala River, inclusive. Does not include summer-run steelhead.	No suitable fishbearing streams within or near project area
Oncorhynchus mykiss irideus pop. 36	summer-run steelhead trout	None	Candidate Endangered	SSC	Aquatic flowing waters; No. Calif coastal streams south to Middle Fork Eel River. Within range of Klamath Mtns province DPS & No. Calif DPS.	No suitable fishbearing streams within or near project area
Oncorhynchus tshawytscha pop. 17	chinook salmon - California coastal ESU	Threatened	None	-	Aquatic flowing waters	No suitable fishbearing streams within or near project area
Insects						
Bombus occidentalis	western bumble bee	None	Candidate Endangered	-	Once common & widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	Low
Mammals						
Arborimus pomo	Sonoma tree vole	None	None	SSC	North coast coniferous forest | Oldgrowth | Redwood; North coast fog belt from Oregon border to Somona County. In Douglas-fir, redwood & montane hardwood-conifer forests; Feeds almost exclusively on Douglas-fir needles. Will occasionaly take needles of grand fir, hemlock or spruce.	Potential to occur in the vicinity of the Project Area but not on Project Areas.

Table 2. Special Status Wildlife Scoping List for Peaksview, INC.
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

Scientific Name	Common Name	FESA	CESA	CDFW Status	Habitats	Potential to Occur in Project Area
Pekania pennanti	fisher - West Coast DPS	None	Threatened	SSC	North coast coniferous forest | Oldgrowth | Riparian forest; Intermediate to large-tree stages of coniferous forests and deciduous-riparian areas with high percent canopy closure; Uses cavities, snags, logs and rocky areas for cover and denning. Needs large areas of mature, dense forest.	Potential to occur in the vicinity of the Project Areas.
Antrozous pallidus	pallid bat	None	None	SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures as they are sensitive to the disturbance of the roosting site.	Potential to occur regionally, specific roosting habitat not present on or near Project Areas.
Reptiles						
Emys marmorata	western pond turtle	None	None	SSC	Aquatic | Artificial flowing waters | Klamath/North coast flowing waters | Klamath/North coast standing waters | Marsh & swamp | Sacramento/San Joaquin flowing waters | Sacramento/San Joaquin standing waters | South coast flowing waters | South coast standing waters | Wetland; A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation; Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	No. Ponds, marshes, rivers, streams and irrigation ditches, with aquatic vegetation and basking sites not present in or adjacent to Project Areas.

Table 2. Special Status Wildlife Scoping List for Peaksview, INC.
Section 25, Township 4-South, Range 4-East, HBM
Harris 7.5' USGS Quadrangle 9-Quad Search; Project Elevetion 2,320 ft - 2,440 ft

CDFW Status	Description
FP	Fully Protected: This classification was the State of California's initial effort to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, amphibians and reptiles, birds and mammals. Most of the species on these lists have subsequently been listed under the state and/or federal endangered species acts.
SSC	Species of Special Concern: It is the goal and responsibility of the Department of Fish and Wildlife to maintain viable populations of all native species. To this end, the Department has designated certain vertebrate species as "Species of Special Concern" because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction. The goal of designating species as "Species of Special Concern" is to halt or reverse their decline by calling attention to their plight and addressing the issues of concern early enough to secure their long-term viability.
WL	Watch List: The Department of Fish and Wildlife maintains a list consisting of taxa that were previously designated as "Species of Special Concern" but no longer merit that status, or which do not yet meet SSC criteria, but for which there is concern and a need for additional information to clarify status.

From: David Nicoletti PE QSD\QSP
DTN Engineering & Consulting
2731 K Street Unit A
Eureka, CA 95501
Email: dnicoletti@dtnengineering.com

Subject: Roadway Evaluation for APN #216-082-002, APPS 11506

Introduction

On April 4, 2019, DTN Engineering & Consulting (Engineer) performed a roadway evaluation for Peaksview MBC upon request from Humboldt County Public Works. Humboldt County Public Works has provided direction for the roads to be evaluated by the Engineer. The roads to be evaluated are as follows (see Exhibit A):

- Private Access Rd Cultivation Area on APN 216-082-002 to Bell Springs Rd Photos 1-128 (Exhibit B)

The Private Access Rd is being evaluated as part of the Applicant's Cannabis permit referral process. The Private Access Rd. is beiung evaluated for Category 2 compliance as described in Title III – Land Use and Development, Division II, Fire Safe Regulations (Ordinance) (Exhibit D).

The existing site conditions for the evaluated roadway in this Technical Memorandum consists of slightly hilly terrain, crosses one Streamside Management Areas (SMA) (Exhibit C) and has high seismic instability. There are gradual to moderate grades along the roadway evaluation. The Applicant will have three employees onsite and deliveries of supplies to the Applicants facilities will occur twice every year.

Evaluation

Private Access Rd APN 216-082-002 (Photos 1-128) (Exhibit B)

This evaluation will apply the Category 2 roadway criteria to Private Access Rd on APN 216-082-002 (1.75 miles). Private Access Rd varies in width from 10 feet to 14 feet with 2-4 foot shoulders. The grades for Private Access Rd are gradual with two very short locations where grades are above 16%. This Private Access Rd is solely used by Peaksview MBC and no other residents are on the road. Traffic counts are strictly for this project only.

The following are photo locations that are not in accordance with Humboldt County SRA Ordinance, AASHTO Guidelines for Geometric Design of Low

Volume Roads, or industry standard practices for gravel roadway maintenance, and drainage.

Curve Locations Requiring Turnouts: None
Slope Over 16%: Photos 24, 45, 52, & 56
Width Under 12 Feet: Photos 36 & 105
Clogged / Partially Culverts: Photos: 37/38, 48, 63, 65, 82/83, 90/91, 114/115, 116/117, 126
Erosion / Drainage Issues: None
Slides: None
Miscellaneous: None
Gate Under 14 Feet: None

Slopes Over 16%: *The Engineer recommends no improvements for photo locations where slopes are over 16%. The traffic benefits to environmental impacts doesn't justify paving or lowering grades. Typically, the steep grades shown at these locations are for short segments of roadway.*

Width Under 12 Feet: *The Engineer recommends no improvements for photo locations where grades exceed 16%. The traffic benefits to environmental impacts doesn't justify cutting into hillsides or expanding travel width on hillsides with fill.*

Clogged / Partially Culverts: *The Engineer recommends unclogging all culverts that have been shown to be partially clogged or fully clogged.*

Miscellaneous: *The Engineer recommends that a Paved approach at the intersection of the Private Access Rd & Bell Springs Rd be constructed in accordance with the Humboldt County Driveway Detail (Appendix D).*

The Private Access Rd doesn't meet a Category 2 roadway. It is recommended to construct waterbars and rolling dips in accordance with Appendix D. With these improvements the Private Access Rd will accommodate the traffic associated with the operation of Peaksview MBC.

Report Completed By
David Nicoletti PE:

