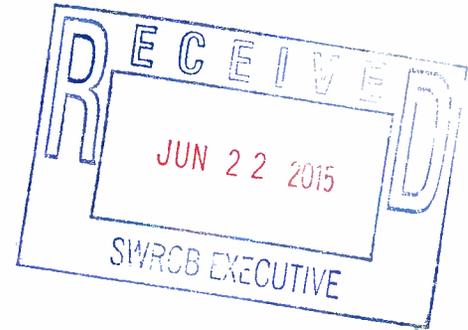




June 19, 2015

Ms. Felicia Marcus
Chairwoman
State Water Resources Control Board
Sacramento, CA

Received
JUN 2015
Office of the
Chief Counsel



Dear Chairwoman Marcus,

Attached please find Humboldt Redwood Company's Petition regarding THP 1-12-110 HUM which was filed today. The Petition covers specific details of our appeal. This cover letter is intended to provide the Board an overview of our business and activities we have undertaken to improve the forest we own.

The Humboldt Redwood Company (HRC) was formed in 2008 out of the bankruptcy of Pacific Lumber Company (PALCO, SCOPAC, Maxxam). HRC is the successor to PALCO. As most board members probably know, PALCO was taken over by a hostile leveraged buyout in 1986 by Texas financier Charles Hurwitz. In the more than 20 years Mr. Hurwitz controlled PALCO, clear cutting, targeting of old growth and unsustainably high levels of harvest were the norm. We believe many observers would easily agree that, under Mr. Hurwitz's ownership, the PALCO lands were the most controversially managed forestlands in the country.

HRC was formed following the efforts of the Fisher family (of San Francisco, founders of Gap Inc.), through its wholly owned Mendocino Redwood Company LLC (MRC), to reorganize the bankrupt PALCO in federal bankruptcy court in Corpus Christi, Texas. MRC's efforts to reorganize PALCO were supported in writing (and in some instances in person) by a consortium of environmental groups, prominent local citizens, Congressman Thompson, Governor Schwarzenegger, California Department of Forestry and Fire Prevention, California Department of Fish and Wildlife, USFW, North Coast Regional Water Quality Control Board, the State Water Resources Control Board and many other regulators of timberland management in California. The regulatory support for MRC's reorganization effort of PALCO was made without any implied regulatory assurances, but we retrace this history as a reminder of our shared hopes for the possibility of improved and sustainable management of these important forestlands.

As part of the contested reorganization (creditors of PALCO wanted to foreclose on its land collateral, without making any commitments for how the property would be managed going forward), HRC was founded on the premise that has been successfully in place with its sister company Mendocino Redwood Company (MRC) since 1998 – to both be good stewards of the forest and to also operate as a successful business.

The practical implementation of HRC's mission has come in the form of four objectives:

1. Substantially improve the standing inventory of coastal redwoods, Douglas fir, and other conifers on our land.
2. At a minimum, maintain, and in many places improve, the critical habitat for the terrestrial and aquatic species resident on our land.
3. Work toward restoring the species composition of the forests and wildlife present before commercial timber harvests began.
4. Operate as a successful business, including:
 - a. earning a return on invested capital,
 - b. providing several hundred living-wage, family jobs in rural communities,
 - c. producing quality products desired in the marketplace,
 - d. seeking support from our local community through sourcing local supplies and vendors, contributing to local charities and associations, and providing access to our property.
 - e. honoring financial commitments made in the bankruptcy organization, including supporting the historic PALCO pension plan, and investing in the operational facilities of the business.

These objectives have provided the framework for HRC to manage our land and are integral to our development of timber harvest plans (THPs) and long term planning.

HRC has used the THP and HCP processes as a guide to implementing our objectives in the field. Since 1998, our combined companies have submitted and received operational approval from regulatory agencies for hundreds of THPs across our combined ownership. (Seven (7) State and Federal agencies review and comment on THPs and, additionally, HRC is covered by an HCP which includes third party monitoring of all activities.) These plans detail our operations. They support the above objectives to provide a high level of stewardship on the lands we manage. Some of the results achieved under HRC ownership as of December 2014 through THPs completed and operated by HRC include:

1. Increased conifer inventory on HRC land from 3.9 billion boardfeet in 2008 to 4.4 billion boardfeet while harvesting 320 million boardfeet during the same period.
2. Successfully reduced the harvest to an annual average rate of 55 million boardfeet compared to up to 180 million board feet annually contemplated in the PALCO HCP.
3. Formed and implemented an old growth policy which HRC has used to protect old growth trees down to the level of individual trees.
4. Restored conifer dominance on more than 3,500 acres of invasive tan oak resulting in an over 1 million additional planted conifer seedlings in the forest.
5. Controlled approximately 400,000 cubic yards of sediment (over 40,000 dump truck loads).

6. In conjunction with the HCP, storm-proofed more than 500 miles of roads and upgraded over 1,400 road crossings of streams, creeks and rivers.
7. HRC has invested \$20 million into its Scotia based sawmill, and has provided all required support to the historic PALCO pension plan.

As this list demonstrates we are beginning to succeed in restoring the land and operating an economically successful business. In order to audit our aspirations of environmental sustainability we have submitted to full and transparent disclosure of activities and have our business independently certified by the Scientific Certification Systems in accordance with the rules of the Forest Stewardship, Council (FSC). FSC certification means the forest has been independently inspected and evaluated according to the environmental, social and economic principles and criteria adopted by the FSC. FSC is an international, nonprofit association whose membership includes environmental and social groups and progressive forestry and wood retail companies working in partnership to improve forest management worldwide. HRC has been FSC certified since soon after our inception.

The North Coast Regional Water Quality Control Board has failed to enroll Unit 1 of a previously reviewed and approved THP. HRC urges the State Water Resources Control Board to correct the action taken by the Regional Board. HRC encourages the State Board to also consider all the policies and commitments that have been successfully implemented at HRC, the overall level of harvest employed by the company, the ongoing investment in living wage manufacturing jobs made by HRC and the need for our regulatory system to operate with efficiency, as this appeal is evaluated.

Sincerely,



Robert (Bob) Mertz
CEO

CC: Members, California State Water Resources Control Board
Executive Officer, California State Water Resources Control Board

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6 Attorneys for Petitioner,
7 HUMBOLDT REDWOOD COMPANY, LLC

8 STATE WATER RESOURCES CONTROL BOARD

9

10

11 _____)
12 In the Matter of the California Regional)
13 Water Quality Control Board-North Coast)
14 Region Denial of the Request of Humboldt)
15 Redwood Company, LLC for Enrollment of)
16 Timber Harvest Plan 1-12-110 HUM under)
17 *General Waste Discharge Requirements for*)
18 *Discharges Related to Timber Harvest*)
19 *Activities on Non-Federal Lands in the*)
20 *North Coast Region, Order No. R1-2004-*)
21 *0030*)

**PETITION OF HUMBOLDT
REDWOOD COMPANY, LLC FOR
REVIEW AND REQUEST FOR
HEARING**

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1 I. **PETITION FOR REVIEW.**

2 Pursuant to Section 13320 of the California Water Code and Section 2050 of Title
3 23 of the California Code of Regulations (“CCR”), Humboldt Redwood Company, LLC
4 (“HRC” or “Petitioner”) petitions the State Water Resources Control Board (“State Board”)
5 to review and reverse the May 20, 2015 action of the California Regional Water Quality
6 Control Board, North Coast Region (“Regional Board”) denying Petitioner’s request for
7 enrollment of Timber Harvesting Plan 1-12-110 HUM (the “THP”) under the Regional Board’s
8 *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on*
9 *Non-Federal Lands in the North Coast Region*, Order No. R1-2004-0030 (“General WDRs”).
10 Hereafter, this May 20, 2015 denial of coverage under the General WDRs is referred to as
11 the “Denial of Enrollment.” True and correct copies of the Denial of Enrollment and the
12 General WDRs are respectively attached as Exhibits 1 and 2 to the declaration of Michael
13 E. Jani, concurrently submitted in support of this Petition (hereafter “Jani Decl.”).

14 Additionally, pursuant to Section 2052(c) of Title 23 of the California Code of
15 Regulations, Petitioner requests a hearing on this Petition. *See also* 23 CCR § 2050.6.

16 Petitioner HRC has submitted a letter to the State Water Resources Control Board to
17 accompany this Petition with relevant background and history of HRC to provide context
18 for this petition. Jani Decl., Ex. 3.

19 A. **NAME, ADDRESS, TELEPHONE NUMBER AND EMAIL ADDRESS**
20 **OF PETITIONER.**

21 Petitioner is Humboldt Redwood Company, LLC
22 Attn: Barry J. Weinert, Esq., Vice President, Legal Affairs
23 bweinert@mendoco.com
24 1360 19th Hole Drive, Suite 200
25 Windsor, CA 95492
26 Telephone: (707) 620-2967
27
28

1 Petitioner requests that copies of all communications and documents relating to this
2 Petition also be sent to:

3 Wayne M. Whitlock, Esq.
4 wayne.whitlock@pillsburylaw.com
5 Pillsbury Winthrop Shaw Pittman LLP
6 2550 Hanover Street
7 Palo Alto, CA 94304
8 Telephone: (650) 233-4528

9 B. **THE SPECIFIC ACTION OF THE REGIONAL BOARD THAT THE**
10 **STATE BOARD IS REQUESTED TO REVIEW.**

11 Petitioner seeks review of the Denial of Enrollment contained in the Regional
12 Board's May 20, 2015 letter to HRC. Specifically, Petitioner seeks an Order reversing the
13 Denial of Enrollment and granting enrollment of the THP under the General WDRs or
14 directing the Regional Board to enroll the THP. Although the Regional Board
15 characterized its Denial of Enrollment as a "postponement" of enrollment, it has the effect
16 of a denial and is therefore an act or failure to act that is reviewable under Water Code
17 Section 13320.

18 C. **THE DATE ON WHICH THE REGIONAL BOARD ACTED OR**
19 **FAILED TO ACT.**

20 The Regional Board acted or failed to act on May 20, 2015 when it refused to enroll
21 the THP under the General WDRs and issued the Denial of Enrollment.

22 D. **STATEMENT OF REASONS THE ACTION OR INACTION WAS**
23 **INAPPROPRIATE AND IMPROPER.**

24 The issues addressed in this petition were before the Regional Board when it
25 considered HRC's request for enrollment and issued its Denial of Enrollment. However,
26 there was no opportunity for review and comment or a hearing before the Regional Board
27 Executive Officer took this action (the Executive Officer is authorized to act on the
28 Regional Board's behalf regarding enrollment). As explained below, the Denial of
Enrollment was beyond the authority of the Regional Board, inappropriate, improper, and
not supported by the record.

1 1. **History of the Request for and Denial of Enrollment.**

2 The California Department of Forestry and Fire Protection (“CalFire”) is the state
3 agency assigned responsibility to regulate logging on private land in California, and to
4 ensure it is done in a manner to protect California fish, wildlife, forest and streams. A
5 landowner proposing to undertake logging on his land must prepare and submit an
6 environmental review document called a Timber Harvesting Plan (“THP”) to CalFire,
7 outlining the timber harvesting plan and the steps that will be taken to prevent damage to
8 the environment. THPs are prepared by Registered Professional Foresters (“RPFs”) who
9 are licensed to prepare these comprehensive, detailed plans.

10 Initial review of a THP is completed by a multi-agency team, including the
11 California Department of Fish and Wildlife; the applicable Regional Board, the California
12 Geological Survey, and other agencies as necessary. Any questions must be answered by
13 the RFP before the THP can be processed further. Once complete, a THP is officially
14 “filed.” The public is given an opportunity to comment and, commonly, a Pre-Harvest site
15 Inspection (“PHI”) is undertaken by the review team. A THP that is in compliance with
16 state and federal rules and laws must be approved by CalFire, which is designated the lead
17 agency for purposes of review under the California Environmental Quality Act (“CEQA”).

18 The THP at issue, THP 1-12-110 HUM, is for lands located within the Elk River
19 Watershed, which is listed as impaired under Clean Water Act Section 303(d). The
20 Regional Board is preparing a Total Maximum Daily Load (“TMDL”) for a portion of the
21 Elk River Watershed, the Upper Elk River. HRC, one of three large timberland landowners
22 in the watershed, has actively participated in the TMDL process and has conducted a
23 number of scientific studies addressing historic water quality issues in the watershed.

24 In this instance, the Regional Board actively participated in the review of the THP,
25 which was approved on April 26, 2013. A PHI was undertaken on January 9-10, 2013, with
26 representatives of the Regional Board in attendance, and HRC accepted all
27 recommendations of Regional Board staff made in its March 8, 2013 PHI Report. *Pre-*
28 *Harvest Inspection Report of the North Coast Regional Water Quality Control Board, THP*

1 12-110, March 8, 2013; *Response to PHI Inspection Report*, Humboldt Redwood Company
2 (March 13, 2013). Jani Decl., Exs. 4 and 5.

3 CalFire Hydrologist Pete Cafferata submitted a report summarizing the results of the
4 hydrological review. *Hydrologic Review of PHI 1-12-110*, Peter H. Cafferata, CalFire
5 Professional Hydrologist (January 29, 2013). Jani Decl., Ex.6. Based on the PHI and his
6 review of the peak flow model analysis provided in the THP, the Cafferata report endorsed
7 the conclusions of the THP regarding cumulative effects, i.e., that the THP would not cause
8 or contribute to cumulative effects associated with excess sediment loads and hydrological
9 modifications in Elk River. Modeled potential for sediment production and delivery to
10 watercourses from surface erosion, including harvest areas and THP appurtenant roads, is
11 provided in the THP and voluntarily offset through the identification and control of on-site
12 active or potential erosion sites. This is commonly known as “zero-net sediment
13 discharge,” meaning more sediment is being removed or prevented from entering
14 watercourses than is being delivered as a result of timber harvest operations.

15 CalFire, the lead agency for purposes of the project’s CEQA review, found that the
16 THP, with all the conditions incorporated into it, addressed all potential individual and
17 cumulative effects of the proposed activities. *Notice of Conformance and Official Response*
18 *to Comments*, CalFire (April 26, 2013). Jani Decl., Ex. 7.

19 In addition to the role of the Regional Board in participating on the THP review as
20 part of the CEQA process, the Regional Board regulates potential discharges from timber
21 harvesting operations. Under California’s Porter-Cologne Act, THP submitters may obtain
22 necessary permit coverage for such discharges by obtaining waste discharge requirements
23 (“WDRs”) or enrolling under applicable general WDRs under the California Water Code.
24 In the Elk River Watershed, HRC’s timber harvesting operations are subject to Watershed-
25 Wide Waste Discharge Requirements adopted in 2006. *Elk River Watershed-Wide Waste*
26 *Discharge Requirements for Timber Harvesting Activities Conducted by Humboldt*
27 *Redwood Company, LLC, in the Elk River Watershed*, Order No. R1-2006-0039 (“Elk River
28 WWDRs”). Jani Decl., Ex. 8. Under the Elk River WWDRs, HRC implements applicable

1 requirements of a Habitat Conservation Plan (“HCP”) approved in 1998 by the U.S. Fish
2 and Wildlife Service and National Marine Fisheries Service designed to protect salmon and
3 related beneficial uses in the Elk River Watershed. Under the HCP and the Elk River
4 WWDRs, HRC implements the results of watershed analyses prepared for the Elk River
5 watershed and specific prescriptions. In addition, these WWDRs, similar to GWDRs for
6 timber harvest activities, require the development of a THP erosion control plan (“ECP”).
7 For the subject THP, an enforceable ECP identifying and requiring control of all
8 controllable sediment sources in the THP area was prepared and submitted as part of the
9 THP and available for agency review during the THP review process including the PHI site
10 visit.

11 As described above, HRC has conducted extensive scientific analyses and worked
12 closely with Regional Board staff to address water quality issues in the Elk River
13 Watershed associated with historic timber harvesting activities. On the basis of this effort,
14 HRC has submitted a working draft Report of Waste Discharge to the Regional Board for
15 review in support of its pending request that the Regional Board issue updated watershed
16 wide WDRs for HRC’s operations in the Elk River Watershed. *Working Draft Report of*
17 *Waste Discharge, Elk River Watershed, Humboldt County, California*, Humboldt Redwood
18 Company (April 9, 2015) (the “Draft ROWD”). Jani Decl., Ex. 9. HRC’s enrollment
19 application incorporates all applicable recommendations of the pending ROWD.

20 Because portions of this THP are located outside of the area covered by the current
21 Elk River WWDRs, HRC and the Regional Board agreed that HRC would request
22 enrollment for this THP under the General WDRs, but would comply with all terms and
23 conditions of the WWDRs as well. HRC has worked in good faith with Regional Board
24 staff on enrollment issues associated with this THP since its approval in 2013. HRC
25 initially requested enrollment of a small, one-acre portion of lands covered by the THP in
26 the General WDRs. Specifically, on April 28, 2013, HRC requested General WDR
27 enrollment for construction and upgrading of a THP road segment and construction of a
28 permanent bridge over the South Fork Elk River. Jani Decl., Ex. 10. The Regional Board

1 approved this request on September 13, 2013. *Regional Board Letter to HRC re*
2 *Enrollment of THP 12-110*. Jani Decl., Ex. 11. Thereafter, HRC continued to work with
3 the Regional Board to obtain General WDR coverage for the remainder of the THP.

4 On April 27, 2015, HRC submitted its request for enrollment of the remainder of the
5 THP under the General WDRs. Jani Decl., Ex. 12. That submission represented the
6 culmination of years of significant interaction between HRC and Regional Board staff. As
7 described above, in addition to complying with the terms of the THP and the applicable
8 conditions of the General WDRs, HRC agreed to comply with all terms and conditions of
9 the Elk River WWDRs, even though portions of the THP are outside that portion of the
10 South Fork Elk River watershed. Further, HRC incorporated applicable measures from the
11 April 9, 2015 Draft ROWD that HRC had submitted in support of its proposal to update the
12 watershed-wide WDRs. Accordingly, the conditions incorporated into the enrollment
13 application for this THP represent best management practices based upon the best available
14 current science.

15 Notwithstanding all the measures incorporated into the THP (with active Regional
16 Board involvement and without objection) and enrollment application, the extensive
17 interaction of HRC and Regional Board staff, and all the well-supported conclusions in the
18 supporting documents—representing the best available scientific information—that the
19 THP would not cause or contribute to adverse conditions in the watershed (without
20 Regional Board objection), the Regional Board denied HRC’s April 27, 2015 request for
21 enrollment of the remainder of the THP under the General WDRs.

22 2. **The Enrollment Denial Is Inappropriate and Improper. It Is Not**
23 **Justified In Light of the Lack of THP-specific Basis Provided for**
24 **It.**

25 The Denial of Enrollment fails to explain adequately why the THP does not qualify
26 for coverage under the General WDRs, ignoring the application of the best available current
27 science reflected in the THP’s specific measures and analysis and compliance with all
28 applicable requirements. Instead, the Denial of Enrollment cites general concerns about

1 historic adverse conditions of the watershed, cites the TMDL development in process, and
2 cites provisions of the General WDRs and Elk River WWDRs under which the Regional
3 Board may deny enrollment if the specific circumstances justify such a denial. However,
4 the Denial provides no explanation of which, if any, of these provisions the Regional Board
5 considered and applied in the case of this THP enrollment.

6 The only site-specific reference in the Denial of Enrollment is the “proximity of the
7 THP to impaired reaches of the South Fork Elk River and the extremely sensitive geology
8 and erosive nature of the subwatersheds where this THP is located.” However, the Denial
9 does not assert and, indeed, provides no basis to conclude, that the THP would cause or
10 contribute to such adverse conditions. The Denial ignores the provisions of the THP,
11 supplemented in the enrollment process as described above, with measures that are
12 specifically designed to ensure that the THP would not have any such effects.

13 Further, even regarding the general conditions of the watershed, the Denial of
14 Enrollment improperly relies on outdated studies from the unapproved draft TMDL
15 sediment source analysis without citing any actual source or basis for the Regional Board’s
16 stated concerns and without acknowledging the more current available scientific
17 information reflected in the THP, the enrollment application and HRC’s supporting
18 documentation. Accordingly, these general references to existing sources of ongoing
19 cumulative impacts are improper because they provide no specific information regarding
20 any contribution of the THP to such concerns.

21 Further, the Denial of Enrollment cites the ongoing TMDL process and the Regional
22 Board’s intention to revise existing WDRs to incorporate as-yet undeveloped measures that
23 the Regional Board asserts “are expected to provide additional water quality protections.”
24 Of course, this process is not complete and the necessity and propriety of any such
25 measures has not been established and cannot be established until such measures are
26 developed and proposed.

27 The Denial also acknowledges the Draft ROWD and the sediment prevention and
28 minimization measures within but asserts that, until the TMDL process is complete and new

1 watershed wide WDRs are issued, timber harvesting activities are not warranted and must
2 wait until a revised permitting framework is in place. Again, the Denial of Enrollment
3 completely ignores the fact that this THP's measures are designed to mitigate or avoid any
4 adverse contribution to the general watershed conditions the Regional Board cites, and that
5 road-related upgrading and storm-proofing erosion control measures will, in fact, improve
6 water quality conditions in the watershed.

7 Accordingly, the Denial of Enrollment is arbitrary and capricious and an abuse of
8 the Regional Board's discretion, in that it denies enrollment to allow the completion of the
9 TMDL process and development of additional measures, without establishing the necessity
10 of such measures for this THP or the potential for such as yet unestablished measures to
11 provide water quality improvement. Without providing such information, the Regional
12 Board's assertions are speculative and do not provide a proper basis for denying enrollment.
13 Indeed, these assertions are entirely contrary to the analysis contained in the THP and
14 enrollment documentation that was before the Regional Board. Any concerns about the
15 THP's potential effect on stored sediment or impacts to impaired reaches of the South Fork
16 Elk Watershed are contrary to the site-specific analysis included with the THP and
17 enrollment documentation, including the supplemental measures from the ROWD
18 application that are incorporated in HRC's enrollment application.

19 In conclusion, there was substantial evidence before the Regional Board to show
20 that the THP complies with or exceeds the criteria for enrollment under the General WDRs
21 and complies with the existing WWDRs. There is no adequate basis for denying
22 enrollment or postponing it until the TMDL and WWDR update is complete. Therefore,
23 the Regional Board's Denial of Coverage is inappropriate and improper, arbitrary,
24 capricious, and an abuse of discretion and should be overturned.