Exhibit A

Exhibit A - Location Map

Peaksview MBC
Apps 11506
APN 216-082-002

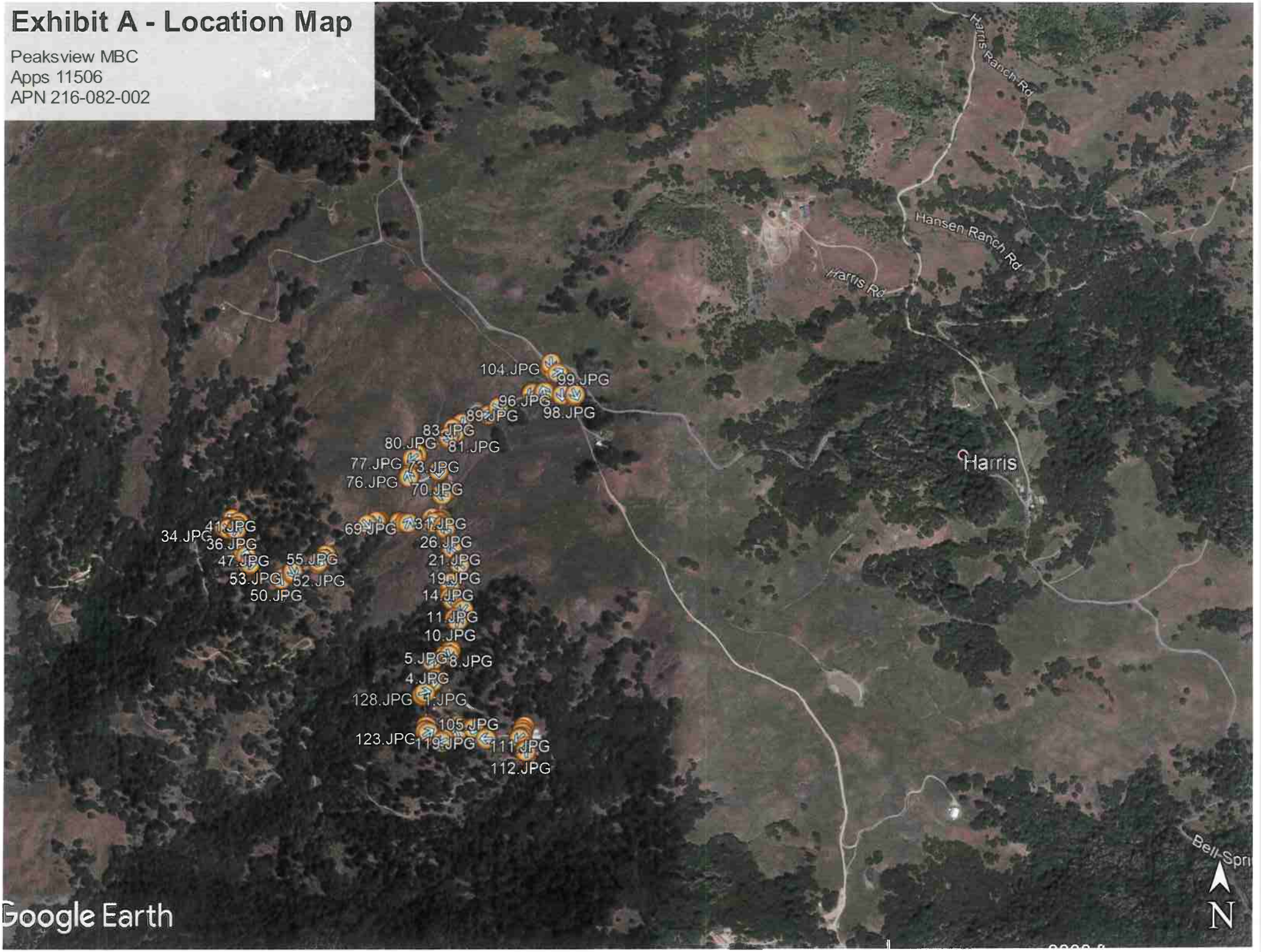


Exhibit A - Photos 1-18

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 22-33

Peaksview MBC
Apps 11506
APN 216-082-002

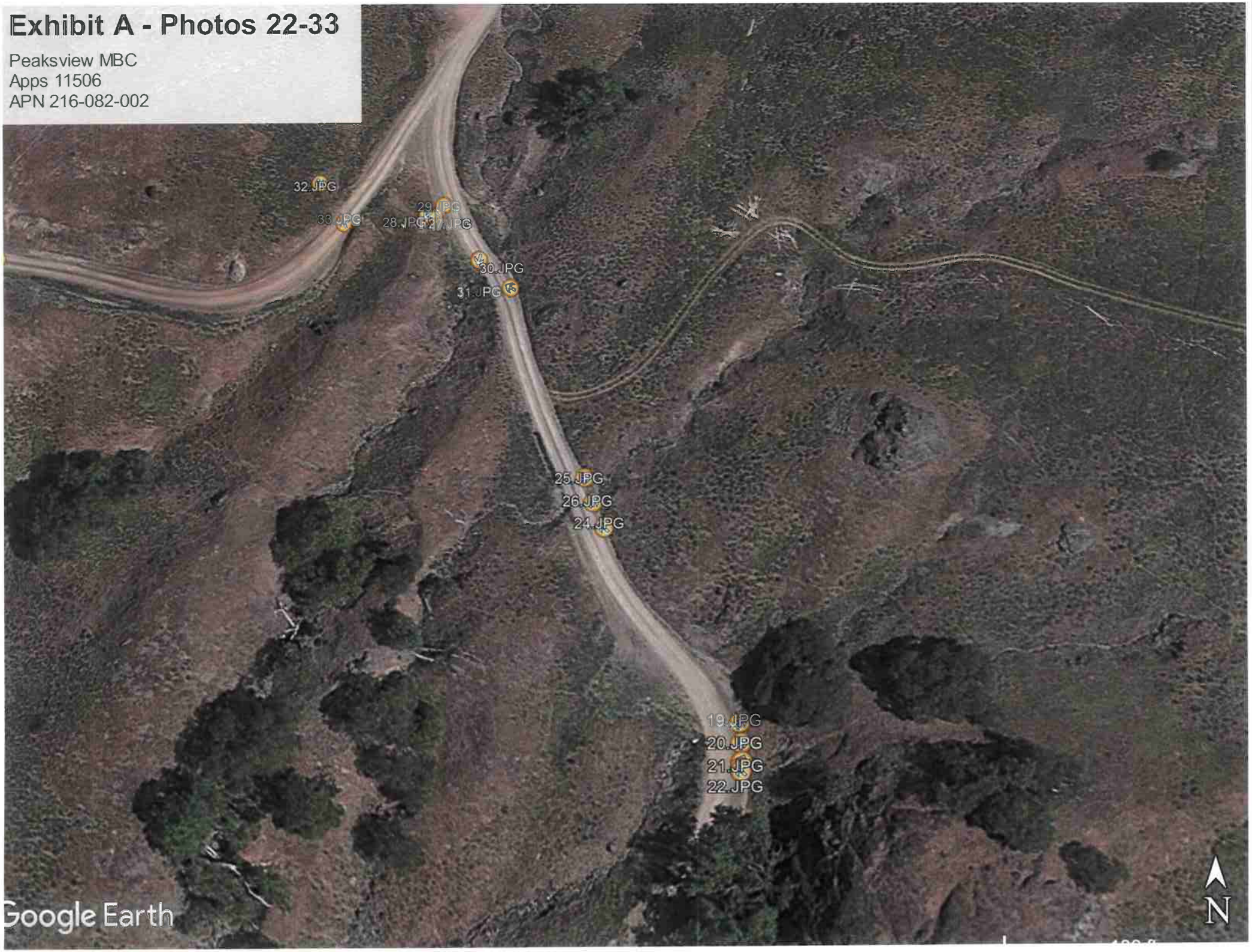


Exhibit A - Photos 34-49

Peaksview MBC
Apps 11506
APN 216-082-002

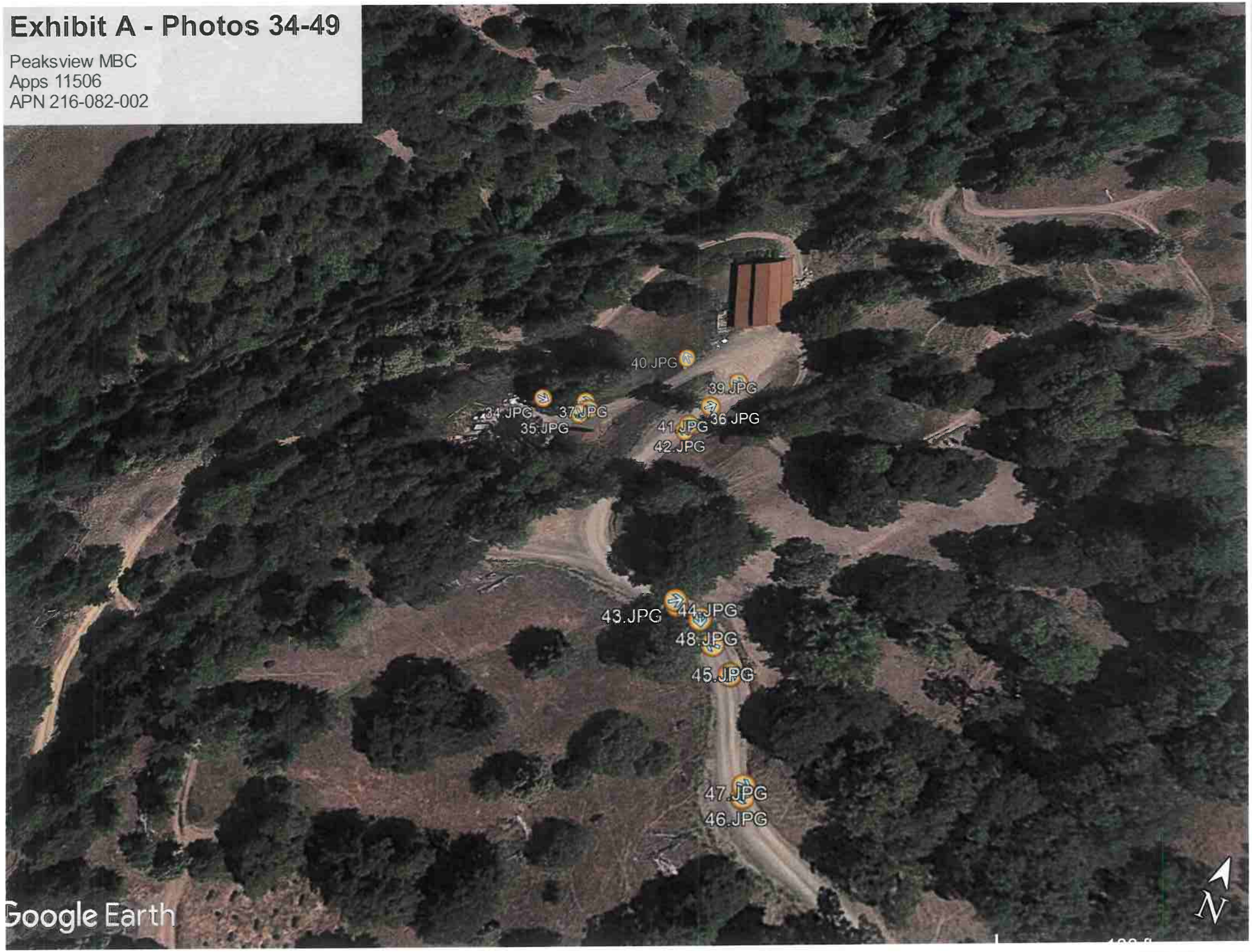


Exhibit A - Photos 50-57

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 58-69

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 70-88

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 89-104

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit A - Photos 105-128

Peaksview MBC
Apps 11506
APN 216-082-002

Exhibit B

Photo #1 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #2 Private Access Rd Looking NW@ Curve

Photo #3 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #4 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #5 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #6 Private Access Rd Slope 11.7% Width 12'4"

Photo #7 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #8 Private Access Rd Looking @ 18" Culvert In

Photo #9 Private Access Rd Looking @ 18" Culvert Out

Photo #10 Private Access Rd @ Pullout Looking SW @ Curve

Photo #11 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #12 Private Access Rd Looking @ 18" Culvert In

Photo #13 Private Access Rd Looking @ 18" Culvert Out

Photo #14 Private Access Rd Slope 9.0% Width 16'5"

Photo #15 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #16 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #17 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #18 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #19Private Access Rd Looking @ 18" Culvert In

Not Used

Photo #20 Not Used

Photo #21 Private Access Rd Looking @ 18" Culvert Out

Photo #22 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #23 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #24 Private Access Rd Slope 4.9% Width 11'4"

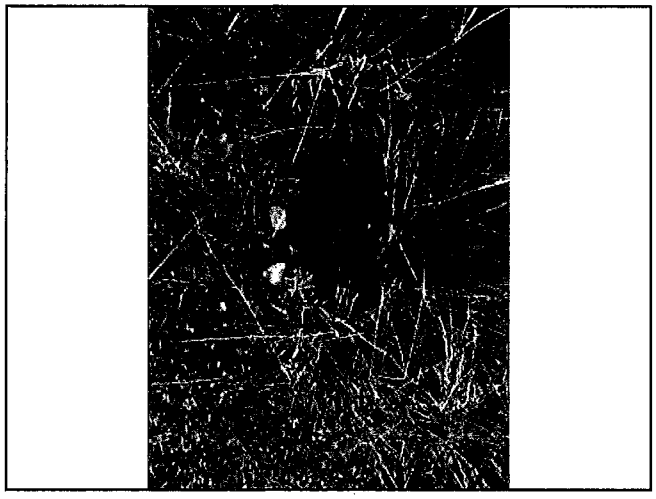


Photo #25 Private Access Rd Looking @ 18" Culvert In

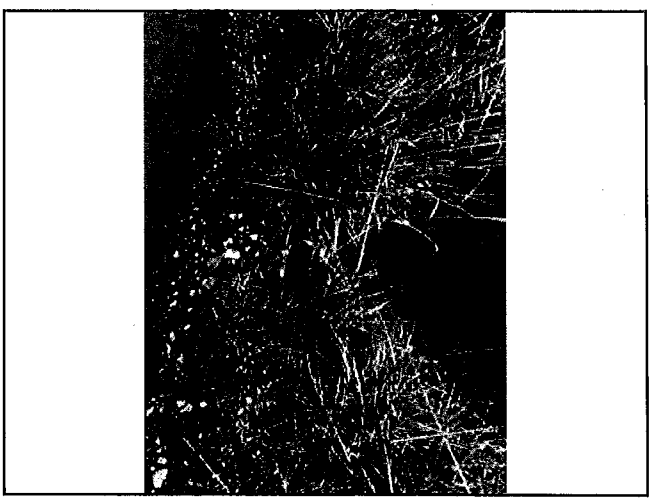


Photo #26 Private Access Rd Looking @ 18" Culvert Out

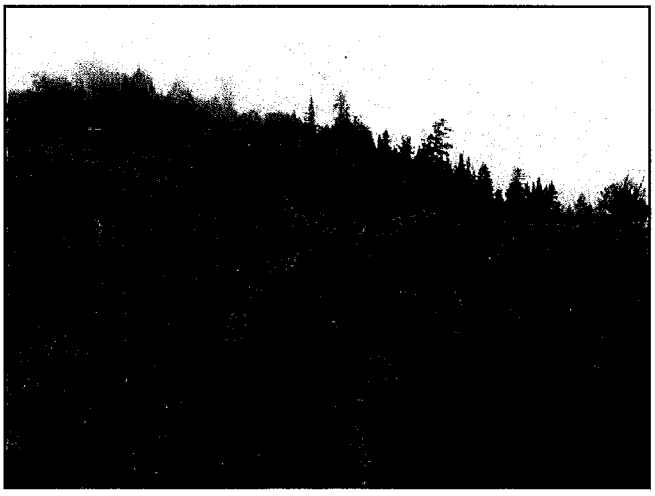


Photo #27 Private Access Rd @ Curve w/ Pullout Looking SE

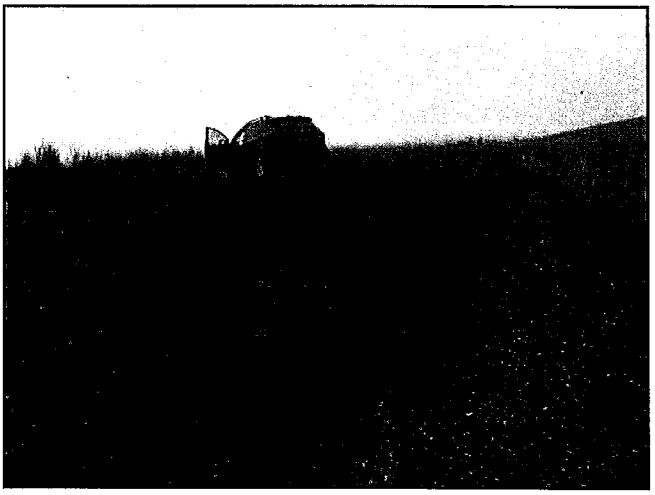


Photo #28 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #29 Private Access Rd @ Curve w/ Pullout Looking NE

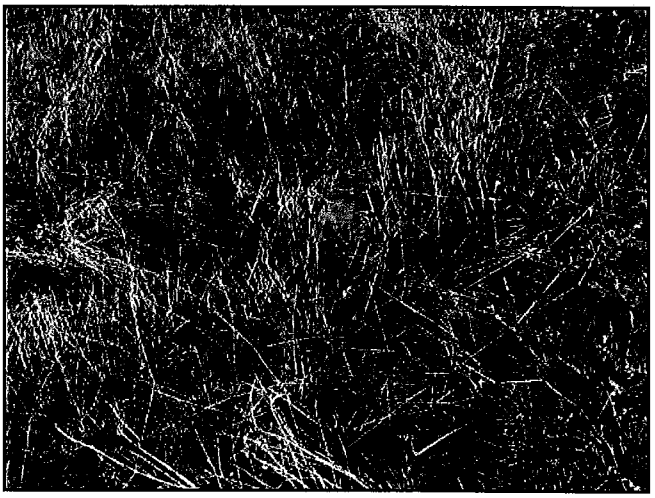


Photo #30 Private Access Rd Looking @ 24" Culvert In

Photo #31Private Access Rd Looking @ 24" Culvert Out

Photo #32 Private Access Rd Looking @ 18" Culvert In

Photo #33 Private Access Rd Looking @ Parially Clogged Culvert Out (Size Unknown)

Photo #34 Private Access Rd @ Turnaround Looking SE

Photo #35 Private Access Rd @ Turnaround Looking NE

Photo #36 Private Access Rd Slope 16.2% Width 12'1"

Photo #37 Private Access Rd Looking @ Partially 12" Culvert In

Photo #38 Private Access Rd Looking @ 12" Culvert Out

Photo #39 Private Access Rd @ Turnaround Area

Photo #40 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #41 Private Access Rd Slope 7.2% Width 13'2"

Photo #42 Private Access Rd @ Pullout Looking SE @ Curve

Photo #43 Private Access Rd Looking @ Curve w/ Pullout Looking SE

Photo #44 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #45 Private Access Rd Slope 13.6% Width 11'7"

Photo #46 Private Access Rd @ Pullout Looking SE

Photo #47 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #48 Private Access Rd Looking @ Partially Clogged 12" Culvert In

Photo #49 Private Access Rd Looking @ 12" Culvert Out

Photo #50 Private Access Rd Looking @ Curve w/ Pullout Looking SW

Photo #51 Private Access Rd Looking @ Curve w/ Pullout Looking NE

Photo #52 Private Access Rd Slope 11.9% Width 10'7"

Photo #53 Private Access Rd Looking @ Pullout Looking NE @ Curve

Photo #54 Private Access Rd Looking @ Curve w/ Pullout Looking SW

Photo #55 Private Access Rd Looking @ Curve w/ Pullout Looking NE

Photo #56 Private Access Rd Slope 8.6% Width 11'6"

Photo #57 Private Access Rd Looking @ Curve w/ Pullout Looking SW

Photo #58 Private Access Rd Looking @ Pullout Looking SW

Photo #59 Private Access Rd Looking @ Curve w/ Pullout Looking NE

Photo #60 Private Access Rd Slope 8.4% Width 12'0"

Photo #61 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #62 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #63 Private Access Rd Looking @ Partially Clogged 18" Culvert In

Photo #64 Private Access Rd Looking @ 18" Culvert Out

Photo #65 Private Access Rd Looking @ Partially Clogged 18" Culvert In

Photo #66 Private Access Rd Looking @ 18" Culvert Out

Photo #67 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #68 Private Access Rd @ Pullout Looking SE @ Curve