25 E. **THE MANNER IN WHICH THE PETITIONER IS AGGRIEVED.**

26 The Regional Board's Denial of Enrollment has aggrieved Petitioner by denying
27 Petitioner the ability to carry out its timber harvesting plans as contemplated in the THP
28 and HRC's business plans. Among other things, under the Regional Board's Denial of

1 Enrollment, Petitioner will be exposed to unreasonable, improper, and unnecessary delays
2 in implementing its plans and additional as-yet undeveloped requirements and obligations.
3 As previously noted, road construction activities for this THP were previously enrolled and
4 completed. This THP was scheduled for harvest in 2015. As a result of this delay and to
5 ensure sustainable harvest levels are achieved, Petitioner will incur additional road
6 construction expenses on THPs not scheduled for harvest in 2015 as a replacement.
7 Petitioner will also incur additional road maintenance expenses on the THP subject to this
8 appeal as a result of this delay during the year of harvest.

9 F. **THE SPECIFIC ACTION BY THE STATE OR REGIONAL BOARD**
10 **THAT PETITIONER REQUESTS.**

11 Petitioner requests that the State Board rescind the Denial of Enrollment and either
12 grant enrollment or direct the Regional Board to enroll the THP under the General WDRs.

13 G. **A STATEMENT OF POINTS AND AUTHORITIES IN SUPPORT OF**
14 **LEGAL ISSUES RAISED IN THE PETITION.**

15 Petitioner's initial statement of points and authorities is set forth herein above.
16 Petitioner reserves the right to supplement this statement and file additional points and
17 authorities at a future date upon receipt and review of the administrative record and as
18 additional information and evidence is developed.

19 H. **STATEMENT THAT THE PETITION HAS BEEN SENT TO THE**
20 **REGIONAL BOARD AND TO THE DISCHARGER, IF NOT THE**
21 **PETITIONER.**

22 A copy of this Petition has been sent to the Regional Board.
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I. STATEMENT THAT THE SUBSTANTIVE ISSUES OR
OBJECTIONS RAISED IN THE PETITION WERE RAISED
BEFORE THE REGIONAL BOARD.

The history of Plaintiff's communications with the Regional Board with regard to this Order is set forth above. There was not an opportunity for a hearing on this matter or an opportunity for HRC to raise its objections before the Regional Board issued its Denial of Enrollment.

II. PETITIONER REQUESTS A HEARING ON THE ORDER.

Petitioner requests a hearing on the Order. In support of this request, it makes the following points:

(1) A summary of the arguments that Petitioner wishes to make at the hearing is provided in the Petition above.

(2) A summary of the testimony or evidence the petitioner wishes to introduce is provided in the Petition above, including all documents referenced in this Petition, although Petitioner reserves the right to supplement the testimony or evidence at or before the hearing.

Dated: June 19, 2015.

Respectfully submitted,

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10 Attorneys for Petitioner,
11 HUMBOLDT REDWOOD COMPANY, LLC

12 STATE WATER RESOURCES CONTROL BOARD

13 _____)
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19 *General Waste Discharge Requirements for*)
20 *Discharges Related to Timber Harvest*)
21 *Activities on Non-Federal Lands in the*)
22 *North Coast Region, Order No. R1-2004-*)
23 *0030*)

**DECLARATION OF MICHAEL E.
JANI IN SUPPORT OF PETITION
OF HUMBOLDT REDWOOD
COMPANY, LLC FOR REVIEW
AND REQUEST FOR HEARING**

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DECLARATION OF MICHAEL E. JANI

I, Michael E. Jani, hereby declare and state as follows:

1. I am President and Chief Forester of Humboldt Redwood Company, LLC (hereafter, "HRC"). In my capacity as President and Chief Forester of HRC, I am aware of and involved in the oversight of HRC's timber harvesting activities and its permitting activities associated therewith. Unless otherwise stated, I have personal knowledge of the matters described below and, if necessary, could and would competently testify thereto.

2. On May 20, 2015, the California Regional Water Quality Control Board, North Coast Region ("Regional Board") denied HRC's request for enrollment of Timber Harvesting Plan 1-12-110 HUM (the "THP") under the Regional Board's *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region*, Order No. R1-2004-0030 ("General WDRs"). Hereafter, this May 20, 2015 denial of coverage under the General WDRs is referred to as the "Denial of Enrollment." True and correct copies of the Denial of Enrollment and the General WDRs are attached hereto as Exhibits 1 and 2, respectively.

3. On June 19, 2015, Robert Mertz authored a letter to the State Water Resources Control Board with relevant background and history of HRC to provide context for the Petition being submitted concurrently herewith. A true and correct copy of that letter is attached hereto as Exhibit 3.

4. The THP at issue in HRC's Petition, THP 1-12-110 HUM, is for lands located within the Elk River Watershed, which is listed as impaired under Clean Water Act Section 303(d). I am informed and believe that the Regional Board is preparing a Total Maximum Daily Load ("TMDL") for a portion of the Elk River Watershed, the Upper Elk River. HRC is one of three large timberland landowners in the watershed, and under my oversight and guidance has actively participated in the TMDL process and has conducted a number of scientific studies addressing historic water quality issues in the watershed.

5. Based on my involvement in the process, I am aware that representatives of

1 the Regional Board actively participated in the review of the THP, which was approved on
2 April 26, 2013.

3 6. A Pre-Harvest site Inspection (“PHI”) was undertaken on January 9-10,
4 2013, with representatives of the Regional Board in attendance, and HRC accepted all
5 recommendations of Regional Board staff made in its March 8, 2013 PHI Report. A true
6 and correct copy of the *Pre-Harvest Inspection Report of the North Coast Regional Water*
7 *Quality Control Board, THP 12-110*, dated March 8, 2013 is attached hereto as Exhibit 4,
8 and a true and correct copy of the *Response to PHI Inspection Report*, Humboldt Redwood
9 Company dated March 13, 2013 is attached hereto as Exhibit 5.

10 7. On January 29, 2013, CalFire Hydrologist Pete Cafferata submitted a report
11 summarizing the results of the hydrological review of the PHI. Based on the PHI and his
12 review of the peak flow model analysis provided in the THP, the Cafferata report endorsed
13 the conclusions of the THP regarding cumulative effects, i.e., that the THP would not cause
14 or contribute to cumulative effects associated with excess sediment loads and hydrological
15 modifications in Elk River. A true and correct copy of the Mr. Cafferata’s *Hydrologic*
16 *Review of PHI 1-12-110* is attached hereto as Exhibit 6.

17 8. CalFire, the lead agency for purposes of the project’s California
18 Environmental Quality Act (“CEQA”) review, found that the THP, with all the conditions
19 incorporated into it, addressed all potential individual and cumulative effects of the
20 proposed activities. This finding is evidenced in the *Notice of Conformance and Official*
21 *Response to Comments*, CalFire dated April 26, 2013, a true and correct copy of which is
22 attached as Exhibits 7.

23 9. In the Elk River Watershed, HRC’s timber harvesting operations are subject
24 to Watershed-Wide Waste Discharge Requirements adopted in 2006, as set forth in the *Elk*
25 *River Watershed-Wide Waste Discharge Requirements for Timber Harvesting Activities*
26 *Conducted by Humboldt Redwood Company, LLC, in the Elk River Watershed*, Order No.
27 R1-2006-0039 (“Elk River WWDRs”). A true and correct copy of the Elk River WWDRs
28

1 is attached hereto as Exhibit 8.

2 10. For the subject THP, an enforceable erosion control plan identifying and
3 requiring control of all controllable sediment sources in the THP area was prepared and
4 submitted as part of the THP and available for agency review during the THP review
5 process including the PHI site visit.

6 11. Under my oversight, HRC has conducted extensive scientific analyses and
7 worked closely with Regional Board staff to address water quality issues in the Elk River
8 Watershed associated with historic timber harvesting activities. On the basis of this effort;
9 HRC has submitted a working draft Report of Waste Discharge to the Regional Board for
10 review, in support of its pending request that the Regional Board issue updated watershed
11 wide WDRs for HRC's operations in the Elk River Watershed. A true and correct copy of
12 this *Working Draft Report of Waste Discharge, Elk River Watershed, Humboldt County,*
13 *California,* Humboldt Redwood Company dated April 9, 2015 (the "Draft ROWD") is
14 attached hereto as Exhibit 9. HRC's enrollment application incorporates all applicable
15 recommendations of the pending ROWD.

16 12. Portions of this THP are located outside of the area covered by the current
17 Elk River WWDRs. As a result, HRC and the Regional Board agreed that HRC would
18 request enrollment for this THP under the General WDRs but would comply with all terms
19 and conditions of the WWDRs as well. HRC has worked in good faith with Regional
20 Board staff on enrollment issues associated with this THP since its approval in 2013. HRC
21 initially requested enrollment of a small, one-acre portion of lands covered by the THP in
22 the General WDRs. Specifically, HRC requested General WDR enrollment for
23 construction and upgrading of a THP road segment and construction of a permanent bridge
24 over the South Fork Elk River. A true and correct copy of the enrollment application is
25 attached as Exhibit 10. The Regional Board approved this request on September 13, 2013
26 as evidenced by the *Regional Board Letter to HRC re Enrollment of THP 12-110*, a true
27 and correct copy of which is attached hereto as Exhibit 11.

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- 4 -

1 13. Thereafter, HRC continued to work with the Regional Board to obtain
2 General WDR coverage for the remainder of the THP.

3 14. On April 27, 2015 HRC submitted its request for enrollment of the
4 remainder of the THP under the General WDRs. A true and correct copy of this request
5 is attached hereto as Exhibit 12.

6 15. The Regional Board's Denial of Enrollment has aggrieved HRC by denying
7 it the ability to carry out its timber harvesting plans as contemplated in the THP and HRC's
8 business plans. Among other things, under the Regional Board's Denial of Enrollment,
9 HRC will be exposed to unreasonable, improper and unnecessary delays in implementing
10 its plans and additional as-yet undeveloped requirements and obligations. For example,
11 road construction activities for this THP were previously enrolled and completed. This
12 THP was scheduled for harvest in 2015. As a result of this delay and to ensure sustainable
13 harvest levels are achieved, HRC will incur additional road construction expenses on THPs
14 not scheduled for harvest in 2015 as a replacement. HRC will also incur additional road
15 maintenance expenses on the THP subject to this appeal as a result of this delay during the
16 year of harvest.

17 I declare under penalty of perjury under the laws of the State of California that the
18 foregoing is true and correct.

19 Executed this 19th day of June, 2015 in Ukiah, California.

20 Michael E. Jani
21 Michael E. Jani

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EXHIBIT 1



North Coast Regional Water Quality Control Board

May 20, 2015

Mr. Tom Schultz, RPF
Humboldt Redwood Company
PO Box 712
Scotia, CA 95565

Dear Mr. Schultz:

Subject: Request for enrollment of Timber Harvest Plan 1-12-110 HUM under *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region*, Order No. R1-2004-0030

File: 1-12-110 HUM, McCloud Shaw THP

On April 27, 2015, the North Coast Regional Water Quality Control Board (Regional Water Board) received your request for enrollments of portions of timber harvest plan (THP) 1-12-110 HUM, under Order No. R1-2004-0030, *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region* (the General WDR). It was previously agreed that procedurally this THP could be enrolled under the General WDR conditioned on compliance with all terms and conditions of the *Elk River Watershed-Wide Waste Discharge Requirements for Timber Harvesting Activities Conducted by Humboldt Redwood Company, LLC, in the Elk River Watershed* (Elk River WDR), Order No. R1-2006-0039 (as amended by R1-2008-0100). While portions of the THP are located outside of the area covered under the Elk River WDR, discharges of waste from this location would occur within the watershed of concern under that Order, including the impacted downstream reach. The area requested for enrollment is comprised of 187 acres of selection harvest (114 acres of Tier I and 73 acres of Tier II) in Unit 1. The original Tier II enrollment package outlining all Tier II acres to be harvested was submitted to the Regional Water Board on April 23, 2013.

The Regional Water Board has determined that THP 1-12-110 HUM will not be granted permit coverage at this time. This decision is based on concerns over excess sediment loads and hydrologic modifications in Elk River, water quality standards not being achieved, and significant cumulative watershed impacts. Of particular concern is the proximity of the THP to impaired reaches of the South Fork Elk River and the extremely sensitive geology and erosive nature of the subwatersheds where this THP is located.

JOHN W. COFFEY, CHAIR | MATTHIAS ST. JOHN, EXECUTIVE OFFICER

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Additionally, the Regional Water Board is finalizing the Elk River TMDL and revising the existing timber permits for Elk River to incorporate implementation measures to address impaired conditions. These revisions are expected to provide additional water quality protections for the Elk River.

Section V(A) of Order No. R1-2004-0030 states:

"The Executive Officer shall rescind or deny the applicability of these General WDRs to a specific Project if the Executive Officer makes any of the following determinations:

1. The Project does not comply with any provision of these General WDRs;
2. The Project is reasonably likely to result or has resulted in a violation or exceedence of any applicable water quality requirement;
3. The Project has varied in whole or in any part from the approved Project in any way that could adversely affect water quality;
4. Where conditions unique to the watershed or watershed segment (including, but not limited to, cumulative impacts, special hydrographic characteristics, Total Maximum Daily Load standards, the extent of timber harvest activities, intensity of ground disturbing activities, large acreage ownership holdings or management plans, rainfall, slopes, soil, effected domestic water supplies, an increased risk of flooding, or proximity to local, State, or National Parks) warrant further regulation;
5. Where past land use activities unique to the watershed or watershed segment resulted in the discharge of human generated sediment in amounts which warrant further regulation;
6. When requested by another state agency, a subdivision of the state (county) or a federal agency, and with concurrence by the Executive Officer.
7. The Project is the subject of an unresolved non-concurrence filed by the Regional Board staff with CDF;
8. The Project meets the General WDR conditions, but may still result in discharge that could affect the quality of waters of the state."

Additionally, Section IX(A) of Order No. R1-2006-0039 states:

"The Executive Officer shall rescind or deny coverage for a THP under these watershed-wide WDRs if the Executive Officer makes any of the following determinations:

1. The THP does not comply with all Terms and Provisions of these watershed-wide WDRs, including, but not limited to, the receiving water limitations;
2. The THP is reasonably likely to result in or has resulted in a violation or exceedence of any applicable Water Quality Requirement;
3. The THP has varied in whole or in any part from the approved THP in any way that could adversely affect water quality;
4. When requested by another State agency, a subdivision of the State (county) or a Federal agency, and with concurrence by the Executive Officer;

EXHIBIT 2

California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2004-0030

General Waste Discharge Requirements
For
Discharges Related to Timber Harvest Activities
On Non-Federal Lands in the
North Coast Region

The California Regional Water Quality Control Board, North Coast Region, (hereinafter Regional Board) finds that:

1. California Water Code (CWC) Section 13260(a) requires that any person discharging waste or proposing to discharge waste within any region that could affect the quality of the waters of the state, other than into a community sewer system, shall file with the appropriate regional board a report of waste discharge (ROWD) containing such information and data as may be required by the Regional Board.
2. The Regional Board has a statutory obligation to prescribe waste discharge requirements except where the Regional Board finds that a waiver of waste discharge requirements for a specific type of discharge is in the public interest pursuant to CWC Section 13269.
3. CWC Section 13269 provides that any such waiver of waste discharge requirements shall be conditional, enforceable and may be terminated at any time by the Regional Board.
4. The Regional Board, in accordance with CWC Section 13269, waived waste discharge requirements for timber harvest activities in 1987 as set forth in Regional Board Resolution No. 87-113.
5. Recent amendments to CWC Section 13269 (Senate Bill 390) provide that existing waivers expired effective January 1, 2003, and that new waivers of waste discharge requirements for specific types of discharges must be renewed every five years.
6. In accordance with CWC Section 13269, the waste discharges for timber harvest activities shall be regulated in the future by waivers, or individual or general waste discharge requirements (WDRs).
7. The Regional Board, in compliance with CWC Section 13269, reviewed the previously issued categorical waiver for timber harvest activities (Regional Board Resolution No. 87-113) and adopted Order No. R1-2002-0109 "Interim Categorical Waiver for Discharges Related to Timber Operations in the North Coast Region," on December 10, 2002. Order No. R1-2002-0109 sunset on December 31, 2003, and was replaced with Order No. R1-2003-0116, which was adopted on November 5, 2003.
8. On March 24, 2004, the Regional Board adopted Order No. R1-2004-0015, Categorical Waiver for Discharges Related to Timber Harvest Activities on Federal Lands in the North

Coast Region. Order No. R1-2004-0015 rescinded sections of Order No. R1-2003-0116 that pertained to federal lands.

9. This Order rescinds the remaining portions of the prior Regional Board Order: "Interim Categorical Waiver for Discharges Related to Timber Operations in the North Coast Region," Order No. R1-2003-0116.
10. The US Environmental Protection Agency and State Water Resources Control Board must certify that the California Forest Practice Rules are Best Management Practices for timber operations on non-federal lands, at which time timber harvest activities on non-federal lands will be exempt from waste discharge requirements pursuant to the Z'berg-Nejedly Forest Practice Act Section 4514.3, except as provided for in Section 4514.3(b)(1)-(3). That has not occurred to date.
11. A Memorandum of Understanding (MOU) was entered into between the State Water Resources Control Board, Regional Water Boards and the California Department of Forestry and Fire Protection in March 2003 for the purpose of identifying procedures that will be used by each agency in carrying out their statutory responsibilities to prevent adverse effects on beneficial uses of water from silvicultural activities on non-federal land. Issues addressed in the MOU include application of CEQA to timber harvest review process, use of water quality standards and Basin Plans in timber harvest review process, monitoring of water quality, conflict resolution process, staff coordination and training and further actions.
12. These General Waste Discharge Requirements shall not create a vested right and all such discharges shall be considered a privilege, as provided for in CWC 13263.
13. This Order does not apply to discharges requiring an National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act, including, but not limited to, silvicultural point sources as defined in 40 Code of Federal Register (CFR) 122.27.
14. The Regional Board Executive Officer (Executive Officer) or Regional Board shall terminate the applicability of this Order to any timber harvest activities at any time when such termination is in the public interest and/or the timber harvest activities could affect the quality or beneficial uses of the waters of the state.
15. The Regional Board may determine that discharges for projects where the applicant proposes to obtain coverage under general WDRs contained herein would be better regulated under individual waivers, other general WDRs, watershed WDRs, ownership WDRs, or individual WDRs.
16. General WDRs for a type of discharge may be superceded by the adoption by the State Water Resources Control Board or Regional Board of specific or general waiver or waste discharge requirements.

17. Discharges from timber harvest activities are produced by similar operations, involve similar types of waste, and require similar treatment standards. Therefore, some of these discharges are appropriately regulated under general WDRs rather than individual WDRs.
18. Pursuant to the Water Quality Control Plan for the North Coast Region (Basin Plan), including State Water Resources Control Board (State Water Board) Resolution No. 88-63, the existing and potential beneficial uses of waters potentially affected by the proposed activity include:
 - a. Municipal and Domestic Supply (MUN)
 - b. Agricultural Supply (AGR)
 - c. Industrial Service Supply (IND)
 - d. Industrial Process Supply (PROC)
 - e. Groundwater Recharge (GWR)
 - f. Freshwater Replenishment (FRSH)
 - g. Navigation (NAV)
 - h. Hydropower Generation (POW)
 - i. Water Contact Recreation (REC-1)
 - j. Non-contact Water Recreation (REC-2)
 - k. Commercial and Sport Fishing (COMM)
 - l. Aquaculture (AQUA)
 - m. Warm Freshwater Habitat (WARM)
 - n. Cold Freshwater Habitat (COLD)
 - o. Estuarine Habitat (EST)
 - p. Marine Habitat (MAR)
 - q. Wildlife habitat (WILD)
 - r. Preservation of Areas of Special Biological Significance (BIOL)
 - s. Rare, Threatened, or Endangered Species (RARE)
 - t. Migration of Aquatic Organisms (MIGR)
 - u. Spawning, Reproduction, and/or Early Development (SPWN)
 - v. Shellfish Harvesting (SHELL)
19. The Basin Plan contains water quality objectives, prohibitions and policies developed to protect the above-listed beneficial uses of water. Economic considerations were considered as required by law during the development of these objectives, prohibitions and policies. Prohibitions, provisions, policies, and other specifications contained in this Order implement the Basin Plan and the Porter-Cologne Water Quality Control Act. Compliance with applicable water quality objectives, prohibitions, and policies will protect the beneficial uses listed in Finding 18 above.
20. As provided by CWC Section 13350(a), any person may be liable for civil penalties if that person in violation of a waiver condition or waste discharge requirements, discharges waste, or causes waste to be deposited where it is discharged, into the waters of the state and creates a condition of pollution or nuisance.

21. Most water bodies in the North Coast Region are listed as impaired due to either sediment and/or temperature (Section 303(d) of the Clean Water Act). Federal regulations require that a total maximum daily load (TMDL) be established for 303(d) listed water bodies for each pollutant of concern. TMDLs for North Coast water bodies are scheduled to be completed. In the absence of TMDLs, waste discharge requirements must be established to control pollutants of concern in discharges to 303(d) listed waters. Discharges cannot cause or contribute to water quality or beneficial use impairment.
22. This Order is intended to apply to new discharges from timber harvest activities that are not eligible for a waiver and are not otherwise required to obtain individual coverage.
23. This Order is consistent with the provisions of State Water Resources Control Board (State Water Board) Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California."
24. The Regional Board, acting as the lead agency for this project under the California Environmental Quality Act (Public Resources Code Section 21000 et seq.) (CEQA), has conducted an Initial Study in accordance with Title 14, CCR Section 15063.
25. Timber harvesting activities covered under these Waste Discharge Requirements must, as a precondition, have achieved compliance with CEQA through the Timber Harvest Plan (THP) approval process at the California Department of Forestry (CDF). In issuing THPs, CDF acts as "lead agency," using a certified "functional equivalency" process, producing the equivalent to an Environmental Impact Report.
26. The Regional Board does not grant timber harvest permits, but reviews these permitted activities and their attendant environmental documents to determine and require compliance with the Basin Plan and the Porter-Cologne Water Quality Control Act. In that process, the Regional Board acts as a responsible agency under CEQA, relying on the environmental review documents prepared by CDF. CEQA specifically provides that in so doing, the environmental documents prepared by the lead agency are to be conclusively presumed adequate, with limited specified exceptions, and must be relied upon by the responsible agency in complying with CEQA. (Pub. Resources Code, section 21167.2; Title 14, California Code of Regulations, section 15231.) In acting as a responsible agency reviewing these permitted operations, the Regional Board exercises its authority to require any additional regulatory restrictions that may be necessary to go beyond mere avoidance of "significant adverse environmental impacts," to require whatever is necessary to comply with the requirements of the Basin Plan and Porter-Cologne Water Quality Control Act.
27. Consistent with the CEQA Guidelines' Class 7 Exemption, these General WDRs are an action taken by a regulatory agency "to assure the maintenance, restoration, or enhancement of a natural resource where the regulatory process involves procedures for protection of the environment." (14 CCR § 15307.) Similarly, consistent with Class 8, these General WDRs are an action taken by a regulatory agency "to assure the maintenance, restoration, enhancement, or protection of the environment where the

regulatory process involves procedures for protection of the environment.” (14 CCR § 15308.)