Photo #69 Private Access Rd @ Pullout Looking NW

Photo #70 Private Access Rd @ Pullout Looking SE @ Curve

Photo #71 Private Access Rd @ Pullout Looking SW @ Curve

Photo #72 Private Access Rd Slope 12.3% Width 11'9"

Photo #73 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #74 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #75 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #76 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #77 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #78 Private Access Rd Slope 10.2% Width 11'4"

Photo #79 Private Access Rd Looking NBE

Photo #80 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #81 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #82 Private Access Rd Looking @ Partially Clogged 18" Culvert In

Photo #83 Private Access Rd Looking @ Partially Clogged 18" Culvert Out

Photo #84 Private Access Rd Slope 8.6% Width 11'9"

Photo #85 Private Access Rd @ Pullout Looking NE @ Curve

Photo #86 Private Access Rd @ Pullout Looking SW @ Curve

Photo #87 Private Access Rd @ Curve w/ Pullout Looking NW

Photo #88 Private Access Rd @ Curve w/ Pullout Looking NE

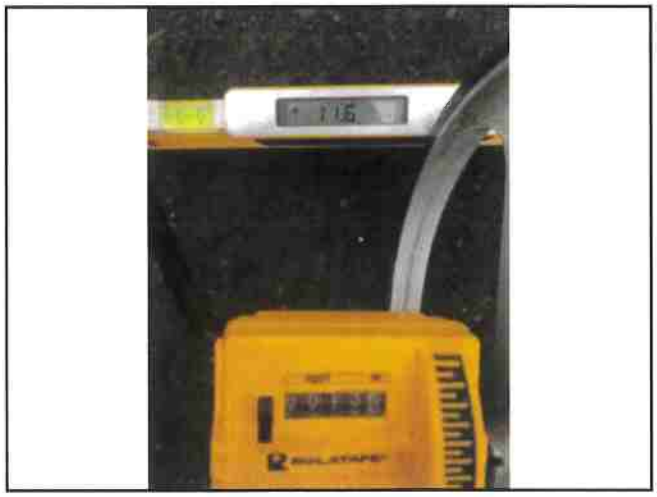


Photo #89 Private Access Rd Slope 11.6% Width 13'10"

Photo #90 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #91 Private Access Rd Looking @ Partially Clogged Culvert Out (Size Unknown)

Photo #92 Private Access Rd @ Pullout Looking NE @ Curve

Photo #93 Private Access Rd @ Pullout Looking NE @ Curve

Photo #94 Private Access Rd Slope 10.2% Width 12'2"

Photo #95 Private Access Rd @ Pullout Looking NE @ Curve

Photo #96 Private Access Rd Gate Width 15'0"

Photo #97 Private Access Rd @ Curve w/ Pullout Looking SE

Photo #98 Private Access Rd @ Curve w/ Pullout Looking SW

Photo #99 Private Access Rd @ Curve w/ Pullout Looking NE

Photo #100 Private Access Rd Slope 2.6% Width 13'6"

Photo #101 Private Access Rd Looking NW @ Bell Springs Rd

Photo #102 Intersection of Bell Springs Rd & Private Access Rd Looking NW

Photo #103 Intersection of Bell Springs Rd & Private Access Rd Looking SE

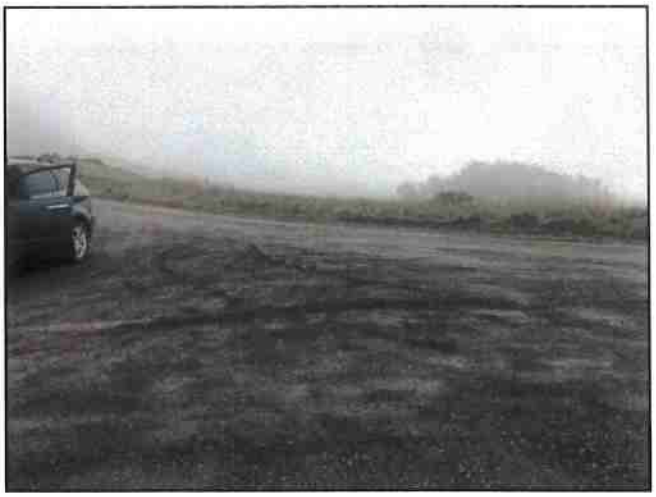


Photo #104 Intersection of Bell Springs Rd & Private Access Rd Looking SW

Photo #105 Private Access Rd Slope 18.7% Width 14'6"

Photo #106 Private Access Rd @ Curve w/ Pull-out Looking NW

Photo #107 Private Access Rd @ Curve w/ Pull-out Looking NW

Photo #108 Private Access Rd @ Curve w/ Pull-out Looking NE

Photo #109 Private Access Rd @ Turnaround Looking SE

Photo #110 Private Access Rd @ Turnaround Looking SE

Photo #111 Private Access Rd @ Turnaround Looking NE

Photo #112 Private Access Rd @ Turnaround Looking SW

Photo #113 Private Access Rd Slope 16.1% Width 14'4"

Photo #114 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #115 Private Access Rd Looking @ Partially Clogged Culvert Out (Size Unknown)

Photo #116 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #117 Private Access Rd Looking @ Partially Clogged Culvert Out (Size Unknown)

Photo #118 Private Access Rd @ Pullout Looking NW

Photo #119 Private Access Rd @ Turnaround Looking SW

Photo #120 Private Access Rd @ Turnaround Looking NE

Photo #121 Private Access Rd @ Pullout Looking NE

Photo #122 Private Access Rd Slope 7.4% Width 12'7"

Photo #123 Private Access Rd @ Curve w/ Pull-out Looking SE

Photo #124 Private Access Rd @ Curve w/ Pull-out Looking NW

Photo #125 Private Access Rd Looking @ Partially Clogged Culvert In (Size Unknown)

Photo #126 Private Access Rd Looking @ Partially Clogged 18" Culvert Out (Size Unknown)

Photo #127 Private Access Rd Slope 11.0% Width 12'4"

Photo #128 Private Access Rd @ Curve w/ Pull-out Looking NE

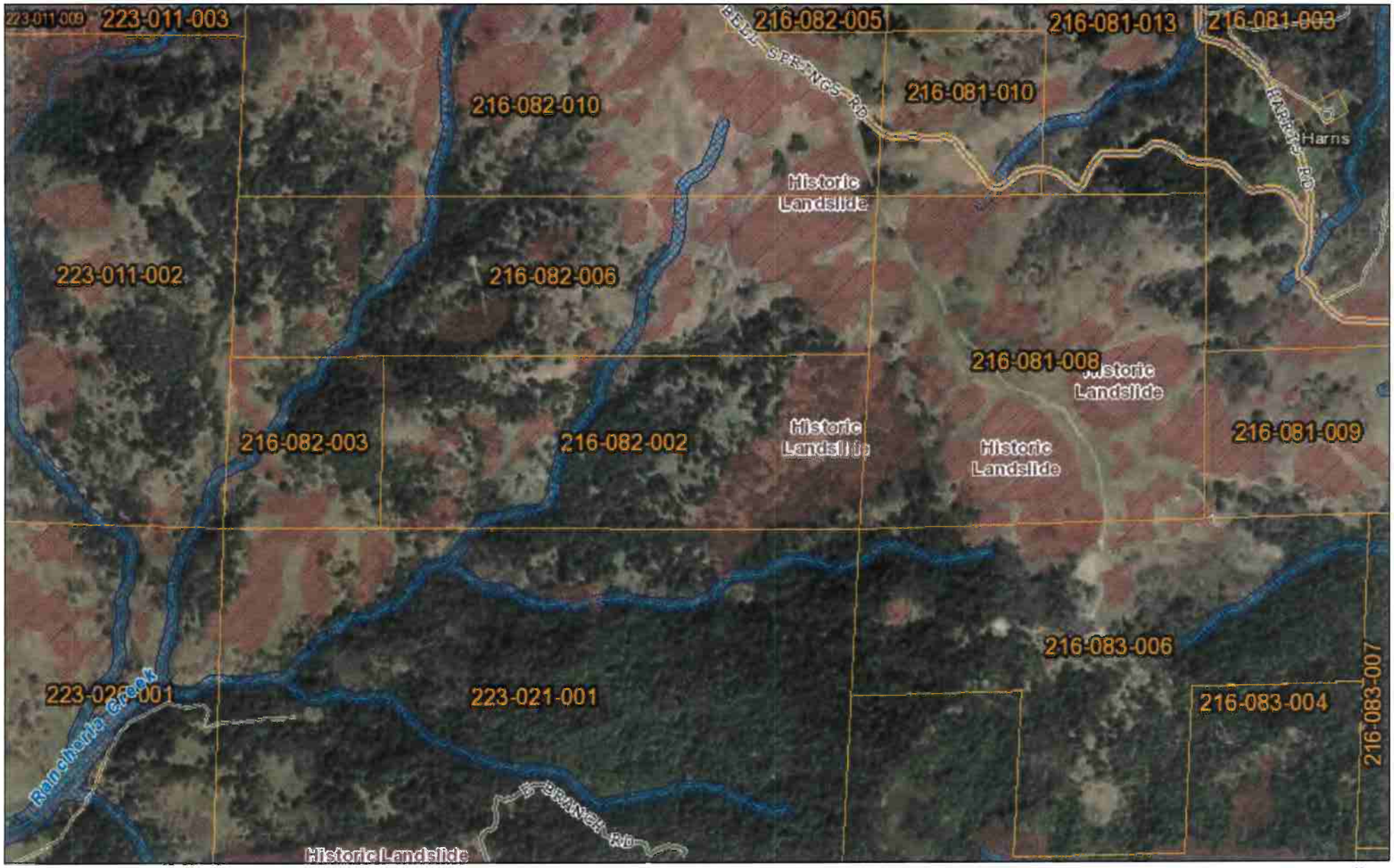
Photo #

Photo #

Photo #

Photo #

Exhibit C



ArcGIS Web Map

Humboldt County Planning and Building Department

Printed: May 15, 2019 Web AppBuilder 2.0 for ArcGIS

Map Disclaimer:
While every effort has been made to assure the accuracy of this information, it should be understood that it does not have the force & effect of law, rule, or regulation. Should any difference or error occur, the law will take precedence.

Highways and Roads
- Principal Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Local Roads

- Private or Unclassified
- Major River or Stream

Blue Line Streams
- Perennial 1-3
- Perennial >4

- Intermittent
- Subsurface
- City Boundary
- Counties
- Parcels
- Parcels (no APN labels)

0 650 1,300 2,600 Feet
0 0.125 0.25 0.5 Miles
RF= 1:17,530 1 in = 1,461 ft

N W E S

Sources: NRCS
Humboldt County GIS
Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
FRAP, FEMA, USGS

Exhibit D

COVER PAGE

A. HARRIS PEAK AND POPOV, HUMBOLDT COUNTY, CA, APN 216-082-002 AND 216-072-009 RESPECTIVELY; 151-ACRES AND 62-ACRES RESPECTIVELY

B. HUMBOLDT COUNTY COMMERCIAL MEDICAL MARIJUANA LAND USE ORDINANCE (CUMMLUO) APPLICATION NUMBERS: 11506 AND 11580 RESPECTIVELY

RECEIVED
DEC 11 2020
Humboldt County
Building Division

C. KEVIN PEAK / PEAKSVIEW, MBC
C/O LESLIE DOYLE / HALLOWED GROUND FARMS, LLC

D. PROJECT DESCRIPTION
1. Archaeological Inventory
2. 151-acres and 62-acres respectively
3. Cannabis permit, potential impacts include cultivation in one area, associated roads and infrastructure
4. Unfettered access to property, surveyed APE plus 600-foot buffer, visibility 50-100% and 75-100% respectively.

E. HUMBOLDT COUNTY MEDICAL CANNABIS ORDINANCE PERMIT.

F. THIS REPORT IDENTIFIES AND INVENTORIES HISTORIC RESOURCES WITHIN THE PROJECT AREA AND PROVIDES RECOMMENDATIONS FOR MITIGATION OR THE NEED FOR FURTHER ARCHAEOLOGICAL WORK.

G. RESULTS

1. RESOURCES IN AND OUT OF APE: THREE ISOLATES IDENTIFIED IN THE PEAK PROPERTY (SEE APPENDIX D)

2. RESOURCES AFFECTED OR NOT BY PROJECT: NO HISTORIC OR ARCHAEOLOGICAL RESOURCES WILL BE AFFECTED AS A RESULT OF THIS PROJECT IF MITIGATION MEASURES ARE FOLLOWED.

3. SPECIAL CIRCUMSTANCES: FLAT TO STEEP TERRAIN; 50-100% AND 75-100% RESPECTIVELY VISIBILITY; SURVEYED APE PLUS 600 FOOT BUFFER.

4. REQUESTED ACTION BY SPECIFIC LAW: NO FURTHER ARCHAEOLOGICAL WORK PER CEQA VIA HUMBOLDT COUNTY ORDINANCES.

5. CONTACT: NICK ANGELOFF 707-407-6205; nangeloff.ceo@gmail.com

A Cultural Resources Investigation of the Harris Peak and Popov Properties

Final Report

Harris, Humboldt County, California

Harris 7.5' USGS Quadrangle

Assessor's Parcel Numbers: 216-082-002 and 216-072-009 respectively

Application number: 11506 and 11580 respectively

151-acres and 62-acres respectively

Prepared by:

Nick Angeloff, MA
Abby Barrios-Gonzalez, BA
Archaeological Research and Supply Company
440 Wildwood Ave.
Rio Dell, CA 95562
With contributions by Jerry Rohde, MA

Prepared for:

Kevin Peak
Harris, CA 95569
APPLICATION NUMBER: 11506

C/O Leslie Doyle
600 F St. Ste. 3 #223
Arcata, CA 95521
APPLICATION NUMBER: 11580

November 2018
CONFIDENTIAL

ACRONYMS AND ABBREVIATIONS

AB – (California State) Assembly Bill

APE – Area of Potential Effect

ARSC – Archaeological Research and Supply Company

cal – Calendar years before present

CEQA – California Environmental Quality Act

CMMLUO – Commercial Medical Marijuana Land Use Ordinance

CRHR – California Register of Historic Resources

NAHC – Native American Heritage Commission

NEPA – National Environmental Policy Act

NPS – National Park Service

NRHP – National Register of Historic Places

THPO – Tribal Historic Preservation Officer

TABLE OF CONTENTS

SECTION	Page
1.0 SUMMARY OF FINDINGS	**1**
1.1 Coordination/Background	1
1.2 Survey Methods/Dates/Findings	1
1.3 Affects to Significant Resources	4
1.4 Constraints	4
1.5 Recommendations	4
1.6 Field Notes, Photographs, and Report on File:	4
2.0 INTRODUCTION AND PROJECT DESCRIPTION	**5**
2.1 Introduction	5
2.1.1 Contracting Institution	5
2.1.2 Undertaking, Laws, Previous Studies	5
2.1.3 Undertaking Description	9
2.2 Project Location and Description	15
3.0 SETTING	**19**
3.1 Natural Setting	19
3.2 Cultural Setting	20
3.2.1 Ethnography	20
3.2.2 History	25
3.2.3 Archaeology	31
4.0 Research Design	**34**
4.1 Theoretical Basis	34
4.2 Previous Research	35
4.3 Hypothesis	35
4.4 Expectations	36
4.5 Methods	**36**
5.0 Report of Findings	**37**
6.0 Discussion and Interpretation	**37**
7.0 Management Considerations	**37**
8.0 References Cited	**38**
Appendix A: Inadvertent Discovery Tear Sheet	**42**
Appendix B: Tribal Communications/Coordination	**43**
Appendix C: Confidential Records Search	**51**
Appendix D: Confidential Site Record	**53**

FIGURES

Figure **Page**
Figure 1 Peak Survey and Project Location 2
Figure 2 Popov Project and Survey Location 3
Figure 3 Peak Project Plot Plans 10
Figure 4 Popov Project Plot Plans 1-4 14
Figure 5 1:24,000 USGS Harris Quadrangle Map 16
Figure 6 1:100,000 USGS Harris Quadrangle Map 17
Figure 7 1: 3,000,000 Projects Location 18

TABLES

Table **Page**
Table 1 Previous Surveys 51
Table 2 Previously Recorded Resources 52

1.0 SUMMARY OF FINDINGS

This report is the result of an archaeological surveys of Assessor's Parcel Numbers 216-082-002 and 216-072-009 respectively, Harris, Humboldt County, California. The project areas include 151-acres and 62-acres, of which the APE plus a 600-foot buffer was surveyed on parcels located near Harris, California. The properties are the subject of cannabis cultivation project guided by Humboldt County ordinance. Three (3) prehistoric isolates were identified within the Peak property as a result of this survey (see Appendix D).

1.1 Coordination/Background

Background research by the Bear River Band of Rohnerville Rancheria upon a request for information resulted in no comments regarding the subjects' properties in regards to known archaeological or cultural sites. The Bear River Tribal Historic Preservation Officer (THPO) recommended proceeding with the survey given the sensitivity of the area. Bear River also requested a copy of the report be submitted to them prior to submitting a final report to Humboldt County to afford opportunity for further comment. Report review resulted in concurrence with the recommendations found herein. The Sinkyone Intertribal Wilderness Council was also afforded opportunity to provide information and gracefully declined, thanking ARSC for the opportunity and citing time constraints as the reasoning behind lack of comment.

1.2 Survey Methods/Dates/Findings

The Area of Potential Effect (APE) of the Peak property was surveyed by archaeological technicians Abby Barrios, BA and Tyler Padian, BA under the direction of Nick Angeloff, MA, Principal Investigator in November 2018 (Figure 1). Also located in Harris, the Popov property was surveyed by archaeological technicians Abby Barrios, BA, Tyler Padian, BA, Joey Gallagher, BA, under the direction of Nick Angeloff, MA, Principal Investigator (Figure 2).

The area of potential effect (APE) had fair to excellent 50-100% visibility for the Peak project and 75-100% in visibility for the Popov project and the balance of the survey area, including a 600-foot buffer zone, also averaged 50-100% and 75-100% respectively visibility. The crew used 15-meter (or less) transects within the survey area, including the Area of Potential Effect plus a 600-foot buffer zone. Areas that were obscured by vegetation were subject to shovel probes or scrapes to expose soils every 15-meters. Three (3) prehistoric resources were identified within the Peak property (see Appendix D).