28. Despite the eligibility for these exemptions, out of an abundance of caution, and knowing the controversial nature of timber harvest activities and all regulatory actions relating thereto, the Regional Board has prepared a CEQA document. That Negative Declaration is fully supported by the record and the law. There is no evidence in the record to support a fair argument that these WDRs will result in significant environmental effects
29. The Regional Board staff has prepared a proposed Negative Declaration, a copy of which is attached hereto, in accordance with CEQA and the CEQA Guidelines (Title 14, CCR Section 15000 et seq.). The Negative Declaration concludes that the adoption of these general waste discharge requirements for timber harvest operations pursuant to Order No. R1-2004-0030 will not have a significant impact on the environment.
30. Copies of the proposed Negative Declaration were transmitted to all agencies and persons known to be interested in this matter according to the applicable provisions of CEQA.
31. The Regional Board conducted a public hearing on June 23, 2004, in Santa Rosa, California, and considered all evidence concerning this matter and adopted the Negative Declaration, a copy of which is attached hereto, and this Order, General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities On Non-Federal Lands in the North Coast Region.
32. The Regional Board, based on the testimony received at the aforementioned hearing, and the Negative Declaration determine that the adoption of these General WDRs for timber harvest activities in accordance with Order No. R1-2004-0030 will be consistent with the Basin Plan, Porter-Cologne Water Quality Control Act, federal and state law, will be in the public interest, and will not have a significant impact on the environment.
33. The Regional Board, in accordance with CEQA and State Guidelines, determines that there will be no significant adverse environmental impacts, individually, or cumulatively from this Order provided that there is compliance with its prohibitions, provisions, criteria, and conditions.
34. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the proposed discharge.

THEREFORE, the Regional Board hereby approves and adopts the Negative Declaration and Initial Study prepared on this Order, and directs the Executive Officer to file all appropriate notices; and

IT IS ORDERED that effective June 23, 2004, Order No. R1-2003-0116 is hereby rescinded, except for application to Projects that have been accepted for filing but not yet approved by the California Department of Forestry and Fire Protection as of the adoption date of Order No. R1-2004-0016 and Order No. R1-2004-0030. Such Projects are eligible for coverage under Order

No. R1-2003-0116 until October 15, 2004, should they qualify under the terms and conditions of that Order. All other dischargers seeking coverage under this Order shall comply with the following:

SECTION I: DEFINITIONS

- A. "Controllable sediment discharge source" means sites or locations, both existing and those created by proposed timber harvest activities, within the Project area that meet all the following conditions:
1. is discharging or has the potential to discharge sediment to waters of the state in violation of applicable water quality requirements or other provisions of these General WDRs,
 2. was caused or affected by human activity, and
 3. may feasibly and reasonably respond to prevention and minimization management measures.
- B. "Discharger" means the timberland owner and anyone working on behalf of the timberland owner in the conduct of timber harvest activities on non-federal lands.
- C. "Erosion Control Plan" means a plan designed and implemented to prevent and minimize the discharge of sediment to waters of the state in violation of applicable water quality requirements or other conditions of this Order. The Erosion Control Plan (ECP) shall be developed by a qualified professional, included in the approved Project or submitted with the application when seeking coverage under these General WDRs, and shall incorporate Regional Water Board staff recommendations generated as part of the Project review and approval process that were designed to prevent and minimize discharge of sediment. The ECP shall include but is not limited to, a map clearly showing the location(s) of the site(s) that could discharge sediment, site specific designs and/or management measures to prevent and minimize the discharge of sediment, and a time schedule for implementation of site specific designs and/or management measures.
- D. "Minimization" means the treatment of the discharge or threatened discharge of sediment that cannot be prevented during design of the Project.
- E. "Monitoring" refers to all types of monitoring undertaken in connection with determining water quality conditions and factors that may affect water quality conditions. This includes, but is not limited to, assessment monitoring, trends monitoring, Basin Plan compliance monitoring, forensic monitoring, hillslope and instream effectiveness monitoring, and implementation monitoring.
- F. "Petroleum" means crude oil or any fraction which is liquid at 60 degrees Fahrenheit temperature at normal atmospheric pressure. This includes petroleum based substances comprised of a complex blend of hydrocarbons, such as gasoline, diesel, jet fuels, residual fuel oils, lubricants, some petroleum solvents, and used oils. Petroleum does not include liquid propane gas (LPG).

- G. "Prevention" means the Project has been designed to prevent the discharge or threatened discharge of sediment waste through the use of all feasible and reasonable project design, timing and sediment control practices.
- H. "Project" means any Timber Harvest Plan, Nonindustrial Timber Management Plan, other discretionary permits issued by the California Department of Forestry and Fire Protection (CDF) to harvest timber, including all amendments thereto that propose a change in timber harvest activities that in any way could adversely affect water quality, or any Notice of Exemption or Notice of Emergency Timber Operation accepted by CDF, or any other project, as defined by CEQA, that involves timber harvest activities provided that the project has complied with CEQA.
- I. "Qualified professional" means a person with the appropriate training and/or licensing to prepare technical reports designed to prevent the discharge of waste into waters of the state and conduct site inspections, including but not limited to, persons successfully completing the Ranch Water Quality Planning Short Course, Certified Erosion Control Specialist, Registered Professional Foresters, Registered Geologists, Certified Engineering Geologists, and Professional Civil Engineers.
- J. "Timber Harvest Activities" means commercial and non-commercial activities relating to forest management and timberland conversions. These activities include the cutting or removal or both of timber and other solid wood forest products, including Christmas trees, as well as, but not limited to, construction, reconstruction and maintenance of roads, fuel breaks, firebreaks, watercourse crossings, landings, skid trails, or beds for the falling of trees; fire hazard abatement and fuel reduction activities; burned area rehabilitation; site preparation that involves disturbance of soil or burning of vegetation following timber harvesting activities; but excluding preparatory treemarking, surveying or roadflagging.
- K. "Waste" includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. Wastes specifically regulated under this Order include: earthen materials including soil, silt, sand, clay, rock; organic materials such as slash, sawdust, or bark that enter or threaten to enter into waters of the state; heat; petroleum products; and nutrients. Not all wastes are covered by these WDRs. Examples of wastes not specifically regulated under these General WDRs include: pesticides, hazardous materials, or human wastes.
- L. "Water Quality Requirements" means a water quality objective (narrative or numeric), prohibition, TMDL implementation plan, policy, or other requirement contained in a water quality control plan adopted by the Regional Board and approved by the State Water Board, and all other applicable plans or policies adopted by the Regional Board or State Water Board, including, but not limited to, the State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California.

All other terms shall have the same definitions as prescribed by the California Forest Practice Rules as of June 1, 2004, and the Porter-Cologne Water Quality Control Act.

SECTION II: STRUCTURE OF ORDER AND APPLICATION PROCEDURES

This section briefly explains the structure of this Order and application procedures.

A. Order Structure

This Order sets out general WDRs for timber harvest activities conducted on non-federal lands in the North Coast Region. These General WDRs are for Projects that do not qualify for the waiver of waste discharge requirements under Order R1-2004-0016 (Categorical Waiver). Projects that do not qualify, or are denied coverage, under these General WDRs, are required to submit a report of waste discharge for individual WDRs.

These General WDRs set out water quality requirements, specific provisions, required technical reports, and reporting requirements, general conditions and provisions, and termination and denial of coverage. These General WDRs prohibit the discharge of waste to waters of the state in violation of applicable water quality requirements or other provisions of these General WDRs and require the submission of technical reports developed to identify discharge sources and the appropriate management measure(s) to address each source and to set out a time schedule to implement those management measures. Dischargers seeking coverage under these General WDRs must submit an application and a filing fee. An annual fee is required while a Project is covered under these General WDRs.

B. Application Procedures

Generally, the Regional Board receives approved or accepted Project documents from the lead agency, such as CDF. These documents are part of the record for each General WDRs issued. Provided the approved or accepted Project documents are received from the lead agency, the Discharger will not be required to submit a copy to the Regional Board.

1. To seek coverage under these General WDRs, the Discharger shall file an application and filing fee. The application shall consist of (1) a letter requesting coverage under these General WDRs, or a Report of Waste Discharge Form 200 or equivalent document, (2) the approved or accepted Project document when directed by the Executive Officer, (3) the required technical reports (see section III.C.), which may be accepted as clearly delineated sections in the approved Project document, and (4) a filing fee in accordance with the attached fee schedule (Attachment 1). The application shall comply with the signatory requirements contained in section IV.S.
2. Coverage under these General WDRs shall not take effect until: (1) the Discharger's application is determined to be complete; and (2) the Discharger has received written notification from the Executive Officer or the Regional Board stating that coverage under these General WDRs is appropriate, or at least 90 days have passed since CDF's

approval and there is no threat of pollution or nuisance. It is anticipated that Projects which have had thorough Regional Water Board staff involvement in the review and approval process will receive written notification of coverage within ten (10) working days of receipt of a complete application.

3. For an approved Program Timberland Environmental Impact Report (PTEIR), the proponent of each future Program Timber Harvesting Plan (PTHP) shall seek coverage under this Order for each new PTHP.

SECTION III: GENERAL WASTE DISCHARGE REQUIREMENTS FOR PROJECTS ON NON-FEDERAL LANDS

A. Discharge Prohibitions

1. Discharges of waste, which are not otherwise authorized by waste discharge requirements issued by this Regional Board or the State Water Resources Control Board, to waters of the state are prohibited, except as allowed in section III.A.5.
2. Discharges shall not cause or threaten to cause pollution, contamination, or nuisance.
3. Discharges shall not adversely impact human health or the environment or the beneficial uses of water set out in the Basin Plan.
4. Authorization pursuant to these General WDRs does not constitute an exemption to applicable water quality requirements.
5. Discharges are authorized only where they do not cause or contribute to a violation or exceedance of applicable water quality requirements and are controlled through implementation of appropriate project design and management measures for prevention and minimization of waste discharges.

B. Receiving Water Limitations

1. Discharges of waste shall not violate or exceed any applicable water quality requirement as these may be modified from time to time pursuant to amendments to water quality control plans adopted by the Regional Board and approved by the State Water Board, and water quality control plans and policies adopted by the State Water Board.
2. The technical reports developed for Projects covered by these General WDRs shall be designed and implemented such that discharges shall not cause or contribute to a violation or an exceedance of any applicable water quality requirements and shall not cause or contribute to a violation of any of the prohibitions of these General WDRs.
3. Should it be determined by the Discharger or the Regional Board that discharges are causing or contributing to a violation or an exceedance of an applicable water quality

requirement or a violation of a General WDR prohibition (above), the Discharger shall:

a. Implement corrective measures immediately following discovery that applicable water quality requirements were exceeded or a prohibition violated, followed by notification to the Regional Board by telephone as soon as possible but no later than 48 hours after the discharge has been discovered. This notification shall be followed by a report within 14 days to the Regional Board, unless otherwise directed by the Executive Officer, that includes:

1. the date the violation was discovered;
2. the name and title of the person(s) discovering the violation;
3. a map showing the location of the violation site;
4. a description of recent weather conditions prior to discovering the violation;
5. the nature and cause of the water quality requirement violation or exceedence or General WDR prohibition violation;
6. photos of the site characterizing the violation;
7. the management measure(s) currently being implemented;
8. any maintenance or repair of management measures;
9. any additional management measures which will be implemented to prevent or reduce discharges that are causing or contributing to the violation or exceedence of applicable water quality requirements or General WDR prohibition violation;
and,
10. The signature and title of the person preparing the report.

This report shall include an implementation schedule for corrective actions and shall describe the actions taken to reduce the discharges causing or contributing to the violation or exceedence of applicable water quality requirements or General WDR prohibition violation.

- b. The Discharger shall revise the appropriate technical report immediately after the report to the Regional Board to incorporate the additional management measures that have been and will be implemented, the implementation schedule, and any additional inspections or monitoring that is needed.
- c. Compliance with the required technical reports and the implementation of required corrective measures shall not prevent the Regional Board from taking enforcement action under any other requirements of this Order.

C. Specific Provisions

Project sites have the potential to discharge waste for several years while the forest regenerates. Thus, Project planning and erosion prevention or soil stabilization management measures are key components to retain earthen material and other wastes on the Project site. The most efficient ways to address erosion prevention is to limit disturbance, avoid steep or unstable slopes, preserve existing vegetation where feasible,

and to stabilize and re-vegetate exposed areas as soon as possible after land disturbing activities.

To the extent feasible, the Discharger shall design Project features, such as but not limited to, silviculture methods, road alignment, yarding methods, tractor operations and timing of timber harvest activities to prevent waste discharges in amounts that would violate applicable water quality requirements or other provisions of these General WDRs.

The development of the required technical reports will be used as the basis for corrective actions undertaken to control sediment, fuel, and other potential waste discharge sources within the Project area. Designs and corrective actions shall be implemented in the following sequential manner. First, the discharge or threatened discharge of sediment waste shall be prevented through the use of feasible and reasonable adjustments to the project design, scale and rate of disturbance alternatives and sediment control practices. Second, the discharge or threatened discharge of sediment waste that cannot be fully prevented shall be minimized through the use of feasible and reasonable project design alternatives, project timing, and sediment control practices. Project design alternatives, project timing, and control practices shall be designed and implemented to prevent and minimize the discharge of waste to a level that does not violate applicable water quality requirements, and shall be included in the technical reports. If a Project cannot be designed to comply with applicable water quality requirements through prevention and minimization, the Project will be denied coverage under these General WDRs and the Discharger shall submit a Report of Waste Discharge and seek coverage under an individual WDR.

1. Technical Reports

Dischargers shall incorporate the following technical report(s) into the Project as a separate section(s) or submit them with their application when seeking coverage under these General WDRs:

a. Erosion Control Plan

For each Project covered under this Order, an Erosion Control Plan (ECP), as described in section III.D., shall be developed and implemented to prevent and minimize the discharge or threatened discharge of sediment from controllable sediment discharge sources into waters of the state in violate an applicable water quality requirement or other provision of this Order. Sites already covered by formal, existing agreements with the Regional Board design to prevent and minimize discharges do not need to be included in the ECP.

b. Fuel Management Plan

A Fuel Management Plan, as described in section III.E., shall be developed, as applicable, to prevent and minimize the discharge of petroleum products to waters of the state.

2. Other Technical Reports

The Executive Officer may require other technical reports as necessary to determine if the Project warrants coverage under these General WDRs.

3. Inspection Plan and Reporting Program

An Inspection Plan shall be developed to document implementation and effectiveness of management measures used to protect waters of the state for each Project covered by these General WDRs.

If the Executive Officer determines that the Project as described may cause or contribute to a violation of applicable water quality requirements due to for example, including but not limited to, the cumulative impacts of past and planned timber harvest activities, the Discharger will be required to apply for coverage under individual WDRs.

D. Erosion Control Plan

An Erosion Control Plan (ECP) shall be developed and implemented for each Project enrolled under these General WDRs. The ECP shall be developed for the entire Project area, including roads used for timber harvest activities owned by or under the control of the Discharger. The ECP shall be designed to prevent and minimize the discharge or threatened discharge of sediment or other earthen material from controllable sediment discharge sources into waters of the state to the degree necessary to avoid a violation of applicable water quality requirements or other provisions of this Order. Sediment discharge sources include, but are not limited to, failing or failed watercourse crossings, road failures, road surfaces, landslides, unstable features discharging to or near watercourses, unstable watercourse banks, soil stockpiles, storage of sediment, vehicle and equipment storage and service areas, skid trails, landings, exposed harvest units, or any other location discharging sediment or earthen materials. The ECP shall be amended and revised, when necessary, to meet this standard.

1. Contents of an ECP

- a. An inventory of all controllable sediment discharge sources within the Project area, and,
- b. A time schedule, which must be during coverage under General WDRs, for implementation of prevention and minimization management measures.

2. Inventory and Treatment of Controllable Sediment Sources

The on-the-ground inventory of controllable sediment discharge sources will be used to identify the existing or threatened controllable sediment discharge sources within the Project area and provide a time schedule for implementation of prevention and minimization management measures. Any method or model used to develop the inventory shall be briefly described and shall be of demonstrated effectiveness and applicability for the specific sediment discharge sources in the Project area to attain compliance with applicable water quality requirements. Site evaluations are required in

preparing the inventories to fully assess on-the-ground conditions and to facilitate the detection of threatened or existing controllable sediment discharge sources. Sites already covered by formal, existing agreements with the Regional Board design to prevent and minimize discharges do not need to be included in the ECP, but should be briefly described. The inventory shall include:

- a. A brief description of the inventory method(s) and/or model(s) used,
- b. A topographic map, at a scale of 1:12000 or greater (e.g. 1:6000) with no greater than 80' contours, showing the Project boundary and location of all inventoried controllable sediment discharge sources, and
- c. An estimate of the sediment volume and the relative potential for sediment delivery from each inventoried site.

3. Implementation Schedule

The development of a Project-wide time schedule for implementation of prevention and minimization management measures will be used to guide corrective actions for the Project area. Prevention and minimization management measures shall be of demonstrated effectiveness and applicability for the specific sediment discharge sources in the Project area to achieve compliance with applicable water quality requirements. The time schedule must be during the time the Project is covered under General WDRs, and provide for timely implementation to prevent and minimize sediment discharge sites in the order of priority. The time schedule will include:

- a. A narrative description of the site-specific prevention and minimization management measure(s) prescribed for each controllable sediment discharge source identified in the inventory, and
- b. A schedule for implementing prevention and minimization management measures for controllable sediment discharge sources. The priority shall be based on the volume of sediment and threat to water quality with the highest priority assigned to the largest sediment discharge sources that discharge to waters that support domestic water supplies or fish.

E. Fuel Management Plan

The objectives of a fuel management plan are water quality protection from the use and storage of petroleum products and to assure that all State and Federal regulations pertaining to the handling and storage of fuel are adhered to during logging operations. These regulations include the "California Aboveground Petroleum Storage Act with 1991 Amendments" (Cal. Health & Saf. Code, section 25270 et seq.) and the "U.S. Environmental Protection Agency Regulations on Oil Pollution Prevention" (40 CFR 112)

1. Applicability

All Projects that make use of petroleum stored in a single tank greater than 1,320 gallons or facilities storing petroleum in aboveground tanks or containers with a cumulative storage capacity of greater than 1,320 gallons. (Cal. Health & Saf. Code, section 25270.2 (k) of the Aboveground Petroleum Storage Act defines certain tanks not subject to the program).

2. Requirement

The Discharge shall prepare and implement a Spill Prevention Control and Countermeasure (SPCC) plan and a copy of the SPCC plan must be maintained at the facility. The SPCC shall require construction and maintenance of impermeable secondary containment.

F. Inspection Plan and Reporting Requirements

For each Project, Dischargers shall develop and implement an Inspection Plan for evaluating the implementation and effectiveness of the management measures in the Erosion Control Plan or other plans that may be developed to prevent and minimize discharges of waste. Inspections shall also be used to determine if any new controllable sediment discharge sources have developed within the Project area.

1. Inspection Plan

The Inspection Plan shall be designed to ensure that all required management measures are installed and functioning prior to rain events, that the management measures were effective in controlling sediment discharge sources throughout the winter period, and that no new controllable sediment discharge sources developed. The Inspection Plan shall include a narrative discussion of the program to inspect and maintain all identified management measures throughout the duration of the Project. A site map that depicts the inspection locations to be visited before, during, and after the winter period shall be included in the Inspection Plan.

Inspections conducted prior to the winter period shall be designed to assure that management measures are properly installed and maintained; winter period inspections should be designed to assure and assess management measure performance and determine if new controllable sediment discharge sources developed; post-winter period inspections should be designed to assure that the management measures have functioned adequately and whether any new controllable sediment discharge sources have developed. Management measures shall be evaluated for adequacy and proper implementation and whether additional management measures are required in accordance with the terms of this Order.

2. Site Inspections

Qualified professionals shall conduct all specified inspections of the Project site to identify areas causing or contributing to a violation of applicable water quality requirements or other provisions of these General WDRs. The name(s) and contact number(s) of the assigned inspection personnel shall be listed in the Inspection Plan. The following inspection requirements shall begin once the startup of timber harvest activities begin within Project areas.

a. Project Areas where Timber Harvest Activities have not yet Commenced

No inspections are required.

b. Project Areas where Timber Harvest Activities have Commenced and No Winter Period Timber Harvest Activities have Occurred

At a minimum, conduct inspections each year and throughout the duration of the Project while Timber Harvest Activities occur and the Project is covered under General WDRs as follows:

1. By November 15 to assure Project areas are secure for the winter; and
2. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and
3. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

c. Project Areas With Winter Period Timber Harvest Activities

Project areas with timber harvest activities during the winter period shall, at a minimum, conduct inspections of such Project areas while Timber Harvest Activities occur and the Project is covered under General WDRs as follows:

1. Immediately following the cessation of winter period timber harvest activities to assure areas with winter timber harvest activities are secure for the winter;
2. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and
3. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

- d. Inspection reports prepared pursuant to section III.G. shall identify where management measures have been ineffective and when the Discharger will implement repairs or design changes to correct management measure failures.
- e. If any new controllable sediment discharge sources are identified, such sites shall be addressed in accordance with the provisions of section III.B.3.
- f. Equipment, materials, and workers shall be available for rapid response to failures and emergencies, and implement, as feasible, emergency management measures depending upon field conditions and worker safety for access.

3. Reporting Requirements

If during any inspection or during the course of conducting timber harvest activities, a violation of an applicable water quality requirement or conditions of these General WDRs is discovered, the provisions of section III.B.3. shall be followed.

For all other inspections conducted pursuant to section III.G. where violations are not discovered, the Discharger shall submit a summary report to the Executive Officer by June 30th for each year of coverage under these General WDRs or upon termination of

coverage. The summary report shall at a minimum include the date of each inspection, the inspector's name, the location of each inspection, and the title and name of the person submitting the summary report.

4. Public Documents

The technical reports are considered a report that shall be available to the public by the Regional Board.

5. Preparer Certification

The technical reports, any amendments, and inspections reports shall be signed by the Discharger or their duly authorized representative, pursuant to section IV.S., and shall include the date of initial preparation and the date of each amendment.

6. Implementation

The requirements of this section shall be implemented at the time of commencement of the Project. The Discharger is responsible for implementing these requirements until coverage under this Order is terminated or rescinded.

G. Amendments

All amendments to Projects enrolled in the General WDRs shall be reviewed by the Discharger for compliance with the provisions of those General WDRs. The Discharger shall update the ECP, implementation schedule, and inspection plan as necessary to remain consistent with these General WDRs, and submit the updated documents to the Regional Water Board, if updates are necessary, to maintain coverage under these General WDRs. If the approved amendment is found to be out of compliance with these General WDRs, the Discharger shall amend the Project to be consistent with the provisions of the General WDR within 30 days, or coverage under these General WDRs shall be terminated. If enrollment in the General WDRs is terminated, the Discharger shall seek Project coverage under an individual WDR.

SECTION IV: GENERAL CONDITIONS AND PROVISIONS

The following conditions and provisions apply to all Projects seeking coverage under these General WDRs.

A. CEQA Compliance

Any Project seeking coverage under this Order shall be in compliance with CEQA prior to the Executive Officer issuing, authorizing, or otherwise approving coverage under this Order.

B. Inspection and Entry

The Discharger shall allow the Regional Board staff entry onto the affected property, with reasonable notice, for the purposes of observing, inspecting, photographing, video taping,

measuring, and/or collecting samples or other monitoring information to document compliance or non-compliance with this Order. If entry is unreasonably withheld, the Executive Officer may terminate the applicability of the Order pursuant to section V.A. of this Order.

The Discharger shall allow Regional Board staff access to copy at reasonable times any records that must be kept under the conditions of these General WDRs.

C. Monitoring and Reporting Requirements

The Discharger shall develop and implement additional monitoring and reporting requirements when directed in writing by the Executive Officer.

D. Proposed Pesticide Applications

For those Projects where application of pesticides is proposed or being considered, the Discharger shall notify the Regional Board in writing at least 45 days prior to any proposed aerial application of pesticides and 30 days prior to any proposed ground-base application of pesticides. The notification shall include the type of pesticide(s), method and area of application, projected date of application, and measures that will be employed to assure compliance with applicable water quality requirements. Subsequent changes to the proposed application must be submitted in writing forthwith, and in no event less than 14 days before the pesticide application, unless Regional Board staff agrees in writing to a lesser notice. This Order does not authorize the application or discharge of pesticides.

E. Nonindustrial Timber Management Plan Notification

For an approved Nonindustrial Timber Management Plan, each future Notice of Timber Operations shall be submitted to the Regional Board five (5) days prior to commencement of timber harvest activities.

F. Compliance with Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Act provides significant penalties for any person who violates a permit prohibition, limitation, or provision. Any person who violates any permit condition of this Order may be subject to a penalty thereunder.

G. Compliance with Eligibility Criteria and Conditions

Notwithstanding any other provision of this Order, the burden is on the Discharger to demonstrate that each finding required for coverage under this general waste discharge requirements can be made, and that each and every term, eligibility criteria and condition has been met. Notwithstanding any other provision of this Order, no general waste discharge requirements coverage shall be valid unless each and every term, eligibility criteria and condition is met.

H. Duty to Comply

The Discharger must comply with all of the conditions of these General WDRs. Any noncompliance constitutes a violation of the Porter-Cologne Water Quality Control Act and is grounds for enforcement action and/or removal from General WDR coverage.

I. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of these General WDRs.

J. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain any facilities and systems which are installed or used by the Discharger to achieve compliance with the conditions of these General WDRs and with the requirements of the technical reports. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

K. Property Rights

These General WDRs does not convey any property rights of any sort or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of Federal, State, or local laws or regulations.

L. Duty to Provide Information

Upon written request by the Executive Officer, the Discharger shall furnish the Regional Board, within a reasonable time, any requested information to determine compliance with these General WDRs. The Discharger shall also furnish, upon request, copies of records required to be kept by these General WDRs.

M. Anticipated Noncompliance

The Discharger will give advance written notice to the Regional Board of any planned changes in the Project which may result in noncompliance with General WDR requirements.

N. Severability

The provisions of these General WDRs are severable; and, if any provision of these General WDRs or the application of any provision of these General WDRs to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of these General WDRs shall not be affected thereby.

O. Reopener Clause

These General WDRs may be modified, revoked and reissued, or terminated for cause.

P. Availability

A copy of these General WDRs, the technical reports, and monitoring program shall be provided to appropriate operating personnel, including, but not limited to, Registered Professional Foresters, Licensed Timber Operators and monitoring staff. The required technical reports shall remain on the Project site in the possession of appropriate operating personnel while the site is under operations during working hours, commencing with the initial timber harvest activity and ending with termination of coverage under these General WDRs.

Q. Transfers

Enrollment in these General WDRs are not transferable. A new owner of an ongoing Project must submit an application in accordance with the requirements of these General WDRs to be authorized to discharge under these General WDRs. An owner who sells property covered by these General WDRs shall inform the new owner of the duty to file an application and shall provide the new owner with a copy of these General WDRs. Failure to inform the new owner shall not release the selling owner from any potential liability for failure to comply with the terms and conditions of these General WDRs while under the Discharger's control, nor will it release the buyer from any potential liability for failure to apply for coverage under these WDRs, or other provisions of the Porter-Cologne Water Quality Control Act.

R. Required Changes

1. The Discharger shall amend the technical reports whenever there is a change in the Project that may adversely affect receiving waters or ground waters. The technical reports shall also be amended if the Discharger violates any condition of these General WDRs or has not achieved the general objective of preventing and minimizing sediment discharges. Additionally, the ECP shall be updated if new controllable sediment discharge sources are found.
2. The Regional Board or Executive Officer may require the Discharger to amend the technical reports for cause.

S. Signatory Requirements

All applications, Notice of Terminations, technical reports, inspection reports, certifications, and reports prepared in accordance with this Order submitted to the Regional Board shall be signed by the Discharger or their duly authorized representative(s). Duly authorized representatives include registered professional foresters, licensed timber operators, and other licensed professionals hired by the Discharger and responsible for

some portion of the conduct of the timber harvest activities. Irrespective of who signs any required documents, the timberland owner is responsible for compliance with all requirements and these General WDRs.

T. Failure to Obtain Coverage

Dischargers who fail to obtain coverage under this Order or another applicable order will be subject to enforcement under California Water Code (CWC) Section 13264 and other applicable law if their Project results in an un-permitted discharge of waste.

SECTION V: RESCISSION AND DENIAL OF COVERAGE

- A. The Executive Officer shall rescind or deny the applicability of these General WDRs to a specific Project if the Executive Officer makes any of the following determinations:
1. The Project does not comply with any provision of these General WDRs;
 2. The Project is reasonably likely to result or has resulted in a violation or exceedence of any applicable water quality requirement;
 3. The Project has varied in whole or in any part from the approved Project in any way that could adversely affect water quality;
 4. Where conditions unique to the watershed or watershed segment (including, but not limited to, cumulative impacts, special hydrographic characteristics, Total Maximum Daily Load standards, the extent of timber harvest activities, intensity of ground disturbing activities, large acreage ownership holdings or management plans, rainfall, slopes, soil, effected domestic water supplies, an increased risk of flooding, or proximity to local, State, or National Parks) warrant further regulation.
 5. Where past land use activities unique to the watershed or watershed segment resulted in the discharge of human generated sediment in amounts which warrant further regulation.
 6. When requested by another state agency, a subdivision of the state (county) or a federal agency, and with concurrence by the Executive Officer.
 7. The Project is the subject of an unresolved non-concurrence filed by the Regional Board staff with CDF.
 8. The Project meets the General WDR conditions, but may still result in discharge that could affect the quality of waters of the state.
- B. Upon receipt of a rescission or denial notice of these General WDRs, the Discharger shall immediately cease all timber harvest activities that may result in unpermitted discharges of waste to waters of the state, other than activities necessary to control erosion. Upon notice of termination or denial, the Discharger must file a report of waste discharge and applicable filing fee for individual, watershed, or ownership-wide WDRs. Timber harvest activities that may result in discharges that could affect the quality of waters of the state may commence only upon enrollment by the Executive Officer under individual or watershed waste discharge requirements, the adoption by the Regional Board of an individual waiver of waste discharge requirements or individual waste discharge requirements, or otherwise in accordance with CWC Section 13264(a).

- C. The applicability of this Order to a specific Project is immediately terminated on the receipt of a notice of rescission of applicability or on the effective date of either a categorical waiver of WDRs, an individual waiver of WDRs, individual WDRs, general or watershed WDRs or a NPDES permit that covers or permits the specific Project.

SECTION VI: TERMINATION OF COVERAGE

- A. The Discharger may terminate coverage under these General WDRs for a completed Project by submitting to the Regional Board a Notice of Termination form (NOT). The NOT shall be signed in accordance with section IV.S. Note that a Project is considered complete when the following conditions have been met:
1. Timber harvest activities are completed,
 2. The Project site is stabilized,
 3. There is no potential for waste discharges from the Project in violation of the Basin Plan or these General WDRs.
 4. All elements of the technical reports have been completed,
 5. Earthen materials and waste have been disposed of properly,

The Executive Officer shall review the NOT and determine its appropriateness by assessing Items VI.A.1-5 above. The review may include a field inspection to verify Project completeness. The Executive Officer shall notify the Project proponent regarding approval or disapproval of the NOT.

Certification:

I, Catherine Kuhlman, Executive Officer do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on June 23, 2004.

Catherine Kuhlman
Executive Officer

EXHIBIT 3



June 19, 2015

Ms. Felicia Marcus
Chairwoman
State Water Resources Control Board
Sacramento, CA

Dear Chairwoman Marcus,

Attached please find Humboldt Redwood Company's Petition regarding THP 1-12-110 HUM which was filed today. The Petition covers specific details of our appeal. This cover letter is intended to provide the Board an overview of our business and activities we have undertaken to improve the forest we own.

The Humboldt Redwood Company (HRC) was formed in 2008 out of the bankruptcy of Pacific Lumber Company (PALCO, SCOPAC, Maxxam). HRC is the successor to PALCO. As most board members probably know, PALCO was taken over by a hostile leveraged buyout in 1986 by Texas financier Charles Hurwitz. In the more than 20 years Mr. Hurwitz controlled PALCO, clear cutting, targeting of old growth and unsustainably high levels of harvest were the norm. We believe many observers would easily agree that, under Mr. Hurwitz's ownership, the PALCO lands were the most controversially managed forestlands in the country.

HRC was formed following the efforts of the Fisher family (of San Francisco, founders of Gap Inc.), through its wholly owned Mendocino Redwood Company LLC (MRC), to reorganize the bankrupt PALCO in federal bankruptcy court in Corpus Christi, Texas. MRC's efforts to reorganize PALCO were supported in writing (and in some instances in person) by a consortium of environmental groups, prominent local citizens, Congressman Thompson, Governor Schwarzenegger, California Department of Forestry and Fire Prevention, California Department of Fish and Wildlife, USFW, North Coast Regional Water Quality Control Board, the State Water Resources Control Board and many other regulators of timberland management in California. The regulatory support for MRC's reorganization effort of PALCO was made without any implied regulatory assurances, but we retrace this history as a reminder of our shared hopes for the possibility of improved and sustainable management of these important forestlands.

As part of the contested reorganization (creditors of PALCO wanted to foreclose on its land collateral, without making any commitments for how the property would be managed going forward), HRC was founded on the premise that has been successfully in place with its sister company Mendocino Redwood Company (MRC) since 1998 – to both be good stewards of the forest and to also operate as a successful business.

The practical implementation of HRC's mission has come in the form of four objectives:

1. Substantially improve the standing inventory of coastal redwoods, Douglas fir, and other conifers on our land.
2. At a minimum, maintain, and in many places improve, the critical habitat for the terrestrial and aquatic species resident on our land.
3. Work toward restoring the species composition of the forests and wildlife present before commercial timber harvests began.
4. Operate as a successful business, including:
 - a. earning a return on invested capital,
 - b. providing several hundred living-wage, family jobs in rural communities,
 - c. producing quality products desired in the marketplace,
 - d. seeking support from our local community through sourcing local supplies and vendors, contributing to local charities and associations, and providing access to our property.
 - e. honoring financial commitments made in the bankruptcy organization, including supporting the historic PALCO pension plan, and investing in the operational facilities of the business.

These objectives have provided the framework for HRC to manage our land and are integral to our development of timber harvest plans (THPs) and long term planning.

HRC has used the THP and HCP processes as a guide to implementing our objectives in the field. Since 1998, our combined companies have submitted and received operational approval from regulatory agencies for hundreds of THPs across our combined ownership. (Seven (7) State and Federal agencies review and comment on THPs and, additionally, HRC is covered by an HCP which includes third party monitoring of all activities.) These plans detail our operations. They support the above objectives to provide a high level of stewardship on the lands we manage. Some of the results achieved under HRC ownership as of December 2014 through THPs completed and operated by HRC include:

1. Increased conifer inventory on HRC land from 3.9 billion boardfeet in 2008 to 4.4 billion boardfeet while harvesting 320 million boardfeet during the same period.
2. Successfully reduced the harvest to an annual average rate of 55 million boardfeet compared to up to 180 million board feet annually contemplated in the PALCO HCP.
3. Formed and implemented an old growth policy which HRC has used to protect old growth trees down to the level of individual trees.
4. Restored conifer dominance on more than 3,500 acres of invasive tan oak resulting in an over 1 million additional planted conifer seedlings in the forest.
5. Controlled approximately 400,000 cubic yards of sediment (over 40,000 dump truck loads).

6. In conjunction with the HCP, storm-proofed more than 500 miles of roads and upgraded over 1,400 road crossings of streams, creeks and rivers.
7. HRC has invested \$20 million into its Scotia based sawmill, and has provided all required support to the historic PALCO pension plan.

As this list demonstrates we are beginning to succeed in restoring the land and operating an economically successful business. In order to audit our aspirations of environmental sustainability we have submitted to full and transparent disclosure of activities and have our business independently certified by the Scientific Certification Systems in accordance with the rules of the Forest Stewardship, Council (FSC). FSC certification means the forest has been independently inspected and evaluated according to the environmental, social and economic principles and criteria adopted by the FSC. FSC is an international, nonprofit association whose membership includes environmental and social groups and progressive forestry and wood retail companies working in partnership to improve forest management worldwide. HRC has been FSC certified since soon after our inception.

The North Coast Regional Water Quality Control Board has failed to enroll Unit 1 of a previously reviewed and approved THP. HRC urges the State Water Resources Control Board to correct the action taken by the Regional Board. HRC encourages the State Board to also consider all the policies and commitments that have been successfully implemented at HRC, the overall level of harvest employed by the company, the ongoing investment in living wage manufacturing jobs made by HRC and the need for our regulatory system to operate with efficiency, as this appeal is evaluated.

Sincerely,



Robert (Bob) Mertz
CEO

CC: Members, California State Water Resources Control Board
Executive Officer, California State Water Resources Control Board

EXHIBIT 4



North Coast Regional Water Quality Control Board

March 8, 2013

To: Fred Blatt, Regional Water Board (RWB)
Fortuna Second Review Chairperson, CALFIRE
Leslie Markham, Deputy Chief, CALFIRE
Jon Woessner, RPF, HRC
Mike Miles, RPF, HRC
Mark Distefano, RPF, Timberland Resource Consultants (TRC)

From: Maggie Robinson, P.G. #8011

Subject: Pre-Harvest Inspection Report for Timber Harvest Plan 1-12-110 HUM, Tom Gulch, Railroad Gulch, McCloud Creek, Clapp Gulch, Lower S.F. Elk River, Mainstem Elk River

I. INTRODUCTION

RWB staff attended the preharvest inspection (PHI) for the subject timber harvest plan (THP) on the following dates; January 9 – 10, 2013. Also present for the inspection were:

Gerald Marshall, California Geologic Survey (Jan 9 & 10)
Bill Forsberg, CALFIRE (Jan 9 & 10)
Jon Woessner, Humboldt Redwood Company, LLC (HRC) (Jan 9 & 10)
Shane Beach, HRC (Jan 9 & 10)
Mark Distefano, TRC (Jan 9 & 10)
Joelle Geppert, RWB (Jan 9)
Pete Cafferata, CALFIRE (Jan 9)
Jim Robbins, CALFIRE (Jan 9)
Mike Miles, HRC (Jan 10)
Adona White, RWB (Jan 10)

The THP proposes to harvest 590 acres under the selection, group selection, and road right of way prescriptions. The weather on the inspection dates varied from overcast to raining with scattered bursts of hail.

This agency's participation during the PHI focused primarily on physical factors that could potentially affect water quality. In particular:

- Calculated erosion hazard rating;
- Reduction of basal area and possible increases in peak flows at the planning watershed sub-drainage level;
- The potential effects of increases in peak flows on in-stream deposits at the planning watershed sub-drainage level;
- Watercourse and wet area classification and protection;
- Winter period use of the existing appurtenant road system and its associated truck and tractor watercourse crossings; and,
- The completeness of the Cumulative Watershed Effects (CWE) Analysis.

Additionally, the inspection provided an opportunity to evaluate whether the proposed project will comply with all requirements of the *Water Quality Control Plan for the North Coast Region* (Basin Plan) and the *Porter-Cologne Water Quality Control Act* (Porter-Cologne).

The purpose of this report is to address the plan-specific observations and recommendations made during the PHI.

II. BACKGROUND

Geology of Elk River

The geology underlying the THP's landscape is comprised of the relatively young, easily eroded Tertiary to Quaternary aged undifferentiated Wildcat Group (Qtwu) and the Quaternary aged Hookton formation (Qh). The undifferentiated Wildcat Group is described as a thick transgressive-regressive sequence of late Miocene to Middle Quaternary age, consisting of light grey, weakly consolidated marine and non-marine mudstone, siltstone, and sandstone deposits (Ogle 1953; Clarke 1992; McLaughlin 2000;) This group weathers to become granular, non-cohesive, non-plastic, clayey silts and clayey sands. The Wildcat Group has low permeability which allows it to easily become saturated with water, and, when bedding planes are subparallel to the hillslope, it is very prone to landsliding (PWA 1998).

The undifferentiated Wildcat Group is overlain by the Hookton formation, a red to yellow-brown, weakly consolidated sandstone and sandy pebble conglomerate, as well as similar Quaternary marine terrace (Qmts) and river terrace (Qrt) deposits. The October 22, 2012, engineering geologic evaluation of the THP area states that it is likely that the underlying mudstones and siltstones of the undifferentiated Wildcat Group forms an aquitard beneath the well-drained sands of the Hookton formation and creates a higher potential for elevated groundwater pore pressures at depth, which allows deep-seated translational landsliding (Oswald, 2012). Both the Wildcat Group and the Hookton formation are

extremely erodible when vegetative cover is removed or when surface and subsurface runoff patterns are altered.

Beneficial Uses of the Elk River Hydrologic Sub-Area

Units of the THP are located within the Tom Gulch, Railroad Gulch, McCloud Creek, Clapp Gulch, Lower S.F. Elk River, and Mainstem Elk River planning watersheds, which, in turn, are within the Elk River Hydrologic Sub-Area. The Basin Plan lists the beneficial uses of the Elk River Hydrologic Sub-Area as including, but not limited to Municipal Water Supply (MUN); Agricultural Supply (AGR); Groundwater Recharge (GWR); Freshwater Replenishment (FRSH); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial or Sport Fishing (COMM); Cold Freshwater Habitat (COLD); Wildlife Habitat (WILD); Rare Threatened or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction; and/or Early Development (SPWN). Additional beneficial uses include Flood Peak Attenuation/Flood Water Storage (FLD); Wetland Habitat (WET); and Water Quality Enhancement (WQE) (Basin Plan, 1994, updated 2007).

Water Quality Concerns for the Elk River Hydrologic Sub-Area

At present, there is an abundance of documentation of the impairment of the beneficial uses of water in the upper Elk River watershed. Timber-harvest related land management practices in the North Fork, South Fork, and forested portions of the mainstem have resulted accelerated sediment delivery within the watershed which has altered channel and floodplain morphology, elevated channel base levels and reduced channel capacity, increased flooding frequency and magnitude, impaired domestic water supplies, and degraded salmonid habitat.

The Basin Plan does not assign priority to the beneficial uses of water for any of the waterbodies in the north coast region. Typically, in north coast streams the beneficial use most sensitive to turbidity, sediment, and temperature impairments are those related to cold water fish (COLD). However, in the Elk River watershed, and particularly the South and North Forks, the municipal drinking water supply use (MUN) is also considered a sensitive beneficial use.

The RWB is concerned about past and ongoing water quality degradation in the Elk River basin, particularly at the confluence of the North Fork and South Fork Elk River. Elk River was listed on California's Clean Water Act Section 303(d) list in 1998 as water quality limited due to impacts of excessive sedimentation on beneficial uses.

In 2002, as a result of this listing, the RWB began development of a sediment Total Maximum Daily Load (TMDL) document for the Upper Elk River watershed. As of the writing of this report, drafts of the TMDL have been sent out for scientific peer review.

III. GENERAL DESCRIPTION OF THE THP

The plan consists of three units (1 – 3) that are located approximately 1.2 air miles, 2.3 air miles, and 3.4 air miles (respectively) northeast and southeast of College of the Redwoods, California. They include portions of Sections 1-3, of Township 3 North, 1 West; and Sections 26-28, 34-36, Township 4 North, 1 West.

The harvest units contain a mixture of conifers and hardwoods. The calculated EHR for the plan area is Moderate. Silvicultural methods for this THP consist 234 acres of selection, 301 acres of group selection, and 5.2 acres of road right of way. There is an additional 49.8 acres of no-harvest areas. Tractor, skidder, feller, cable ground, cable high lead, cable skyline, and helicopter yarding are proposed. Several segments of new seasonal native-surfaced road construction – predominantly along ridgelines - are proposed, totaling 10,275 ft. Proposed winter operations consist of felling of trees. No hauling or yarding is proposed during the winter period. The erosion hazard rating (EHR) is listed as moderate.

IV. PHI OBSERVATIONS

Area topography varies from gentle upper slopes to extremely steep inner gorge slopes. Numerous unstable areas were observed in and/or adjacent to the plan area. Access to the plan is off Elk River Road at mile point 8. Please refer to the attached maps (Map 1 – 3) for points discussed below.

Roads/Landings

All points contained within the Road Work Order (including the subset of ECP points contained therein) were evaluated during the PHI. The PHI team focused on Unit 3 on January 9, 2013, and Units 2 and 1 on January 10, 2013. With the exception of the following road points, proposed road construction, and watercourse crossing upgrades and repairs were found to be appropriate.

Road Points 950, 1270, and 25. Road point 950 on the U06.0812, road is an undersized 30-inch culvert crossing on an unnamed Class I tributary to Clapp Gulch. Point 1270 on the U06.0812 road is a 48-inch culvert crossing on Clapp Gulch, a Class I watercourse. Point 25 on the U06.08122028 road is an undersized 30-inch culvert on an unnamed Class I watercourse that drains to Elk River. The road work order proposes the replacement of all three culverts with bridges. RWB staff agree with the proposed replacements, however, in light of the severe impairment of the watershed from fine sediment, more information on the proposed bridges is warranted, including abutment design, and any necessary grade control.