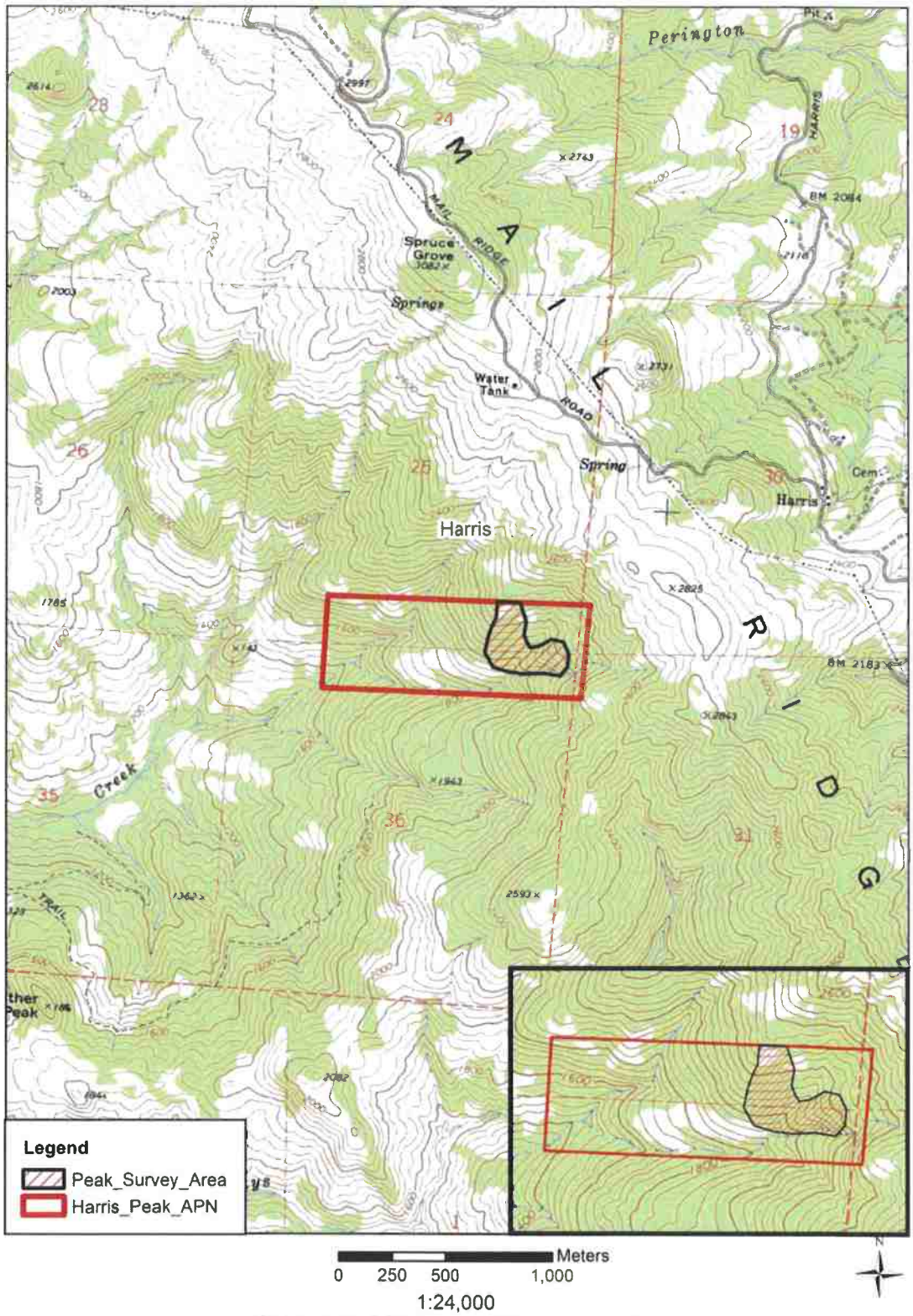


Figure 1 Peak Survey and Project Location

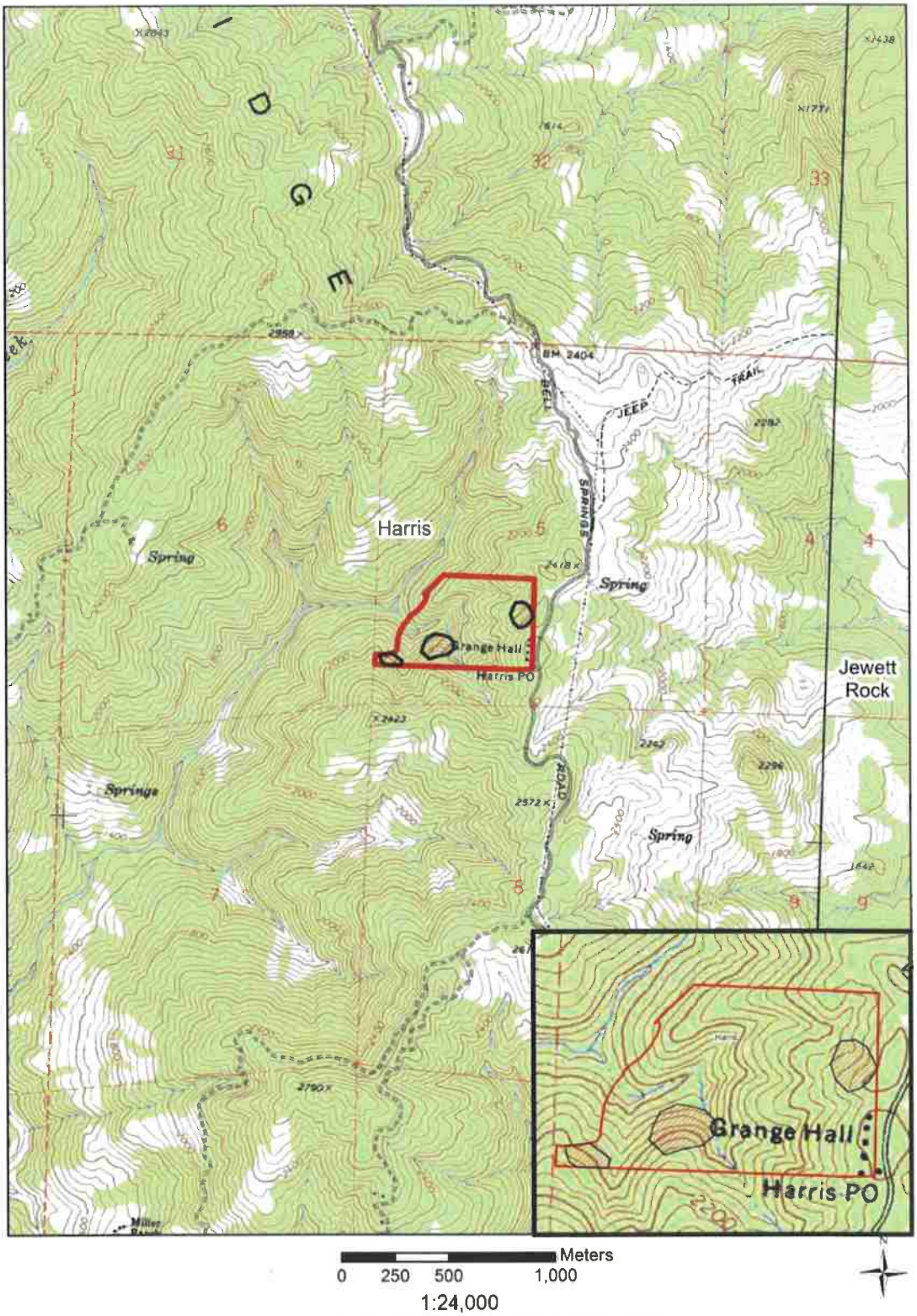


Figure 2 Popov Project and Survey Location

1.3 Affects to Significant Resources

These projects will have no effect to cultural resources if mitigation measures are followed.

1.4 Constraints

There were no significant constraints regarding the survey of these project areas.

1.5 Recommendations

It is recommended that no further archaeological studies be conducted for these properties, however there is always the possibility for encountering buried archaeological deposits. If this or any other project conducted on these properties inadvertently exposes cultural resources, all work should halt within 100 feet of the find and a qualified archaeologist and tribal representatives should be contacted immediately to evaluate the find.

1.6 Field Notes, Photographs, and Report on File:

Archaeological Research and Supply, 440 Wildwood Ave., Rio Dell, CA 95562.

1864 Our Mails Again. Humboldt Times, December 3, 1864:2.

Irvine, Leigh H.

[redacted]

United States Copyright Office
1930 Catalogue of Copyright Entries, Part 4. Washington DC: United States Government Printing Office.

United States War Department
1897 The War of the Rebellion: A Compilation of the Official Records of the Union and Confederate Armies; Series 1 - Volume 50 (Part I). Washington DC: Government Printing Office.

West, G. James
1984 *Pollen Analysis. In Archaeological Investigations on Pilot Ridge Six Rivers National Forest.* Report on file at Six Rivers National Forest, Eureka, CA.

White, Greg
2000 *Final Report of the Anderson Flat Project, Lower Lake, Lake County, California, Volume 1.* Anthropological Studies Center, Sonoma State University, Rohnert Park, CA. On file at the Northwest Information Center, Rohnert Park, CA.