Upon request HRC provided staff on March 7, 2013, with copies of the sketch maps for points 950, 1270, and 25. The maps contain information relating to upstream/downstream gradient, bridge and bridge abutment design, road and bridge surface elevations and rock size and depth.

Road Point 2150. Point 2150 on the U06.0812 road is located at a spring above the road. A rocked dip/ford is proposed at this location to convey the flows from the spring across the road. Given the steep outboard edge of the road and the high potential for erosion, it was discussed and agreed that the rock at the outlet of the dip/ford would also be extended over the edge of the road fill in order to prevent increased erosion and to serve as an energy dissipator (**Recommendation 1**).

Road Point 7465. Point 7465 on the U06.0825 road is an existing fill crossing on a Class III watercourse. The road work order proposes to install a 24-inch culvert at this location. It was discussed and agreed that, for ease of maintenance, a rocked dip/ford will be installed at this location instead (**Recommendation 2**).

Road Point 6969. Point 6969 on the U06.0825 road is an existing crossing on a Class III watercourse. The work order specifies the installation of a critical dip at the left hingeline of the crossing and the installation of a rocked rolling dip 75 feet south of the crossing. Upon field evaluation, the PHI team found that the outlet of the culvert is "shotgunned". It was discussed and agreed that an energy dissipator would be installed below the outfall of the pipe to prevent future erosion at the site (**Recommendation 3**).

Road Point 6475. Point 6475 on the U06.0825 road is not listed in the work order or the ECP. The PHI team found numerous soil pipes and an eroding rolling dip at this location. It was discussed and agreed that this location would be evaluated and added to the work order and ECP (**Recommendation 4**).

Road Points 0 – 1050 and 1050 to 2450. Points 0 - 2450 off the U06 road consist of reconstruction of an existing seasonal road segment, a new permanent bridge crossing on the South Fork Elk River, and a proposed new seasonal road segment. The proposed work will take place on the property of an adjacent landowner and provide equipment access to the Tom Gulch Area in lieu of utilizing an existing triple span bridge located on a different adjacent landowner's property. A report discussing the road points begins on Page 331.1 of the THP.

The proposed work consists of the reconstruction of a 1,300 foot segment of seasonal road spur off Elk River Road, across grass covered pasture and into the 100-year flood plain to the South Fork Elk River. The proposed new permanent bridge across the South Fork Elk River will consist of utilizing two 89-foot railcars placed side by side on pre-fabricated interlocking concrete block abutments. It is anticipated that four courses of blocks will be utilized to raise the running surface of the bridge above the 100 year flood flows. Culverts will be installed in the bridge ramps to allow for passage of flood waters. The remaining 1,050 foot segment of new seasonal road construction will extend from the bridge across pasture for approximately 280 feet then proceed to climb up 50% to 60% slopes. A large assemblage of woody debris upstream of the bridge location will be removed as part of the proposed work. Presently the woody debris is directing river flows into the western bank of the river at this location resulting in erosion and widening of the channel.

Given that this is a new permanent bridge installation, that use of the bridge will not be restricted to solely timber harvesting operations, and that large woody debris will be removed as part of the bridge installation, RWB staff believe that the work proposed at these road points may potentially be subject to Clean Water Act Section 404 (CWA§404) permitting from the US Army Corps of Engineers (ACOE). In the event of this, the Regional Water Board would be required to issue a CWA§401 permit. RWB staff recommended that HRC provide written documentation from the ACOE that the bridge is not subject to CWA§404 permitting authority. If HRC already has documentation from the ACOE please provide it (**Recommendation 5**).

Watercourses

We inspected portions of most of the watercourses in the plan area to evaluate classification and afforded protection measures. Two small headwater Class III watercourses were evaluated for channel incision and bank erosion. One of the Class IIIs showed some incision through in-channel deposits. These were postulated to be from previous logging entries in the area. The second Class III appeared to be stable with no downcutting. RWB staff have no recommendations regarding watercourse classification and protection at this time.

V. General and Watershed-Wide Waste Discharge Requirements

On June 23, 2004, the North Coast Regional Water Quality Control Board (Regional Water Board) adopted Order No. R1-2004-0030, *General Waste Discharge Requirements For Discharges Related to Timber Harvest Activities On Non-Federal Lands in the North Coast Region* (GWDR).

On May 8, 2006, the Regional Water Board adopted Order No. R1-2006-0039 (as amended by order No. R1-2008-0100 to reflect new ownership), *Watershed-Wide Waste Discharge Requirements for Timber Harvesting Plan Activities Conducted by Humboldt Redwood Company, LLC, In the Elk River Watershed* (HRC Elk River WDR). Electronic versions of the GWDR and the HRC Elk River WDR may be obtained via the Internet at:

http://www.waterboards.ca.gov/northcoast/water_issues/programs/timber_operations/timber_waiver/

and:

http://www.waterboards.ca.gov/northcoast/board_decisions/adopted_orders/pdf/2006/060508_R1-2006-0039_Elk_WWDRs.pdf

After consultation the Regional Water Board, Humboldt Redwood Company (HRC) will seek Regional Board permitting coverage for the McCloud Shaw THP under the General WDR for timber (Order R1-2004-0030). In addition to complying with the terms and conditions of Order R1-2004-0030, as a condition of enrollment of the McCloud Shaw THP under R1-2004-0030, HRC will also comply with all the general terms and conditions of Order R1-2006-0039 (as amended by R1-2008-0100), and specifically the terms, conditions, and limits for the South Fork Elk River. Regional Water Board staff will determine THP permitting eligibility following plan approval and review of the application for permit coverage.

VI. Recommendations

Recommendations and comments are provided pursuant to the statutory authority contained in the Porter Cologne Water Quality Control Act (California Water Code Section 13000 et seq.), the Basin Plan, and the Z'Berg Nejedly Forest Practice Act (PRC Section 4582.6), and in accordance with Forest Practice Rules 14 CCR 1037.5(f). Regional Water Board staff request that the following recommendations be included in the THP to help ensure protection of the beneficial uses of water and meet compliance with the Basin Plan. Given that time constraints allowed for only portions of the THP area to be reviewed, these recommendations may not be the only measures necessary to protect against all foreseeable impacts to water quality.

Recommendations 1 through 4 were agreed to during the PHI. Recommendation 5 is supported by the documentation provided in this report.

Recommendation 1. At point 2150 on the U06.0812 road the rock at the outlet of the rocked dip/ford will be extended over the edge of the road fill in order to prevent erosion and serve as an energy dissipator.

Recommendation 2. At point 7465 on the U06.0825 road a rocked dip/ford will be installed at this location.

Recommendation 3. At point 6969 in the U06.0825 road an energy dissipator will be installed below the outfall of the shotgunned pipe.

Recommendation 4. Point 6475 on the U06.0825 road will be evaluated and added to the work order and ECP.

Recommendation 5. HRC shall provide written documentation from the ACOE that the proposed permanent bridge at road point 1050 is not subject to CWA§404 permitting authority.

References

CDF, 2013, California Forest Practice Rules

Clarke, S.H., And Carver G.A., 1992. Late Holocene Tectonics and Paleoseismicity, Southern Cascadia Subduction Zone, Science, V. 255, P 188 – 192.

McLaughlin, R.J., Ellen, S.P., Blake, M.C. Jr., Jayko, A.S., Irwin, W.P., Aalto, K.R., Carver, G.A. and Clarke, S.H. Jr., 2000. Geology of the Cape Mendocino, Eureka, Garberville, and Southwestern Part of the Hayfork 30 x 60-Minute Quadrangle and Adjacent Offshore Area, Northern California. MF-2336. USGS.

North Coast Regional Water quality Control Board (NCRWQCB), 1996. Water Quality Control Plan for the North Coast Region (Basin Plan). As amended, through June 28, 2007.

Ogle, B.A., 1953. Geology of the Eel River Valley area, Humboldt County, California: California Division of Mines Bulletin 164, 128 p.

EXHIBIT 5



Humboldt
Redwood™

March 11, 2013

Calfire
135 Ridgeway Ave
Santa Rosa, CA
95401

Re: 1-12-110 HUM Response to PHI Report.

Please note that the RPF of record is on vacation this week, so I will be responding in his place.

CDF 1 The RPF shall send the originals of the responses to the first review team questions and the PHI recommendations directly to the CDF Resource Management office in Santa Rosa. To assist in scheduling the second review team meeting, a copy of the responses shall be provided to the CDF Resource Management office in Fortuna.

RPF Agreed.

CDF 2 Prior to second review, please revise Item 17 to High.

RPF Agreed. See revised page 10, Section II.

CDF 3 Prior to second review, please provide an explanation and justification to Plan Addendum for Item 27 (c).

RPF Agreed. See pages 96 and 120, Section III.

CDF 4 Prior to second review, please revise page 227 to include THP 1-12-113H.

RPF Agreed. See revised page 227, Section IV.

CGS Road Point 10100: As written the project geologist's recommendation is not understandable in light of the on the ground observations. Either the recommendation must be modified so as to be clear to the LTO or an alternate prescription proposed. The plan discussed by the company geologist during the PHI appears workable. This proposal is to ramp down onto the slide body and place no more than 2 feet of fill across the slide.

RPF Agreed. See inserted pages 331.10-331.13. See revised pages 72-82, Section II.

CGS 1: The area surrounding section of the U06.0825 road between Road Points 7465 and 8365 shall be characterized by a California Licensed Geologist. Discovered unstable areas will be added to appropriate plan maps and mitigations appropriate for the planned operations, particularly the planned road U06.0825 reopening, shall be devised and made a part of the plan. The characterization and mitigations shall be presented for agency review prior to second review.

RPF *Agreed. See inserted pages 331.10-331.13. Note upon review the Geologist did not have any additional recommendations.*

Road Point 1050: The bridge design shall be expanded to address potential scour of the bridge foundation, erosion of the ramp fills and rail car attachment to the foundations. It appears that increased embedment of the foundation and rock armoring the ramp fills with suitable sized rip rap for the expected current velocities would be workable. Attachment of the rail cars to the foundation must be strong enough to resist reasonably expected current velocities yet flexible enough to accommodate some amount of settlement of the foundation into the recent flood plain alluvium. Prior to placement of the concrete block foundation the excavated surface the first course of blocks will rest upon will be inspected and approved by the project geologist. The final bridge plan will be submitted for agency review prior to second review.

RPF *Agreed. See revised pages 331.1-331.5.1*

Water Quality

Recommendation 1. At point 2150 on the U06.0812 road the rock at the outlet of the rock dip/ford will be extended over the edge of the road fill in order to prevent erosion and serve as an energy dissipater.

Agree, Refer to the revised work order page 76.

Recommendation 2. At point 7465 on the U06.0825 road a rock dip/ford will be installed at this location.

Agreed, Refer to the revised work order page 78.

Recommendation 3. At point 6969 in the U06.0825 road an energy dissipater will be installed below the outfall of the shotgunned pipe.

Agreed, Refer to the revised work order page 78.

Recommendation 4. Point 6475 on the U06.0825 road will be evaluated and added to the work order and ECP.

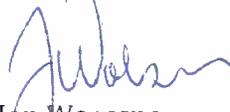
Agreed refer to the revised work order page 78

Recommendation 5. HRC shall provide written documentation from the ACOE that the proposed permanent bridge at road point 1050 is not subject to CWA§404 permitting authority.

Agreed After clarification from WQ staff (M Robinson on 3/11/13) HRC will consult with ACOE to ensure the proposed end use meets section 404 of the Clean Water Act. HRC believes the proposed bridge falls within the exemption provisions, as the bridge is for normal farming and silvicultural activities.

The maps and Road Work Order has been additionally revised as per Water Quality staff recommendations that were made in the field during PHI for Road Points 175 (removed from the plan), 200, 850, 7465, 8345, 5300, and 5400. See inserted pages 82.1-82.3 for sketch maps of sites 25, 950 and 1270. Refer to the revised maps on pages 69-71 and revised Road Work Order on pages 72-82, Section II. Sketch maps have similarly been provided to accommodate Water Quality staff recommendations that were made in the field during PHI.

Sincerely,



Jon Woessner
North Area Manager
Humboldt Redwood Co., LLC
RPF# 2571

Encl – revised pages.

16. HARVESTING PRACTICES

Indicate type of yarding system and equipment to be used:

- | | | | | | | |
|----------------------------|-------------------------------------|------------------------------------|---------------------|-------------------------------------|-----------------------|-------------------------------------|
| GROUND BASED (a-c)* | | | CABLE (d-f): | | SPECIAL (g-i): | |
| a. | <input checked="" type="checkbox"/> | Tractor, including end/long lining | d. | <input checked="" type="checkbox"/> | g. | <input type="checkbox"/> Animal |
| b. | <input checked="" type="checkbox"/> | Rubber tired skidder, Forwarder | e. | <input checked="" type="checkbox"/> | h. | <input type="checkbox"/> Helicopter |
| c. | <input checked="" type="checkbox"/> | Feller buncher | f. | <input checked="" type="checkbox"/> | i. | <input type="checkbox"/> Other |

*NOTE: Tractor operations restrictions apply to ground based equipment.

*All ground based areas may be cable yarded at the option of the LTO.

i. Yes No Is harvesting proposed on any unstable area? (Reference THP Section II, Item 29.1 (HCP 6.3.3.7 Hillslope Management)).

k. Ground based equipment use limitations (non-winter period):

1) Ground based equipment operations will be suspended during the non-winter period when the following conditions exist due to periods of measurable precipitation:

a) Whenever exposed soil resulting from tractor operations can be transported in solution

b) in areas exhibiting overland transport of water from springs, seeps, or wet areas,

c) in areas where saturated soil conditions exist. Saturated soil conditions (14 CCR 895.1) means: "that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.

Soils or road and landing surfaces that are hard frozen are excluded from this definition.

2) Ground based equipment operations include end/long lining. This practice may be conducted by ground based equipment to end/long line logs from a designated harvest area to an existing haul road, skid trail, or landing (See THP Section II, Item 21(a - e)).

3) Ground based equipment harvest areas may be cable harvested.

m. Waterbreaks, drainage facilities, and structures:

The following standards are applicable to the construction of waterbreaks:

(a) except as otherwise provided for in the rules:

1) All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations (14 CCR 914.6(a)(1)). The "Winter Period" means the period between November 15 and April 1 (14 CCR 895.1).

2) Installation of drainage facilities and structures is required from October 15 to November 15 and April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours. (See NOTE under THP Section II, Item 23(d) below.)

17. EROSION HAZARD RATING

Indicate Erosion Hazard Rating present on THP. (Must match EHR worksheets). See the THP Map located at the end of THP Section II. See EHR worksheet located in THP Section V.

Low Moderate High Extreme

If more than one rating is checked, areas must be delineated on map down to 20 acres in size (10 acres for high and extreme EHRs in the Coast District).



McCloud Shaw

N Road Construction Location Map

T3N R1W Sec. 1, 2, 3 HB&M
T4N R1W Sec. 26, 27, 28, 34, 35, 36 HB&M

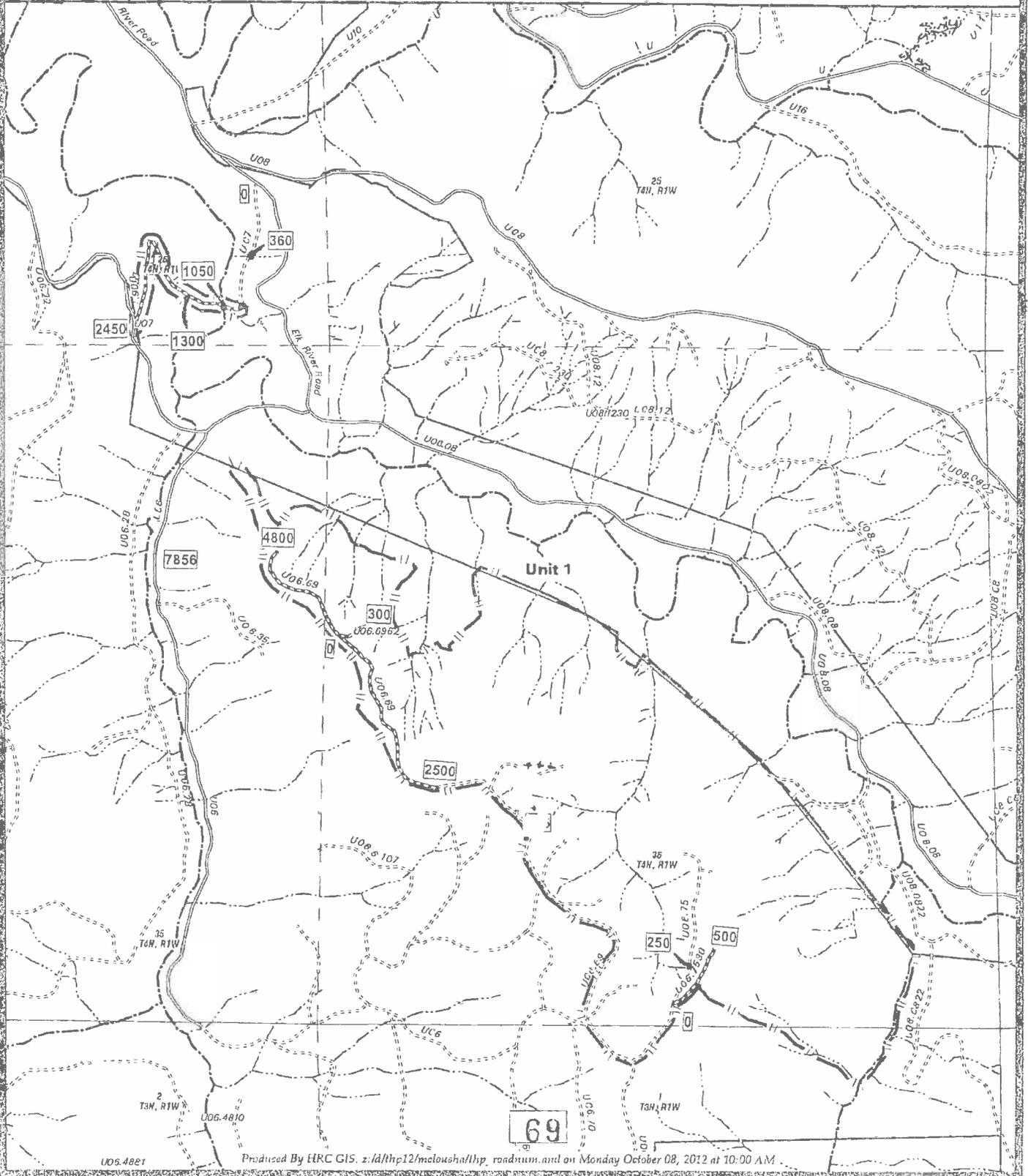
Road Work Order Map 1 of 3

USGS Quad (a) : FIELDS LANDING, McHENNEY CREEK

- Property Line
- Harvest Boundary
- Permanent Road
- Seasonal Road
- Proposed Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse

REVISED

Map Scale: 1 inch = 1000 feet



U05.4821

Produced By HRC GIS, z:/a/hp12/mcclousha/hp_rondrum.apr on Monday October 08, 2012 at 10:00 AM

REVISED

McCloud Shaw

Road Construction Location Map

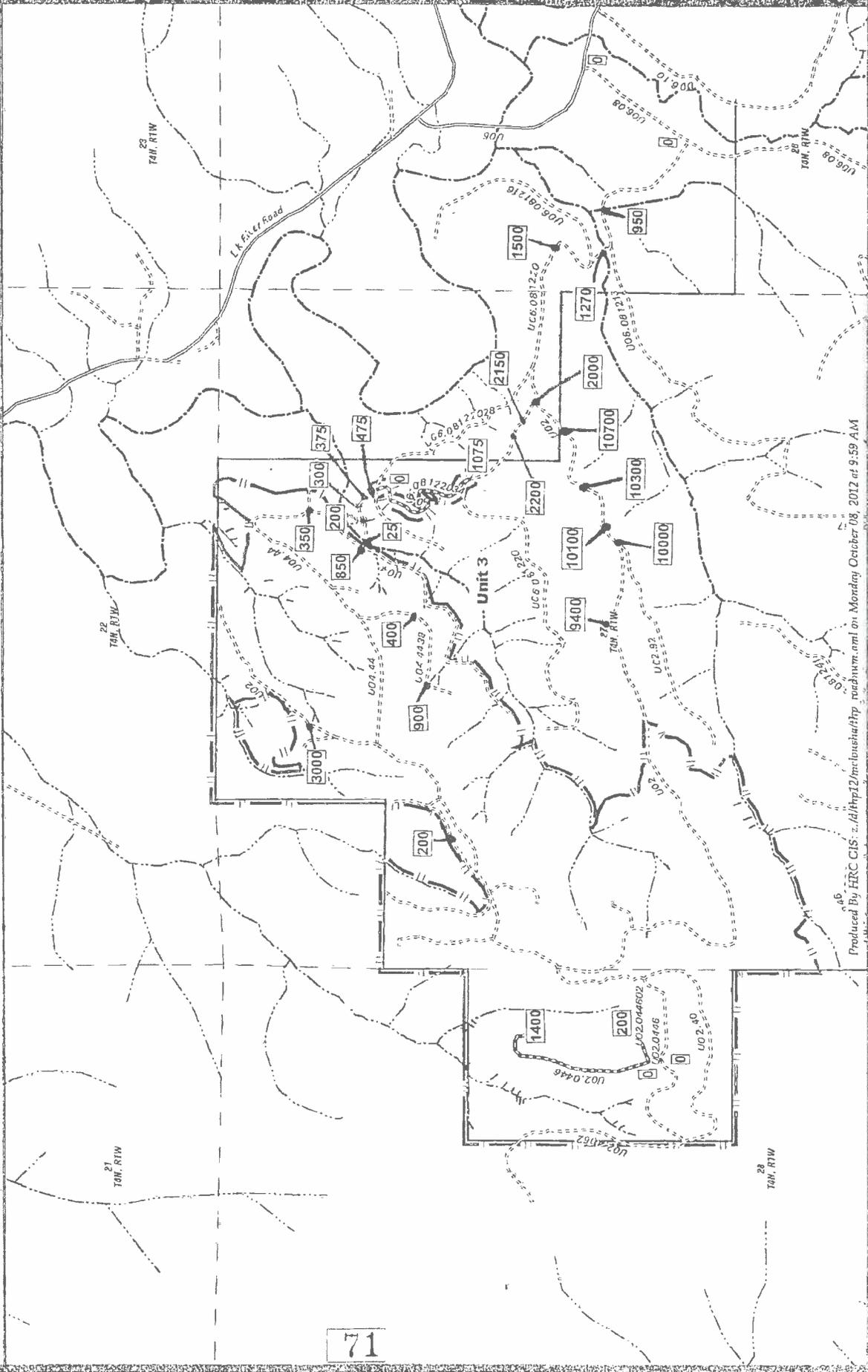
TIN BLK Sec. 1, 2, 3 HB&K
TIN BLK Sec. 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36 HB&K

Road Work Order Map 3 of 3

USGS Quad (s): FIELDON LANDS 19, YUKONENY CREEK

- Property Line
- Harvest Boundary
- Permanent Road
- Seasonal Road
- Proposed Seasonal Road
- Class I Watercourse
- Class II Watercourse
- Class III Watercourse

Map Scale: 1 inch = 1000 feet



Produced By HRC GIS: z:\d\hrc\12\m\cloush\hrcp_roadbrwn.mxd on Monday, October 08, 2012 at 9:59 AM

Work Order for Road Repair/Construction

TRF: McCloud Shaw

U02

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | ROW Dia | Est Length | Soil Save |
|---|-----------|-----------------|-----------|----------|------------------|-------------|--------------|--------------|--------------|---------|---------|------------|-----------|
| 3000-- | SandStahl | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Other | THP App. Rd. | Low | -- | 0 | - | 0 | 0 |
| PW: Lower Ek River TREAT ROAD SURFACE WITHIN RMZ BY ROCKING, SLASH PACKING OR STRAW MULCHING PRIOR TO WINTER OF FIRST OPERATIONS Exception HRP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WWD: -108833459 Biologist required: NONE Completion Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 9400--9400 | S1 | Dirt (Seasonal) | Woessner | 10/04/12 | Surface Drainage | Dip Rolling | THP App. Rd. | THP Deadline | -- | 0 | - | 0 | 0 |
| SandStahl: INSTALL A BROAD ROLLING DIP. INSTALL WATERBARS OR OTHER DRAINAGE STRUCTURES TO THE SOUTH WEST AT THE HIGH EHR BACK TO THE BREAK IN SLOPE. PW: Lower Ek River Exception HRP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WWD: 1349387162 Biologist required: NONE Completion Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 10000--10000 | S2 | Dirt (Seasonal) | Woessner | 10/04/12 | Surface Drainage | Dip Rolling | THP App. Rd. | THP Deadline | -- | 0 | - | 0 | 0 |
| SandStahl: INSTALL A BROAD ROLLING DIP. INSTALL WATERBARS OR OTHER DRAINAGE STRUCTURES TO THE SOUTH WEST AT THE HIGH EHR BACK TO THE BREAK IN SLOPE. PW: Lower Ek River Exception HRP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WWD: 1595080214 Biologist required: NONE Completion Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 10100--10100 | | Dirt (Seasonal) | Woessner | 10/04/12 | Other | Keyway Con. | THP App. Rd. | THP Deadline | -- | 0 | - | 0 | 0 |
| SandStahl: UPSLOPE FAILURE HAS NARROWED THE ROAD AT THIS LOCATION. RECONSTRUCT 50 FEET OF ROAD AS PER GEOLOGIST RESPONSE TO PHI DATE 1/25/2013 <i>Page 331, 10--11</i> PW: Lower Ek River Exception HRP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WWD: 744209240 Biologist required: NONE Completion Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 10300--10300 | | Dirt (Seasonal) | Woessner | 10/04/12 | Other | Other | THP App. Rd. | THP Deadline | -- | 0 | - | 0 | 0 |
| SandStahl: BANK SLUMPS HAVE NARROWED THE ROAD AT THIS LOCATION. REMOVE AND/OR LAYBACK THE CUTBANK TO GAIN WIDTH. AN UNSTABLE AREA OCCURS BELOW THE ROAD. INSLOPE THE SEGMENT PAST THE UNSTABLE AREA. INSTALL A ROCKED ROLLING DIP AT THE BASE OF THE SEGMENT TO DRAIN THE INSLOPED ROAD. PW: Lower Ek River Exception HRP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WWD: 1416691321 Biologist required: NONE Completion Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 10700--10700 | | Dirt (Seasonal) | Woessner | 10/04/12 | Surface Drainage | Other | THP App. Rd. | THP Deadline | -- | 0 | - | 0 | 0 |
| SandStahl: OUTSLOPE APPROXIMATELY 70 FEET OF ROAD TO ELIMINATE INSIDE DITCH. INSTALL A ROCKED ROLLING DIP AT THE BASE OF THE OUTSLOPED SEGMENT. PW: Lower Ek River Exception HRP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WWD: 1572696390 Biologist required: NONE Completion Letter: <input type="checkbox"/> | | | | | | | | | | | | | |

12

TRP: McCloud Shaw

U02.0446

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-----------------|--------------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 0--1400 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP App. Rd. | Medium | -- | 0 | - | 0 | 0 |

SensStand:

PW: Lower EK River

Exception HCP:

WDR: -1542342607

Geologist required: NONE

Completion Letter: |

U02.044602

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-----------------|--------------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 0--200 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP App. Rd. | Medium | -- | 0 | - | 0 | 0 |

SensStand:

PW: Lower EK River

Exception HCP:

WDR: -1713805666

Geologist required: NONE

Completion Letter: |

U02.28

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|---------|--------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 200--200 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | Other | Rock Surface | THP App. Rd. | Low | -- | 0 | - | 0 | 0 |

SensStand:

PW: Lower EK River

Exception HCP:

WDR: -1581947396

Geologist required: NONE

Completion Letter: |

U04

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|------------------|--------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 350--850 | S1 | Dirt (Seasonal) | Woessner | 10/10/12 | Surface Drainage | Rock Surface | THP App. Rd. | -- | -- | 0 | - | 0 | 0 |

SensStand:

PW: Lower EK River

Exception HCP:

WDR: 1349885377

Geologist required: NONE

Completion Letter: |

Shared with: McCloud Shaw *

73

TRF: McCloud Shaw

U04

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|--|------|-----------------|-----------|----------|---------|---------------|-------------|----------|--------------|----------|----------|------------|-----------|
| 850-- | | Dirt (Seasonal) | Woessner | 03/04/13 | Culv. | Culv. Install | Maintenance | Low | -- | 0 | 18" | 0 | |
| SsdStVal: REPLACE EXISTING CROSS DRAIN CULVERT WITH AND 18" CULVERT. IF SITE 25' IS ABANDONED THE CULVERT SHALL BE PULLED AND ROAD DIPPED AT THIS LOCATION. PW: Lower S. Fork Elk River Exception RFP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WDR: 1627438078

Geologist required: NONE

Completion Letter:

U04.4439

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|--|------|-----------------|-----------|----------|---------------------|--------------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 400-- | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | Landslide - Shallow | Cut and fill 50:50 | THP App. Rd. | Medium | -- | 0 | - | 0 | |
| SsdStVal: RECONSTRUCT ROAD ACROSS UNSTABLE AREA, AS PER GEO REPORT. PW: Lower Elk River Exception RFP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WDR: 1828269194

Geologist required: NONE

Completion Letter:

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|--|------|-----------------|-----------|----------|------------------|-------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 900-- | S2 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Dip Rolling | THP App. Rd. | Low | -- | 0 | - | 0 | |
| SsdStVal: INSTALL ROLLING DIP. EITHER ROCK THE DIP OR SLASH BACK OUTLET OF DIP. PW: Lower Elk River Exception RFP: | | | | | | | | | | | | | |

WDR: -162475965

Geologist required: NONE

Completion Letter:

U06

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|--|------|---------------|-----------|----------|-------------|---------------|----------------|----------|--------------|----------|----------|------------|-----------|
| 7856-- | | Rocked (Perm) | Woessner | 09/27/12 | Stream Bank | Excavate Soil | THP Mitigation | Medium | -- | 0 | - | 12 | |
| SsdStVal: OUTSIDE EDGE OF ROAD HAS SLUMPED 2-3'. BASE OF THE SLUMP IS A REDWOOD CULMP. ROAD IS CURRENTLY WIDE ENOUGH FOR PICK UP TRAFFIC. THE ROAD MAY BE RETREATED INTO THE CUTSLOPE UP TO 6 FEET WITHOUT ADDITIONAL REVIEW. PERCHED FILLS SHALL BE PULLED BACK FROM THE OUTBOARD EDGE AND INCORPORATED INTO THE RE-GRADED ROAD SURFACE OR END-HAILED TO AN APPROPRIATE SPOILS LOCATION. THE ROAD SHALL BE RE-GRADED AND THE VERTICAL OUTBOARD EDGE REMOVED BY LOWERING THE GRADE AND/OR BY COMPACTING CLEAN NATIVE FILLS AGAINST THE VERTICAL OUTBOARD EDGE OF THE FILL SLOPE. DISCONNECT ANY SURFACE DRAINAGE THAT IS CONCENTRATED ON TO THE SITE AS FEASIBLE. REFER TO GEO REPORT FOR FURTHER DESCRIPTION. Exception RFP: | | | | | | | | | | | | | |

Shared with: CAO SFE 2013, McCloud Shaw * Filed ECP

WDR: -237534371

Geologist required: NONE

Completion Letter:

74

THP: McCloud Shaw

U06.08

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|------------------|--------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 0--2700 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Rock Surface | THP App. Rd. | Low | -- | 0 | - | 0 | 0 |
| Substrate: UPGRADE TO ROAD SURFACE TO PERMENANT BY ROCKING PW: Lower Elk River Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WIDB: 1430767520

Geologist required: NONE

Completion Letter:

U06.0812

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|--|------|-----------------|-----------|----------|------------------|--------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 0--1500 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Rock Surface | THP App. Rd. | Low | -- | 0 | - | 0 | 0 |
| Substrate: UPGRADE TO ROAD SURFACE TO PERMENANT BY ROCKING. PW: Lower Elk River Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WIDB: 1123538721

Geologist required: NONE

Completion Letter:

| | | | | | | | | | | | | | |
|--|----|-----------------|----------|----------|-------|---------------|--------------|--------|---|----|---|----|--|
| 950-- | C1 | Dirt (Seasonal) | Woessner | 09/27/12 | Culv. | Bridge - Perm | THP App. Rd. | Medium | I | 24 | - | 20 | |
| Substrate: 17H1 PW: Lower Elk River Exception HCP: WATERCOURSE WITH MINIMAL FISH HABITAT. OTHER THAN AT HIGH FLOWS IT COULD SERVE AS REFUGIA FOR SALMONIDS. REPLACE EXISTING CULVERT WITH A BRIDGE. ENSURE BASE OF BRIDGE IS HIGHER THAN EXISTING ROAD GRADE ELEVATION. REFER TO SKEETCH MAP PAGE 82.2 | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WIDB: 1659629691

Geologist required: NONE

Completion Letter:

| | | | | | | | | | | | | | |
|--|----|-----------------|----------|----------|-----------|---------------|--------------|-----|----|---|---|----|--|
| 1270-- | C2 | Dirt (Seasonal) | Woessner | 09/27/12 | Culv.-HDP | Bridge - Perm | THP App. Rd. | Low | -- | 0 | - | 40 | |
| Substrate: 17H0 PW: Lower Elk River Exception HCP: EXISTING 54" CULVERT ON A CLASS I WATERCOURSE. CULVERT HAS RUSTED THROUGH AND MAY BE A PARTIAL BARRIER TO FISH MIGRAGTION. NO RECENT SIGNS OF CULVERT OVERTOPPING. REPLACE CULVERT WITH A BRIDGE. ENSURE THE BASE OF THE BRIDGE IS HIGHER IN ELEVATION THAN CURRENT ROAD GRADE. THIS SHOULD BE SUFFICIENT TO PASS ANY SEDIMENT AND DEBRIS. 100 YR CULVERT SIZE (96") IS LARGER THAN EXISTING CHANNEL AND AT A HUNDRED YEAR EVENT THE SITE WOULD BE FLOODED BY MAINSTEM OF ELK RIVER. REFER TO SKEETCH ONPAGE 82.3 | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WIDB: 783837346

Geologist required: NONE

Completion Letter:

| | | | | | | | | | | | | | |
|---|----|-----------------|----------|----------|------------------|-------|--------------|--------------|----|---|---|---|--|
| 1500--2000 | S2 | Dirt (Seasonal) | Woessner | 10/04/12 | Surface Drainage | Other | THP App. Rd. | THP Deadline | -- | 0 | - | 0 | |
| Substrate: INSTALL WATERBARS AND/OR OTHER DRAINAGE STRUCTURES ALONG THIS SEGMENT AT THE HIGH EHR RATING. PW: Lower Elk River Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WIDB: 563203407

Geologist required: NONE

Completion Letter:

75

THP: McCloud Shaw

U06.081220

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CHP | New | Est | Soil |
|----------------|------|-----------------|-----------|----------|------------------|----------|--------------|----------|--------------|-----|-----|-----|------|
| 2150-- | | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Other | THP App. Rd. | Low | -- | 0 | - | 0 | |

Substand: SPRING ABOVE ROAD. INSTALL ROCKED ROLLING DIP. INSTALL ADDITIONAL ROCKED ROLLING DIP 25' TO THE WEST.
 PW: Lower Ek River

Exception HCP:
 Shared with: McCloud Shaw * Filed ECP
 WOOD: -584799660
 Geologist required: NONE
 Competition Letter:

2200--

| | | | | | | | | | | | | |
|-----------------|----------|----------|------------------|-------|--------------|-----|--|---|---|---|--|--|
| Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Other | THP App. Rd. | Low | | 0 | - | 0 | | |
|-----------------|----------|----------|------------------|-------|--------------|-----|--|---|---|---|--|--|

Substand: SPRING ABOVE ROAD. INSTALL CROSS DRAIN TO DRAIN ROADS SURFACE AND INSIDE DITCH.
 PW: Lower Ek River
 Exception HCP:
 Shared with: McCloud Shaw *
 WOOD: -1049007931
 Geologist required: NONE
 Competition Letter:

U06.08122028

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CHP | New | Est | Soil |
|----------------|------|-----------------|-----------|----------|-----------|---------------|--------------|----------|--------------|-----|-----|-----|------|
| 25-- | G1 | Dirt (Seasonal) | Woessner | 09/27/12 | Culv.-HDP | Bridge - Perm | THP App. Rd. | High | 1 | 0 | - | 75 | |

Substand: 1172
 PW: Lower Ek River
 CURRENTLY UNDERSIZE 30" CULVERT ON A CLASS I WATERCOURSE. THE CULVERT IS SERVING AS GRADE CONTROL AND CAUSING AGGRADATION ABOVE THE WATERCOURSE. THE CROSSING IS A BARRIER TO FISH MIGRATION. REPLACE CULVERT WITH A PERMIENANT BRIDGE. ENSURE GRADE CONTROLS ABOVE AND BELOW THE CROSSING ARE INSTALLED WITH EITHER RIP RAP OR LARGE WOOD. RPF OR GEOLOGIST TO BE ON SITE DURING GRADE CONTROL CONSTRUCTION TO ENSURE CONTROLS ARE BUILT TO PREVENT HEADCUTTING AND ARE PASSABLE TO FISH. REFER TO SKETCH MAP PAGE 82.1
 Exception HCP:
 Shared with: McCloud Shaw * Filed ECP
 WOOD: -384774712
 Geologist required: Dur-Ho
 Competition Letter:

200--

| | | | | | | | | | | | | |
|-----------------|----------|----------|-------|---------------|--------------|--------|--|---|---|----|--|--|
| Dirt (Seasonal) | Woessner | 03/04/13 | Culv. | Culv. Install | THP App. Rd. | Medium | | 0 | - | 25 | | |
|-----------------|----------|----------|-------|---------------|--------------|--------|--|---|---|----|--|--|

Substand: 1876
 PW: Lower Ek River
 EXISTING CLASS II 24" CULVERT WITH A SHOUTGUN OUT. REPLACE WITH NEW 24" CULVERT. IF CROSSING AT 25' IS TO BE ABANDONED THAN SHALL SITE SHALL BE ADANDONED BY PULLING THE EXISTING CORSSING, EXCAVATING FILL AND SLASH PACKING CHANNEL.
 Exception HCP:
 Shared with: McCloud Shaw * Filed ECP
 WOOD: 307896081
 Geologist required: NONE
 Competition Letter:

300--

| | | | | | | | | | | | | |
|-----------------|----------|----------|------------------|-------|--------------|-----|--|---|---|---|--|--|
| Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Other | THP App. Rd. | Low | | 0 | - | 0 | | |
|-----------------|----------|----------|------------------|-------|--------------|-----|--|---|---|---|--|--|

Substand: INSTALL CROSS DRAIN (DIP OR DRC) TO DRAIN INSIDE DITCH AND ROAD SURFACE.
 PW: Lower Ek River
 Exception HCP:
 Shared with: McCloud Shaw *
 WOOD: -1697260503
 Geologist required: NONE
 Competition Letter:

70

THP: McCloud Shaw

U06.08122028

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|------------------|----------|--------------|----------|--------------|---------|---------|------------|-----------|
| 375-- | S2 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Other | THP App. Rd. | Low | -- | 0 | - | 0 | 0 |
| Solsfield: PW: Lower Elk River INSTALL CROSS DRAIN (DIP OR DRC) TO DRAIN INSIDE DITCH AND ROAD SURFACE. Exception MCP: | | | | | | | | | | | | | |

WQID: 1487178038

Geologist required: NONE

Completion letter: |

| | | | | | | | | | | | | | |
|---|----|-----------------|----------|----------|------------------|-------|--------------|-----|----|---|---|---|---|
| 475-- | S3 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Other | THP App. Rd. | Low | -- | 0 | - | 0 | 0 |
| Solsfield: PW: Lower Elk River INSTALL CROSS DRAIN (DIP OR DRC) TO DRAIN INSIDE DITCH AND ROAD SURFACE. A FILL FAILURE EXISTS 50' SOUTH OF PROPOSED X-DRAIN LOCATION. MOVE INBOARD AROUND FILL FAILURE. INSTALL ROCKED ROLLING DIP AT FILL FAILURE LOCATION. Exception MCP: | | | | | | | | | | | | | |

WQID: 666018431

Geologist required: NONE

Completion letter: |

U06.08122034

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-----------------|--------------------|--------------|----------|--------------|---------|---------|------------|-----------|
| 0--1075 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP App. Rd. | Medium | -- | 0 | - | 0 | 0 |

Solsfield:
PW: Lower Elk River

Exception MCP:

WQID: 1860763079

Geologist required: NONE

Completion letter: |

U06.0825

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|------------------|---------------|--------------|----------|--------------|---------|---------|------------|-----------|
| 3700-- | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Excavate Soil | THP App. Rd. | Low | -- | 0 | - | 0 | 5 |
| Solsfield: 1774 PW: Lower S. Fork Elk River ROLLING DIP ABOVE CLASS III WATERCOURSE. THE OUTLET OF THE DIP HAS A SMALL SINKHOLE DEVELOPING. EXCAVATE SINKHOLE AND BACK FILL WITH A MIX OF ROCK SIZES. Exception MCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw * Filed ECP

WQID: -405886763

Geologist required: NONE

Completion letter: |

| | | | | | | | | | | | | | |
|--|----|-----------------|----------|----------|-------------------|---------------|--------------|-----|-----|---|---|---|---|
| 4700-- | S2 | Dirt (Seasonal) | Woessner | 09/27/12 | Fill - NO Culvert | Culv. Install | THP App. Rd. | Low | III | 0 | - | 0 | 5 |
| Solsfield: 1717 PW: Lower S. Fork Elk River EXISTING TRUCK ROAD ABOVE CLASS III WATERCOURSE. INSTALL A ROCKED ROLLING DIP. Exception MCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * Filed ECP WQID: 927140722 Geologist required: NONE Completion letter: | | | | | | | | | | | | | |

77

TRF: McCloud Shaw

U06.0825

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | SWAP | Flow | Est | Soil |
|--|----------|-----------------|-----------|----------|-------------------|-------------|----------------|----------|--------------|------|------|-----|------|
| | | | | | | | | | | | | | Save |
| 4795--4795 | SFE806.1 | Abandoned | Weaver | 03/23/06 | Fill - NO Culvert | Rock Ford | Storm Proofing | Medium | III | | | | 13 |
| Sediment: 15248 PW: Lower S. Fork Elk River EXISTING SEASONAL ROAD ABOVE A CLASS III WATERCOURSE. INSTALL A ROCKED ROLLING DIP. ROCK SURFACE THE ROAD BACK TO ROAD POINT Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * Filed ECP, PWA South Fork Elk * WJOB: 1182108339 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 5300-- | SFE806.1 | Dirt (Seasonal) | Woessner | 03/04/13 | Surface Drainage | Dip Rolling | THP App. Rd. | Medium | -- | | 0 | - | 5 |
| Sediment: 15243 PW: Lower S. Fork Elk River INSTALL CROSS DRAIN (DIP OR DRC) TO DRAIN SPRINGS ALONG BANK AND ROAD SURFACE. Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * Filed ECP WJOB: 1362408171 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 5400-- | SFE807.1 | Dirt (Seasonal) | Woessner | 03/04/13 | Surface Drainage | Dip Rolling | THP App. Rd. | Medium | -- | | 0 | - | 5 |
| Sediment: 11817 PW: Lower S. Fork Elk River INSTALL CROSS DRAIN (DIP OR DRC) TO DRAIN SPRINGS ALONG BANK AND ROAD SURFACE. Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * Filed ECP WJOB: 46306640 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 6475-- | SFE807.1 | Dirt (Seasonal) | Woessner | 03/11/13 | Surface Drainage | Dip Rolling | THP App. Rd. | Low | -- | | 0 | - | 0 |
| Sediment: PW: Lower S. Fork Elk River NUMEROUS SOIL PIPES AND ERODING DIP. ENSURE ROAD IS DRAINED BY INSTALLATION OF ROLLING DIPS/ WATER BARS AT MIN 75 SPACING. ENSURE THERE IS ENERGY DISSIPATION AT THE OUTLETS Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WJOB: 1363023104 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 6969--6969 | SFE807.1 | Open | Weaver | 03/23/06 | Culv.-HDP | Dip Rolling | Storm Proofing | Low | III | | 18 | | 41 |
| Sediment: 15234 PW: Lower S. Fork Elk River EXISTING CULVERT ON A CLASS III WATERCOURSE. INSTALL A CRITICAL DIP ON THE LEFT HINGELINE. INSTALL A ROCKED ROLLING DIP 75 FEET SOUTH OF THE CROSSING. ADD ENERGY DISSIPATOR TO THE OUTLET. SFE807.1 Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw, PWA South Fork Elk * Filed ECP WJOB: -919697699 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 7465--7465 | SFE807.3 | Open | Weaver | 03/23/06 | Fill - NO Culvert | Rock Ford | Storm Proofing | Medium | III | | 24" | 40 | 120 |
| Sediment: 15248 PW: Lower S. Fork Elk River INSTALL A ROCK FORD SFE807.3 Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw Filed ECP, PWA South Fork Elk * WJOB: 368796655 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |
| 8000-- | SFE807.3 | Dirt (Seasonal) | Woessner | 09/27/12 | Inside ditch | Dip Rolling | THP App. Rd. | Low | -- | | 0 | 18" | 0 |
| Sediment: PW: Lower S. Fork Elk River INSTALL ROCKED ROLLING DIP TO DISCONNECT INSIDE DITCH Exception HCP: | | | | | | | | | | | | | |
| Shared with: McCloud Shaw * WJOB: 361852683 Geologist required: NONE Competition Letter: <input type="checkbox"/> | | | | | | | | | | | | | |