Whittaker, A.
2006 *2005 Archaeological Investigations in the King Range National Conservation Area.* Report on file at the Bear River Band of the Rohnerville Rancheria, Loleta, CA.

Appendix A: Inadvertent Discovery Tear Sheet

If suspected archaeological resources are encountered during the project:

1. Stop work within 100' of the find.
2. Call the County project representative, a professional archaeologist and representatives from the Bear River Band of Rohnerville Rancheria and, if available, the Sinkyone Intertribal Wilderness Council.
3. The professional historic resource consultant, Tribes and County officials will coordinate provide an assessment of the find and determine the significance and recommend next steps.

If human remains are encountered:

1. All work shall stop and per CA Health and Safety Code Section 7050.5:
2. Call the Humboldt County Coroner: (707) 445-7242.
3. The Coroner will determine if the remains are of prehistoric/historic Native American origin. If the remains are Native American, then;
4. The Humboldt County Coroner will contact the Native American Heritage Commission within 24 hours.
5. The NAHC is responsible under CA PRC 5097.98. (a) for identifying the most likely descendent (MLD) immediately and providing contact information. Within 48 hours the MLD may contact the landowner, and with landowner permission inspect the location, making subsequent recommendations regarding the most appropriate disposition of their descendent.

Appendix B: Tribal Communications/Coordination

1. Native American Heritage Commission
2. Communications Bear River Band of Rohnerville Rancheria
3. Communications Sinkyone Intertribal Wilderness Council

Sacred Lands File & Native American Contacts List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

Project: Harris Various

County: Humboldt County

USGS Quadrangle Name: Harris1972

Township: T4,5 S **Range:** R4,5 E **Section(s):** 5, 25

Company/Firm/Agency: Archaeological Research and Supply Company

Street Address: 440 Wildwood Ave.

City: Rio Dell **Zip:** 95562

Phone: 707-407-6205

Fax: 707-202-6949

Email: nangeloff.ceo@gmail.com

Project Description: Archaeological survey of cannabis cultivation and related operations for a county permit.

Archaeological Research and Supply Company

To: Erika Cooper, M.A., THPO
266 Keisner Road
Loleta, CA 95551
Tel: 707.733.1900 x 233
Cell: 707.502.5233
Fax: 707.733.1727
Email: erikacooper@brb-nsn.gov

From: Archaeological Research and Supply Company
Nick Angeloff, MA
156 Grayland Heights Road
Rio Dell, CA 95562
Nangeloff.ceo@gmail.com
707.407.6205

Dear Ms. Cooper,

This letter is a request for any information the Bear River Band of Rohnerville Rancheria may wish to contribute regarding properties throughout southern Humboldt that are currently undergoing archaeological evaluations for cannabis cultivation operations. Individual projects are presented in the table below and the attached maps are numerically coordinated with listing in the table. In this light ARSC proposes to survey the APE of each parcel including a 600' buffer.

PROJECT	MAP	APN	APPS
Hyampom Frederick	1	317-063-008, 317-064-007	11320
Dinsmore Petrusesvki	2	208-271-003	12656
Benbow Mussey	3	216-392-027, 216-392-025, 223-032-004	11327, 11325, 10643, 11188, 13756
Benbow Dogan	4	033-140-008,	TBD
Bear River Shelton	5	309-051-077	TBD
Salon Creek Carstensen	6	219-011-008	TBD
Ettersburg Popov	7	108-024-011	TBD
Dinsmore Dennis	8	210-102-006	TBD
Harris Peak	9	216-082-002	11506
Blocksburg Martin,	10	217-391-004, 217-411-011, 217-441-004, 217-411-008	12666, 12648, 12653, 12285
Blocksburg Penev	10	217-401-009, 217-391-008	11808, 11810
Blocksburg Roberts	10	217-401-011	12237
Blocksburg Stevens	10	217-391-001	13273
Island Mt. Heartwood	11	218-131-011, 218-141-009	12696

The surveys will be intensive, using 15-meter transects. If conditions require, extended survey techniques will be employed using shovel probes or other expedient methods to examine soils in heavily vegetated areas. A standard Archaeological Resource Management Report (ARMR) formatted survey report will be developed including recommendations for any identified cultural

resources. The report will be submitted to you for review prior to submission to the county to allow for any further insight or recommendations you may wiMartinsh to incorporate.

In order to develop a complete report and inform the field survey, we are requesting any information that you may have regarding Tribal Cultural Resources regarding the subject parcel. We look forward to continuing this coordinated effort to develop recommendations and a copy of the completed report will be forwarded to you for your records.

Sincerely and with Highest Regards,

Archaeological Research and Supply Company
Nick Angeloff, MA
156 Grayland Heights Road, Rio Dell, CA 95562
Nangeloff.ceo@gmail.com
707.407.6205

Archaeological Research and Supply Company

To: Erika Cooper, M.A., THPO
266 Keisner Road
Loleta, CA 95551
Tel: 707.733.1900 x 233
Cell: 707.502.5233
Fax: 707.733.1727
Email: erikacooper@brb-nsn.gov

From: Archaeological Research and Supply Company
Nick Angeloff, MA
440 Wildwood Ave.
Rio Dell, CA 95562
Nangeloff.ceo@gmail.com
707.407.6205

Dear Ms. Cooper,

This letter is a request for any information the Bear River Band of Rohnerville Rancheria may wish to contribute regarding properties throughout southern Humboldt that are currently undergoing archaeological evaluations for cannabis cultivation operations. Individual projects are presented in the table below and the attached maps are numerically coordinated with listing in the table. In this light ARSC proposes to survey the APE of each parcel including a 600' buffer.

PROJECT	MAP	APN	APPS
Benbow Woodstock	1	033-081-056	12186
Harris Popov	2	216-072-009	11580
Whitethorn Jiacovini	3	220-141-009, 220-141-010	12605

The surveys will be intensive, using 15-meter transects. If conditions require, extended survey techniques will be employed using shovel probes or other expedient methods to examine soils in heavily vegetated areas. A standard Archaeological Resource Management Report (ARMR) formatted survey report will be developed including recommendations for any identified cultural resources. The report will be submitted to you for review prior to submission to the county to allow for any further insight or recommendations you may wish to incorporate.

In order to develop a complete report and inform the field survey, we are requesting any information that you may have regarding Tribal Cultural Resources regarding the subject parcel. We look forward to continuing this coordinated effort to develop recommendations and a copy of the completed report will be forwarded to you for your records.

Sincerely and with Highest Regards,

Archaeological Research and Supply Company

To: Hawk Rosales, Director
Sinkyone Intertribal Wilderness Council
200 South School St.
Ukiah, CA 95482
Tel: 707.468.9500
Email: director@sinkyone.org

From: Archaeological Research and Supply Company
Nick Angeloff, MA
440 Wildwood Ave.
Rio Dell, CA 95562
Nangeloff.ceo@gmail.com
707.407.6205

Dear Mr. Rosales,

This letter is a request for any information the Sinkyone Intertribal Wilderness Council may wish to contribute regarding properties throughout southern Humboldt that are currently undergoing archaeological evaluations for cannabis cultivation operations. Individual projects are presented in the table below and the attached maps are numerically coordinated with listing in the table. In this light ARSC proposes to survey the APE of each parcel including a 600' buffer.

PROJECT	MAP	APN	APPS
Hyampom Frederick	1	317-063-008, 317-064-007	11320
Dinsmore Petrusesvki	2	208-271-003	12656
Benbow Mussey	3	216-392-027, 216-392-025, 223-032-004	11327, 11325, 10643, 11188, 13756
Benbow Dogan	4	033-140-008,	TBD
Bear River Shelton	5	309-051-077	TBD
Salon Creek Carstensen	6	219-011-008	TBD
Ettersburg Popov	7	108-024-011	TBD
Dinsmore Dennis	8	210-102-006	TBD
Blocksburg Martin,	10	217-391-004, 217-411-011, 217-441-004, 217-411-008	12666, 12648, 12653, 12285
Blocksburg Penev	10	217-401-009, 217-391-008	11808, 11810
Blocksburg Roberts	10	217-401-011	12237
Blocksburg Stevens	10	217-391-001	13273
Island Mt. Heartwood	11	218-131-011, 218-141-009	12696

The surveys will be intensive, using 15-meter transects. If conditions require, extended survey techniques will be employed using shovel probes or other expedient methods to examine soils in heavily vegetated areas. A standard Archaeological Resource Management Report (ARMR) formatted survey report will be developed including recommendations for any identified cultural resources. The report will be submitted to you for review prior to submission to the county to allow for any further insight or recommendations you may wish to incorporate.

Archaeological Research and Supply Company

In order to develop a complete report and inform the field survey, we are requesting any information that you may have regarding Tribal Cultural Resources regarding the subject parcel. We look forward to continuing this coordinated effort to develop recommendations and a copy of the completed report will be forwarded to you for your records.
Sincerely and with Highest Regards,

Archaeological Research and Supply Company
Nick Angeloff, MA
440 Wildwood Ave., Rio Dell, CA 95562
Nangeloff.ceo@gmail.com
707.407.6205

Archaeological Research and Supply Company

To: Hawk Rosales, Director
Sinkyone Intertribal Wilderness Council
200 South School St.
Ukiah, CA 95482
Tel: 707.468.9500
Email: director@sinkyone.org

From: Archaeological Research and Supply Company
Nick Angeloff, MA
440 Wildwood Ave.
Rio Dell, CA 95562
Nangeloff.ceo@gmail.com
707.407.6205

Dear Mr. Rosales,

This letter is a request for any information the Sinkyone Intertribal Wilderness Council may wish to contribute regarding properties throughout southern Humboldt that are currently undergoing archaeological evaluations for cannabis cultivation operations. Individual projects are presented in the table below and the attached maps are numerically coordinated with listing in the table. In this light ARSC proposes to survey the APE of each parcel including a 600' buffer.