28

TR: McCloud Shaw

U06.0825

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|--|----------|-----------------|-----------|----------|-------------------|-----------|----------------|----------|--------------|----------|----------|------------|-----------|
| 8345-8345 | SFE809.1 | Dirt (Seasonal) | Woessner | 03/23/06 | Fill - NO Culvert | Rock Ford | Storm Proofing | Medium | II | | 24" | 40 | 6 |
| SCS/Staff: 15240 EXISTING TEMPORARY CROSSING ON A CLASS II SPRING. REMOVE PERCHED FILL AND INSTALL ROCKED FORD. SFE809.1 PW: Lower S. Fork Elk River Exception RFP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw Filed ECP, PWA South Fork Elk *

WON: 1236880132

Geologist required: NONE Completion Letter: |

| | | | | | | | | | | | | | |
|------------|----|-----------------|----------|----------|-----------------|--------------------|--------------|--------|----|--|---|---|---|
| 9000-11750 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP App. Rd. | Medium | -- | | 0 | - | 0 |
|------------|----|-----------------|----------|----------|-----------------|--------------------|--------------|--------|----|--|---|---|---|

SCS/Staff:

PW: Lower S. Fork Elk River

Exception RFP:

Shared with: McCloud Shaw *

WON: 1017294598

Geologist required: NONE Completion Letter: |

U06.082517

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|---|----------|-----------------|-----------|----------|-------------------|-----------|----------------|----------|--------------|----------|----------|------------|-----------|
| 1100-1100 | SFE803.5 | Dirt (Seasonal) | Woessner | 03/22/06 | Fill - NO Culvert | Rock Ford | Storm Proofing | Medium | II | | | 70 | 1796 |
| SCS/Staff: 15240 FAILING HUMBOLDT. EXCAVATED SOIL TO LWD. LEAVE LWD IN PLACE. BACKFILL WITH 6" MINUS ROCK TO NECESSARY ROAD GRADE. CREATING A ROCKED FORD. SFE803.5 PW: Lower S. Fork Elk River Exception RFP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw Filed ECP, PWA South Fork Elk *

WON: -1057662685

Geologist required: NONE Completion Letter: |

U06.082580

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia. | New Dia. | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|-----------------|--------------------|--------------|----------|--------------|----------|----------|------------|-----------|
| 0-400 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP App. Rd. | Medium | -- | | 0 | - | 0 |
| SCS/Staff: PW: Lower S. Fork Elk River Exception RFP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WON: 1295811748

Geologist required: NONE Completion Letter: |

79

TWP: McCloud Shaw

U06.082581

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | Now Dia | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-----------------|--------------------|--------------|----------|--------------|---------|---------|------------|-----------|
| 0--200 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP App. Rd. | Medium | -- | 0 | - | 0 | 0 |

SealStand: PW: Lower S. Fork Elk River

Exception HCP: Shared with: McCloud Shaw *

WOM: -178771953

Biologist required: NONE

Completion Letter:

U06.221689

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | Now Dia | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-------------------|-----------|--------------|----------|--------------|---------|---------|------------|-----------|
| 845-- | C1 | Dirt (Seasonal) | Woessner | 09/27/12 | Fill - NO Culvert | Rock Ford | THP App. Rd. | Medium | III | 0 | - | 5 | 5 |

SealStand: H7B5

PW: Lower S. Fork Elk River

Exception HCP: Shared with: McCloud Shaw * Filed ECP

WOM: 1075078896

Biologist required: NONE

Completion Letter:

U06.69

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | Now Dia | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-----------------|--------------------|-------------|----------|--------------|---------|---------|------------|-----------|
| 2500--4800 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP Recon. | | -- | 0 | - | 0 | 0 |

SealStand: PW: Lower S. Fork Elk River

Exception HCP: Shared with: McCloud Shaw *

WOM: 1254517147

Biologist required: NONE

Completion Letter:

U06.6962

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | Now Dia | Est Length | Soil Save |
|----------------|------|-----------------|-----------|----------|-----------------|--------------------|-------------|----------|--------------|---------|---------|------------|-----------|
| 0--300 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP Recon. | | -- | 0 | - | 0 | 0 |

SealStand: PW: Lower S. Fork Elk River

Exception HCP: Shared with: McCloud Shaw *

WOM: -1294466450

Biologist required: NONE

Completion Letter:

80

TRP: McCloud Shaw

U06.75

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|------------------|-------------|----------------|----------|--------------|---------|---------|------------|-----------|
| 250- | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | Surface Drainage | Dip Rolling | THP Mitigation | Low | -- | 0 | - | 0 | 0 |
| SensItab: INSTALL ROLLING DIP TO IMPROVE ROAD DRAINAGE. | | | | | | | | | | | | | |
| PW: Lower S. Fork Elk River | | | | | | | | | | | | | |
| Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WOP: 802858572

Geologist required: NONE

Completion Letter: []

U06.7530

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|-----------------|--------------------|--------------|----------|--------------|---------|---------|------------|-----------|
| 0-500 | S1 | Dirt (Seasonal) | Woessner | 09/27/12 | New Road Const. | Cut and fill 50:50 | THP New Con. | Low | -- | 0 | - | 0 | 0 |
| SensItab: THIS SEGMENT WILL EXTEND FROM ELK RIVER ROAD DOWN AND EXISTING ROAD GRADE TO THE SOUTH FORK OF ELK RIVER. THE ROAD SURFACE IS CURRENTLY VEGETATED WITH GRASS AND BRAMBLES. HRC INTENDS TO ROCK THE SURFACE OF THE ROAD FROM THE ELK RIVER ROAD TO THE BRIDGE. | | | | | | | | | | | | | |
| PW: Lower S. Fork Elk River | | | | | | | | | | | | | |
| Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WOP: 1348770370

Geologist required: NONE

Completion Letter: []

U07

| Start - End Ft | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|---|------|-----------------|-----------|----------|------------|--------------|-------------|----------|--------------|---------|---------|------------|-----------|
| 0-1050 | | Dirt (Seasonal) | Woessner | 10/12/12 | No Problem | Rock Surface | | Low | -- | 0 | - | 0 | 0 |
| SensItab: THIS SEGMENT WILL EXTEND FROM ELK RIVER ROAD DOWN AND EXISTING ROAD GRADE TO THE SOUTH FORK OF ELK RIVER. THE ROAD SURFACE IS CURRENTLY VEGETATED WITH GRASS AND BRAMBLES. HRC INTENDS TO ROCK THE SURFACE OF THE ROAD FROM THE ELK RIVER ROAD TO THE BRIDGE. | | | | | | | | | | | | | |
| PW: Lower S. Fork Elk River | | | | | | | | | | | | | |
| Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WOP: 1350058100

Geologist required: NONE

Completion Letter: []

| 360- | C1 | Dirt (Seasonal) | Woessner | 09/27/12 | Fill - NO Culvert | Culv. Install | | Low | III | 0 | 24" | 40 | 10 |
|-----------------------------|----|-----------------|----------|----------|-------------------|---------------|--|-----|-----|---|-----|----|----|
| SensItab: 11/13 | | | | | | | | | | | | | |
| PW: Lower S. Fork Elk River | | | | | | | | | | | | | |
| Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WOP: -1358500653

Geologist required: NONE

Completion Letter: []

| 1050- | C2 | Dirt (Seasonal) | Woessner | 09/27/12 | No Problem | Bridge - Perm | THP App. Rd. | Medium | I | 0 | - | 0 | 0 |
|--|----|-----------------|----------|----------|------------|---------------|--------------|--------|---|---|---|---|---|
| SensItab: INSTALL PERMENANT BRIDGE AND REMOVE LWD DEBRIS JAM. REFER TO ATTACHED DESIGN REPORT FOR SPECIFICS. | | | | | | | | | | | | | |
| PW: Lower S. Fork Elk River | | | | | | | | | | | | | |
| Exception HCP: | | | | | | | | | | | | | |

Shared with: McCloud Shaw *

WOP: 1388131096

Geologist required: NONE

Completion Letter: []

TRF: McCLOUD SHAW

U07

| Start | End | Fl | Site | Road Class | Submitter | Ordered | Problem | Solution | Repair Type | Priority | Stream Class | CMP Dia | New Dia | Est Length | Soil Save |
|-------|-----|------|------|-----------------|-----------|----------|------------|--------------------|--------------|----------|--------------|---------|---------|------------|-----------|
| 1050 | - | 1300 | | Dirt (Seasonal) | Woessner | 10/12/12 | No Problem | Cut and fill 50:50 | THP New Con. | Low | -- | 0 | - | 0 | 0 |

SubStation: Lower S Fork Elk River
 THIS SECTION OF ROAD WILL CROSS GRASS COVERED ELK RIVER ALLUVIUM (PASTURE). WE ANTICIPATE THAT ABOUT 1/4 TO 1/3 OF THIS ROAD SEGMENT WILL BE LOCATED WITHIN THE 100-YEAR FLOW MARGINS. THIS SEGMENT WILL INCLUDE A FILL PRISM EXTENDING FROM THE RAILCAR BRIDGES DOWN

HRC INTENDS TO EXCAVATE INTO THE ALLUVIUM ABOUT 1-FOOT IN DEPTH (12 TO 14' WIDE), BLANKET THE EXPOSED SURFACE WITH WOVEN GEOTEXTILE FABRIC AND BACKFILL ABOVE THE NATIVE SURFACE WITH CRUSHED ROCK. THE BASEMENT LAYER OF CRUSHED ROCK WILL VARY FROM 4 TO 2 INCHES WITH THE CAP ROCK BEING A 1.25" MINUS BASE. ALTERNATIVELY, HRC MAY CHANGE THIS DESIGN TO INCLUDE THREE DIMENSIONAL GEO-WEB TO VERTICALLY HOLD ROAD PRISM AGGREGATES IN PLACE

Exception HRP:

Shared with: McCLOUD SHAW *
 WDR#: 134974565
 Biologist required: NONE
 Completion letter: 0

1300-2450 S1
 Dirt (Seasonal) Woessner 09/27/12 New Road Const. Cut and fill 50:50 THP App. Rd. Medium -- 0 - 0

SubStation: Lower S Fork Elk River
 : THE NEW CONSTRUCTION WILL CROSS MODERATE TO STEEPLY INCLINED FORESTED SLOPES THAT INCLUDE SEVERAL MUTED SWALES. THE FORESTED SLOPES ARE OVERPRINTED WITH A CROSS HATCH OF DEEPLY CUT LEGACY SKID ROADS. UNSTABLE AREAS DO NOT EXIST WITHIN THE ROAD ALIGNMENT. SHALLOW, TYPICALLY SKID ROAD AND LEGACY HAUL ROAD RELATED FILL SLOPE FAILURES EXISTS UPSLOPE OF THE ALIGNMENT. THESE FAILURES ARE SMALL IN SIZE AND INCLUDE LIMITED RUNOUT DISTANCES.

THE NEW SEGMENT WILL BE CONSTRUCTED WITH CUT AND FILL TECHNIQUES. WHERE THE ALIGNMENT CROSSES A PRONOUNCED SWALE OR THROUGHOUT SKID ROAD WHERE FILL PLACEMENT WILL RESULT IN THE FORMING OF A DAM, HRC WILL PROVIDE DRAINAGE. THE METHOD OF DRAINAGE WILL VARY FROM THE INSTALLATION OF A BASAL LAYER OF ANGULAR, HIGHLY PERMEABLE ROCK TO SUPPORT THE ROAD FILL OR CULVERTS (18" DIAMETER).

THE ROAD SEGMENT WILL BE ROCKED IN ITS ENTIRETY

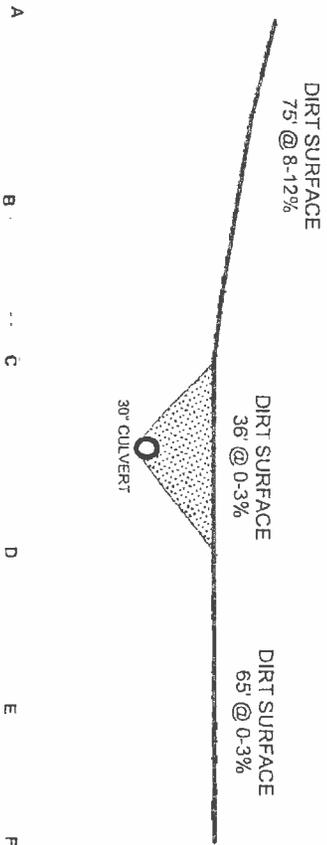
Exception HRP:

Shared with: McCLOUD SHAW *
 WDR#: -718697671
 Biologist required: NONE
 Completion letter: 0

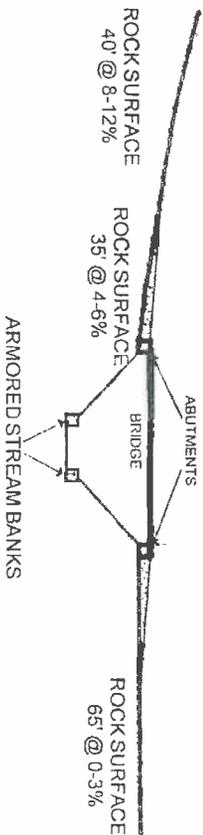
28

MAP POINT 25 - SKETCH MAP

BASELINE CONDITIONS

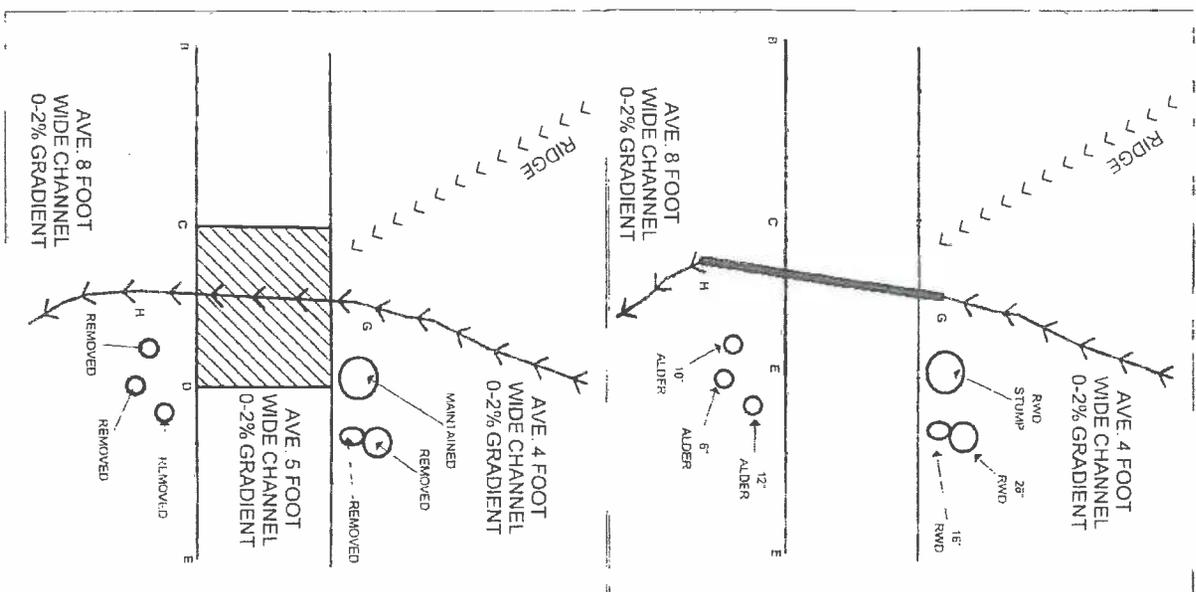


POST OPERATIONS CONDITIONS



SITE DESCRIPTION AND OPERATION DETAILS

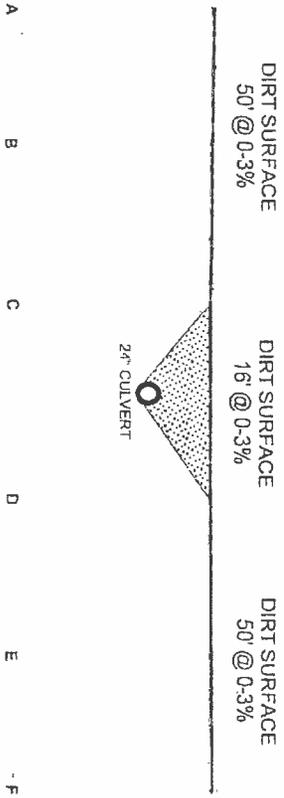
Map Point 25 - Replacement of a culvert on a Class I watercourse. From Station A to Station B rock surface the road. From Station C to Station D remove the existing culvert and all associated fill. Abutments shall be placed on native ground level and shall be approximately 2 feet tall and constructed of logs or prefabricated concrete blocks. Ramps from Station B to Station C and from Station D to Station E shall be constructed using native materials and capped with rock. An approximately 5 foot wide channel shall be established under the bridge and the channel banks under the bridge shall be provided rock armoring. From Station E to Station F rock surface the road. Station G and Station H are the locations of proposed grade control. Station G is located at the existing culvert inlet. Station H is located at the existing culvert outlet. At Station G excavate an area in the channel 6 feet wide and 10 feet long with an average depth of 1 foot. Back fill the excavated area with a matrix of different sizes rock. This will maintain the current elevation of the channel bottom for the watercourse segment above the crossing. At Station H a 3 foot drop occurs from the outlet to the channel bottom. At Station H a log shall be installed. The top elevation of the log shall be approximately 1 foot below the existing outlet bottom. This will maintain the watercourse elevation below the crossing. The placement of the grade controls at Station G and Station H will establish a 60 foot segment of watercourse with a 2-4% grade. Excavated fills from the site may be stored along thru cut portions of the road that leads to the left bank approach. If the site is abandoned grade controls shall still be established at Station G and Station H.



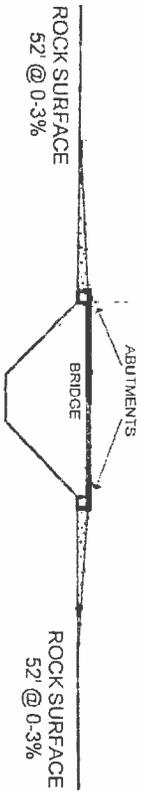
NOT TO SCALE

MAP POINT 950 - SKETCH MAP

BASELINE CONDITIONS

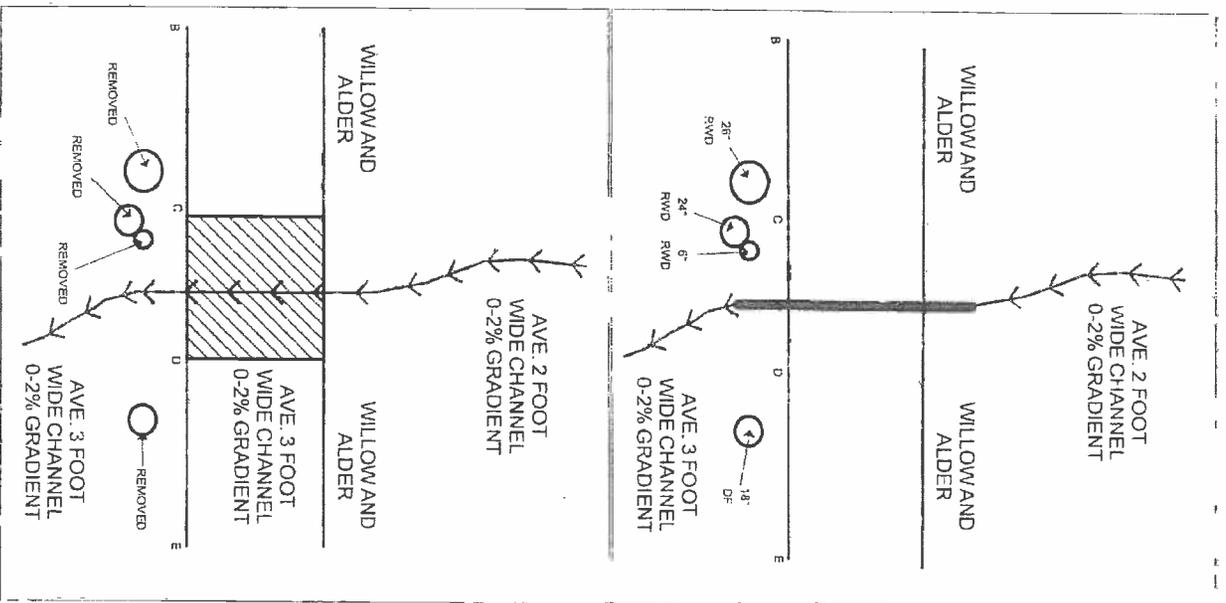


POST OPERATIONS CONDITIONS



SITE DESCRIPTION AND OPERATION DETAILS.

Map Point 950 - Replacement of a culvert on a Class I watercourse. From Station A to Station B rock surface the road. From Station C to Station D remove the existing culvert and all associated fill. Abutments shall be placed on native ground level and shall be approximately 2 feet tall and constructed of logs or prefabricated concrete blocks. Ramps from Station B to Station C and from Station D to Station E shall be constructed using native materials and capped with rock. An approximately 3 foot wide channel shall be established under the bridge. From Station E to Station F rock surface the road.