PROJECT	MAP	APN	APPS
Benbow Woodstock	1	033-081-056	12186
Harris Popov	2	216-072-009	11580
Whitethorn Jiacovini	3	220-141-009, 220-141-010	12605

The surveys will be intensive, using 15-meter transects. If conditions require, extended survey techniques will be employed using shovel probes or other expedient methods to examine soils in heavily vegetated areas. A standard Archaeological Resource Management Report (ARMR) formatted survey report will be developed including recommendations for any identified cultural resources. The report will be submitted to you for review prior to submission to the county to allow for any further insight or recommendations you may wish to incorporate.

In order to develop a complete report and inform the field survey, we are requesting any information that you may have regarding Tribal Cultural Resources regarding the subject parcel. We look forward to continuing this coordinated effort to develop recommendations and a copy of the completed report will be forwarded to you for your records.

Sincerely and with Highest Regards,

Appendix C: Confidential Records Search

Title	Description	Author	Date
S-039470	Archaeological Survey Report and Buried Site Sensitivity Study for the Garberville to Laytonville Transmission Line Project, Humboldt and Mendocino Counties, California. An investigation east and south of both project areas found no historic or prehistoric cultural resources.	Kimsey, Chris, et al.	2003
S-040118	Confidential Archaeological Addendum for Timber Operations on Non-Federal Lands in California, Prior Harris NTMP, 1-99NTMP-030 HUM. A survey east and southeast of the Popov project area found no historic cultural resources within ½ mile.	Cohoon, Ben C.	1999
S-047744	Cultural Resources Constraints Study for the Replacement of 40 Poles on the Garberville-Laytonville No. 3 60KV Transmission Line. An archaeological survey south of the Popov project area found no historic or prehistoric cultural resources.	Tremaine, Kim	2008
S-047823	A Cultural Resources Investigation of the Bell Springs Road Shaded Fuel Break/Safety Corridor Project, Located in Humboldt County, California. Archaeological investigation for a proposed fuel break with no historical resources identified east of both project areas.	Whiteman, Erik et al.	2008

Table 1 Previous Surveys

P Number	Site Type/ Description	Recorded By
NA	Bell Springs Taliaferro 1. Three high density lithic scatters with formed tools and three possible house pits. This site is at the top of Spruce Grove on a flat with contemporary residential structures and cultivation areas. Seven formed tools were identified, including ground stones and projectile points. This site is located within a ½ mile south east of the Peak project, but well outside of the area of potential effect.	Angeloff, Nick
NA	Bell Springs Taliaferro 2. Large prehistoric lithic scatter with fourteen identified formed tools located just downslope from 'Bell Springs Peak 1.' This site is nearby the above mentioned and also contains a cultivation area within the site boundaries. Approximately one-hundred chert flakes were identified throughout the site boundaries with the highest concentration designating the boundaries of Locus 1. This site is located within a ½ mile south east of the Peak project, but well outside of the area of potential effect.	Angeloff, Nick

State of California & The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code

Other Review Code | Reviewer | Date | Listings

Page 1 **of** 3 ***Resource Name or #:** (Assigned by recorder) Peak Isolates
P1. Other Identifier:

***P2. Location:** XNot for Publication ☐ **Unrestricted**
- ***a. County** Humboldt County **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
- ***b. USGS 7.5' Quad** Harris **Date** _ **T** 4S; **R** 4E; **of Sec** 25; Humboldt **B.M.**
- c. Address n/a City Harris Zip 95569
- d. UTM: (Give more than one for large and/or linear resources) Zone 10T, 442394 mE/ 4436554 mN
- e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
  Located on APN 216-083-002 and APN 216-082-006

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
One (1) sparse lithic scatter consisting entirely of low quality chert debitage, one (1) unshaped unifacial cobble mano, and one (1) Franciscan chert flake.

***P3b. Resource Attributes:** (List attributes and codes) AP2

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

***P4.Resources Present:** ☐ Building ☐ Structure ☐ Object ☐ Site ☐ District ☐ Element of District XOther (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #)

***P6. Date Constructed/Age and Source:** ☐Historic XPrehistoric ☐Both

***P7. Owner and Address:**
Kevin Peak; Harris, CA, 95569

***P8. Recorded by:** (Name, affiliation, and address)
Abby Barrios, B.A. and Tyler Padian, B.A. for ARSC at 440 Wildwood Ave. Rio Dell, CA 95562

***P9. Date Recorded:** 11/20/2018

***P10. Survey Type:** (Describe)
Transects and shovel probes

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
A Cultural Resource Investigation of the Harris Peak and Popov Properties

***Attachments:** ☐NONE XLocation Map XContinuation Sheet ☐Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

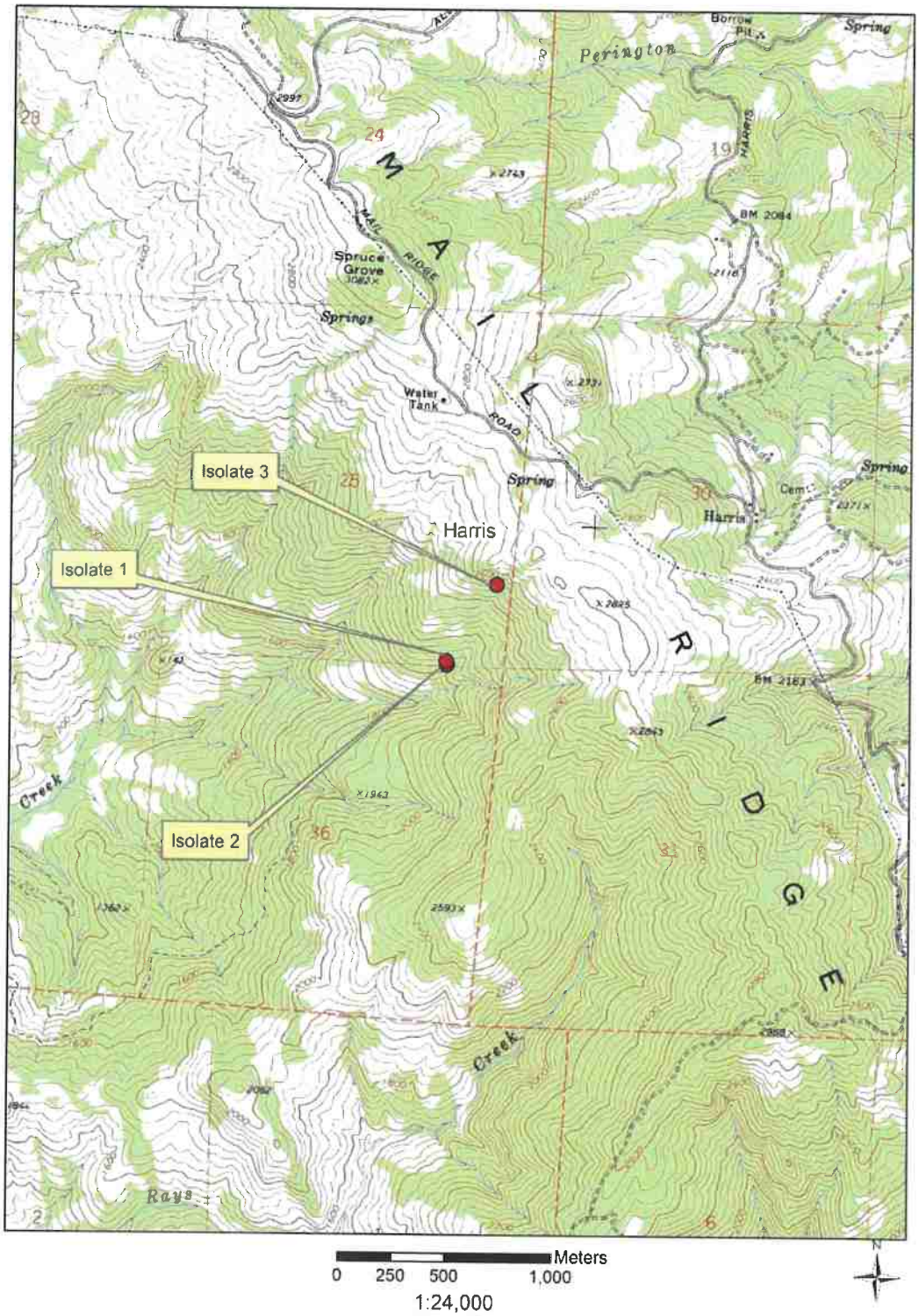
Sparse lithic scatter

Franciscan chert flake

State of California ♦ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 3 of 3 *Resource Name or # (Assigned by recorder) Peak Isolates

*Map Name: Harris 7.5' USGS *Scale: 24,000 *Date of map: 1972