NOT TO SCALE

**McCloud Shaw THP
Unstable Area Map - Unit 2**

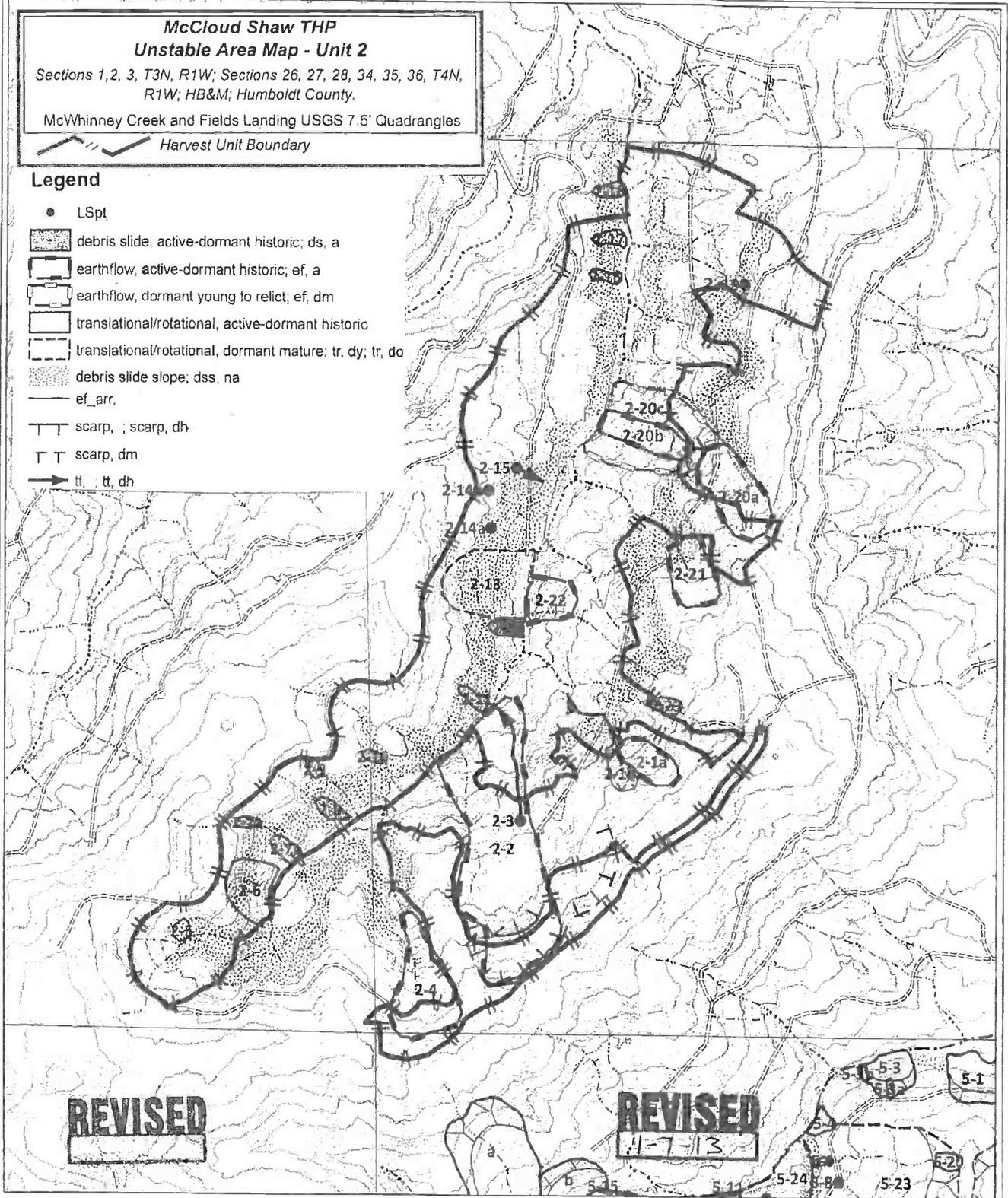
Sections 1, 2, 3, T3N, R1W; Sections 26, 27, 28, 34, 35, 36, T4N, R1W; HB&M; Humboldt County.

McWhinney Creek and Fields Landing USGS 7.5' Quadrangles

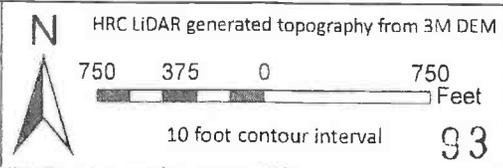
 Harvest Unit Boundary

Legend

- LSpt
-  debris slide, active-dormant historic; ds, a
-  earthflow, active-dormant historic; ef, a
-  earthflow, dormant young to relict; ef, dm
-  translational/rotational, active-dormant historic
-  translational/rotational, dormant mature; tr, dy; tr, do
-  debris slide slope; dss, na
- ef_arr,
-  scarp, ; scarp, dh
-  scarp, dm
-  tt, tt, dh



OSW LLP
Geologic
OG
PO Box 126
Loleta CA
95551
10/22/12-jao 13-12-02



McCloud-Shaw THP
Humboldt Redwood Company LLC
Figure 3b: Site Map, Unit 2

LOWER SOUTH FORK ELK RIVER PW 11110.000303

| Harvest Doc # | Silviculture | Yarding | Completion Status | Land Owner | CALWNUM | Acres | Legal Description |
|---------------|--|-----------------------|-------------------|---------------------------|-------------|-------|--|
| 1-02-149-HUM | Clearcut | Tractor or Skidder | Completed | Simpson Resource Co | 1110.000302 | 4.1 | S2, 3, 10 & 11, T3N, R1W |
| 1-02-217-HUM | Clearcut | Cable System | Completed | Humboldt Redwood Co | 1110.000302 | 62.5 | See Map |
| 1-02-217-HUM | Clearcut | Tractor or Skidder | Completed | Humboldt Redwood Co | 1110.000302 | 18.4 | See Map |
| 1-02-217-HUM | Clearcut | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 9.9 | See Map |
| 1-02-217-HUM | No Harvest Area | | Completed | Humboldt Redwood Co | 1110.000302 | 55.2 | See Map |
| 1-02-217-HUM | Road Right of Way | Tractor or Skidder | Completed | Humboldt Redwood Co | 1110.000302 | 9.0 | See Map |
| 1-02-217-HUM | Selection | Cable System | Completed | Humboldt Redwood Co | 1110.000302 | 2.7 | See Map |
| 1-02-217-HUM | Selection | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 0.5 | See Map |
| 1-02-217-HUM | Shelterwood Removal Cut | Tractor or Skidder | Completed | Humboldt Redwood Co | 1110.000302 | 5.2 | See Map |
| 1-02-293-HUM | Clearcut | Cable System | Completed | PALCO/SCOPAC | 1110.000302 | 6.8 | See Map |
| 1-02-293-HUM | Clearcut | Cable System | Unlogged | PALCO/SCOPAC | 1110.000302 | 7.5 | See Map |
| 1-02-293-HUM | Clearcut | Tractor/Cable option | Completed | PALCO/SCOPAC | 1110.000302 | 5.6 | See Map |
| 1-02-293-HUM | Clearcut | Tractor/Cable option | Unlogged | PALCO/SCOPAC | 1110.000302 | 5.4 | See Map |
| 1-02-293-HUM | Selection | Cable System | Completed | PALCO/SCOPAC | 1110.000302 | 8.5 | See Map |
| 1-02-293-HUM | Selection | Tractor/Cable option | Completed | PALCO/SCOPAC | 1110.000302 | 0.1 | See Map |
| 1-03-127-HUM | Clearcut | Tractor or Skidder | Completed | Green Diamond Resource Co | 1110.000302 | 6.4 | S12, T3N, R1W |
| 1-03-127-HUM | Clearcut | Tractor/Cable option | Completed | Green Diamond Resource Co | 1110.000302 | 0.9 | S12, T3N, R1W |
| 1-03-127-HUM | Selection | Tractor or Skidder | Completed | Green Diamond Resource Co | 1110.000302 | 0.0 | S12, T3N, R1W |
| 1-03-233-HUM | Clearcut | Cable System | Completed | Humboldt Redwood Co | 1110.000302 | 34.2 | See Map |
| 1-03-233-HUM | Clearcut | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 43.4 | See Map |
| 1-03-233-HUM | No Harvest Area | Cable System | Completed | Humboldt Redwood Co | 1110.000302 | 1.9 | See Map |
| 1-03-233-HUM | Road Right of Way | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 4.7 | See Map |
| 1-03-233-HUM | Selection | Cable System | Completed | Humboldt Redwood Co | 1110.000302 | 1.3 | See Map |
| 1-03-233-HUM | Selection | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 0.9 | See Map |
| 1-04-272-HUM | Clearcut | Balloon or Helicopter | Unlogged | Humboldt Redwood Co | 1110.000302 | 40.7 | See Map |
| 1-04-272-HUM | No Harvest Area | | Completed | Humboldt Redwood Co | 1110.000302 | 68.2 | See Map |
| 1-04-272-HUM | Selection | Balloon or Helicopter | Unlogged | Humboldt Redwood Co | 1110.000302 | 0.4 | See Map |
| 1-04-272-HUM | Selection | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 99.8 | See Map |
| 1-04-272-HUM | Variable Retention | Tractor/Cable option | Completed | Humboldt Redwood Co | 1110.000302 | 96.9 | See Map |
| 1-06-090-HUM | Clearcut | Cable System | Completed | Green Diamond Resource Co | 1110.000302 | 61.2 | S 1 & 12, T3N, R1W |
| 1-06-090-HUM | Clearcut | Tractor/Cable option | Completed | Green Diamond Resource Co | 1110.000302 | 30.8 | S 1 & 12, T3N, R1W |
| 1-06-090-HUM | Selection | Cable System | Completed | Green Diamond Resource Co | 1110.000302 | 18.9 | S 1 & 12, T3N, R1W |
| 1-06-230-HUM | Clearcut | Cable System | Completed | Green Diamond Resource Co | 1110.000302 | 19.9 | S1 & 6, T3N, R1W |
| 1-06-230-HUM | Clearcut | Tractor/Cable option | Completed | Green Diamond Resource Co | 1110.000302 | 64.5 | S1 & 6, T3N, R1W |
| 1-06-230-HUM | Selection | Cable System | Completed | Green Diamond Resource Co | 1110.000302 | 3.4 | S1 & 6, T3N, R1W |
| 1-06-230-HUM | Selection | Cable System | Completed | Green Diamond Resource Co | 1110.000302 | 4.3 | S1 & 6, T3N, R1W |
| 1-06-230-HUM | Selection | Tractor/Cable option | Completed | Green Diamond Resource Co | 1110.000302 | 1.2 | S1 & 6, T3N, R1W |
| 1-07-154-HUM | Clearcut | Cable System | Completed | Green Diamond Resource Co | 1110.000302 | 2.4 | S7, T3N, R1E |
| 1-07-154-HUM | Clearcut | Tractor/Cable option | Completed | Green Diamond Resource Co | 1110.000302 | 91.3 | S7, T3N, R1E |
| 1-07-154-HUM | No Harvest Area | | Completed | Green Diamond Resource Co | 1110.000302 | 1.9 | S7, T3N, R1E |
| 1-07-154-HUM | Selection | Tractor/Cable option | Completed | Green Diamond Resource Co | 1110.000302 | 4.2 | S7, T3N, R1E |
| 1-07-189-HUM | No Harvest Area | | Approved | Humboldt Redwood Co | 1110.000302 | 52.1 | See Map |
| 1-07-189-HUM | Palco Hillslope Prescrolution, Shelterwood Removal Cut | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 46.2 | See Map |
| 1-07-189-HUM | Selection | Tractor or Skidder | Approved | Humboldt Redwood Co | 1110.000302 | 39.2 | See Map |
| 1-07-189-HUM | Shelterwood Removal Cut | Tractor or Skidder | Approved | Humboldt Redwood Co | 1110.000302 | 148.2 | See Map |
| 1-08-165-HUM | Clearcut | Cable System | Approved | Green Diamond Resource Co | 1110.000302 | 0.6 | S11, 13, 14, T3N, R1W, S7 & 16, T3N, R1E |
| 1-08-165-HUM | Clearcut | Tractor/Cable option | Approved | Green Diamond Resource Co | 1110.000302 | 0.1 | S11, 13, 14, T3N, R1W, S7 & 16, T3N, R1E |
| 1-09-018-HUM | Group Selection | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 0.0 | See Map |
| 1-09-018-HUM | Group Selection | Tractor/Cable option | Approved | Humboldt Redwood Co | 1110.000302 | 0.1 | See Map |
| 1-09-018-HUM | Road Right of Way | Tractor/Cable option | Approved | Humboldt Redwood Co | 1110.000302 | 0.9 | See Map |
| 1-09-080-HUM | Clearcut | Cable System | Approved | Green Diamond Resource Co | 1110.000302 | 19.1 | S2 & 3, T3N, R1W |
| 1-09-080-HUM | Clearcut | Tractor/Cable option | Approved | Green Diamond Resource Co | 1110.000302 | 62.5 | S2 & 3, T3N, R1W |
| 1-09-080-HUM | Selection | Cable System | Approved | Green Diamond Resource Co | 1110.000302 | 1.5 | S2 & 3, T3N, R1W |
| 1-09-080-HUM | Selection | Tractor/Cable option | Approved | Green Diamond Resource Co | 1110.000302 | 1.8 | S2 & 3, T3N, R1W |
| 1-09-108-HUM | Group Selection | Tractor or Skidder | Approved | Humboldt Redwood Co | 1110.000302 | 3.1 | See Map |
| 1-09-108-HUM | Selection | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 30.5 | See Map |
| 1-10-107-HUM | Clearcut | Cable System | Approved | Green Diamond Resource Co | 1110.000302 | 28.0 | S11 & 12, T3N, R1W, S 6 & 7, T3N, T1E |
| 1-10-107-HUM | Clearcut | Tractor/Cable option | Approved | Green Diamond Resource Co | 1110.000302 | 68.9 | S11 & 12, T3N, R1W, S 6 & 7, T3N, T1E |
| 1-10-107-HUM | No Harvest Area | Tractor/Cable option | Approved | Green Diamond Resource Co | 1110.000302 | 2.2 | S11 & 12, T3N, R1W, S 6 & 7, T3N, T1E |
| 1-10-107-HUM | Selection | Cable System | Approved | Green Diamond Resource Co | 1110.000302 | 9.4 | S11 & 12, T3N, R1W, S 6 & 7, T3N, T1E |
| 1-10-107-HUM | Selection | Tractor or Skidder | Approved | Green Diamond Resource Co | 1110.000302 | 3.4 | S11 & 12, T3N, R1W, S 6 & 7, T3N, T1E |
| 1-10-107-HUM | Selection | Tractor/Cable option | Approved | Green Diamond Resource Co | 1110.000302 | 5.7 | S11 & 12, T3N, R1W, S 6 & 7, T3N, T1E |
| 1-11-008-HUM | Group Selection | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 106.4 | See Map |
| 1-11-008-HUM | Group Selection | Tractor or Skidder | Approved | Humboldt Redwood Co | 1110.000302 | 21.8 | See Map |
| 1-11-008-HUM | Group Selection, STA | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 15.6 | See Map |
| 1-11-008-HUM | No Harvest Area | | Approved | Humboldt Redwood Co | 1110.000302 | 14.4 | See Map |
| 1-11-008-HUM | No Harvest Area, STA | | Approved | Humboldt Redwood Co | 1110.000302 | 5.3 | See Map |
| 1-11-008-HUM | Selection | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 7.9 | See Map |
| 1-11-008-HUM | Selection, STA | Cable/Tractor option | Approved | Humboldt Redwood Co | 1110.000302 | 2.5 | See Map |
| 1-12-113-HUM | Sel., cc. ROW, No Harvest | feller buncher/cable | Pending Approval | Green Diamond Resource Co | 1110.000302 | 98.0 | S1 & 12, T3N, R1W, S6 & 7, T3N, R1E |



Erosion Control Plan

| Site | Site Type | Est. Potential Erosion (Cu.Yards) | Est. Potential Delivery (Cu.Yards & %) | Priority for Treatment | Implementation Schedule | Site Description | Treatment |
|------|-----------|-----------------------------------|--|------------------------|-------------------------|------------------|-----------|
|------|-----------|-----------------------------------|--|------------------------|-------------------------|------------------|-----------|

Project McCloud Shaw

| | | | | | | | |
|---------|--------------|----|---------|-----|--|---|---|
| RD: U06 | Failing Fill | 12 | 12 100% | Med | Prior to Oct 15, FIRST year of operations. | Outside edge of road has slumped 2-3' adjacent to a class 1 | Outside edge of road has slumped 2-3'. Base of the slump is a redwood stump. Road is currently wide enough for pick up traffic. The road may be retreated into the cutslope up to 6 feet without additional review. Perched fills shall be pulled back from the outboard edge and incorporated into the re-graded road surface or end-hauled to an appropriate spoils location. The road shall be re-graded and the vertical outboard edge removed by lowering the grade and/or by compacting clean native fills against the vertical outboard edge of the fillslope. Disconnect any surface drainage that is concentrated on to the site as feasible. Refer to Geo report for further description. |
|---------|--------------|----|---------|-----|--|---|---|

| | | | | | | | |
|--------------|----------|----|---------|-----|--------------------------------|--|--|
| RD: U06,0812 | Crossing | 20 | 20 100% | Med | Prior to THP Final Completion. | Replace existing culvert on a class 1 with a bridge. | Watercourse with minimal fish habitat, other than at high flows it could serve as refugia for salmonids. Replace existing culvert with a bridge. Ensure base of bridge is higher than existing road grade elevation. Refer to sketch map page 82.2 |
|--------------|----------|----|---------|-----|--------------------------------|--|--|

| | | | | | | | |
|--------------|----------|----|---------|-----|--------------------------------|---|---|
| RD: U06,0812 | Crossing | 40 | 40 100% | Med | Prior to THP Final Completion. | Culvert on class 1 has rusted through and may be a partial barrier to fish migration. | Existing 54" culvert on a class 1 watercourse. Culvert has rusted through and may be a partial barrier to fish migration. No recent signs of culvert overtopping. Replace culvert with a bridge. Ensure the base of the bridge is higher in elevation than current road grade. This should be sufficient to pass any sediment and debris. 100 yr culvert size (96") is larger than existing channel and at a hundred year event the site would be flooded by mainstem of Elk river. Refer to sketch map page 82.3 |
|--------------|----------|----|---------|-----|--------------------------------|---|---|

| | | | | | | | |
|-------------------|----------|----|---------|------|--|--|---|
| RD: U06,0812,2028 | Crossing | 75 | 75 100% | High | Prior to Oct 15; FIRST year of operations. | Undersized culvert on a class 1 watercourse. | currently undersize 30" culvert on a class 1 watercourse. The culvert is serving as grade control and causing aggradation above the watercourse. The crossing is a barrier to fish migration. Replace culvert with a permanent bridge. Ensure grade controls above and below crossing are installed with either rip rap or large wood. RPF or Geologist to be on site during grade control construction to ensure controls are built to prevent headcutting and are passable to fish. Refer to sketch map page 82.1 |
|-------------------|----------|----|---------|------|--|--|---|

| | | | | | | | |
|-------------------|----------|----|---------|-----|--------------------------------|---|---|
| RD: U06,0812,2028 | Crossing | 25 | 25 100% | Med | Prior to THP Final Completion. | Existing culvert with a shotgun outlet. | Existing class II 24" culvert with a shotgun out. Replace with new 24" culvert. If crossing at 25' is to be abandoned than shall site shall be abandoned by pulling the existing crossing, excavating fill and slash packing channel. |
|-------------------|----------|----|---------|-----|--------------------------------|---|---|

LL2

| Site | Site Type | Est. Potential Erosion (Cu.Yards) | Est. Potential Delivery (Cu.Yards & %) | Priority for Treatment | Implementation Schedule | Site Description | Treatment |
|---|------------------|-----------------------------------|--|------------------------|--|--|---|
| RD: U06,0825 STATION: 3700 SITE: S1 WOID: -405886763 SEDDID: 11714 REPAIRED: NO | Crossing | 5 | 5 100% | Med | Prior to THP Final Completion. | Small sinkhole developing above class III. | Rolling dip above class III watercourse. The outlet of the dip has a small sinkhole developing. Excavate sinkhole and back fill with a mix of rock sizes. |
| RD: U06,0825 STATION: 4700 SITE: S2 WOID: 927140722 SEDDID: 11717 REPAIRED: NO | Rocked Dip | 5 | 5 100% | Med | Prior to THP Final Completion. | Falling fill above class III | Existing truck road above Class III watercourse. Install a rocked rolling dip. |
| RD: U06,0825 STATION: 4795 SITE: SFE806.1 WOID: 1182108339 SEDDID: 15242 REPAIRED: NO | Surface Drainage | 13 | 13 100% | Med | Prior to THP Final Completion. | This segment of road above a class III, show signs of poor drainage. The rocked rolling dip will be installed at a low point in the road to aid in maintaining a dry road surface. The rock surfacing will also aid in maintaining a dry road surface. | Existing seasonal road above a class III watercourse. Install a rocked rolling dip. Rock surface the road back to Road Point 4700. |
| RD: U06,0825 STATION: 5300 SITE: WOID: 1362408171 SEDDID: 15243 REPAIRED: NO | Surface Drainage | 5 | 5 100% | Med | Prior to THP Final Completion. | Prior to THP Final springs/bank flow not disconnected from water course | Install cross drain (dip or drc) to drain springs along bank and road surface. |
| RD: U06,0825 STATION: 5400 SITE: WOID: 46306640 SEDDID: 11977 REPAIRED: NO | Surface Drainage | 5 | 5 100% | Med | Prior to THP Final Completion. | Spring/bank flow not disconnected from watercourse | Install cross drain (dip or drc) to drain springs along bank and road surface. |
| RD: U06,0825 STATION: 7465 SITE: SFE807.3 WOID: 368796655 SEDDID: 15248 REPAIRED: NO | Crossing | 120 | 120 100% | High | Prior to Oct 15: FIRST year of operations. | The crossing is located near the top of the class III. The crossing was not completely pulled following past operations. | Install a rock ford |
| RD: U06,0825 STATION: 8345 SITE: SFE809.1 WOID: 1236880132 SEDDID: 15249 REPAIRED: NO | Crossing | 6 | 6 100% | Med | Prior to THP Final Completion | The road crosses a class II spring. Perched fill is located at the outlet of the crossing. | Existing temporary crossing on a class II spring. Remove perched fill and install rocked ford |
| RD: U06,0825 STATION: 1100 SITE: SFE803.5 WOID: -1057662685 SEDDID: 15240 REPAIRED: NO | Crossing | 1796 | 1796 100% | High | Prior to Oct 15, FIRST year of operations. | Falling humboldt on a class II | Falling humboldt. Excavated soil to LWD. Leave LWD in place, backfill with 6" minus rock to necessary road grade, creating a rocked forl. |

272

| Site | Site Type | Est. Potential Erosion (Cu. Yards) | Est. Potential Delivery (Cu. Yards & %) | Priority for Treatment | Priority for Implementation Schedule | Site Description | Treatment |
|---|-----------|------------------------------------|---|------------------------|--------------------------------------|---|---|
| RD: U06-221689 STATION: 845 SITE: C1 WOID: 1075078896 SEDD: 11715 REPAIRED: NO | Crossing | 5 | 5 100% | Med | Prior to THP Final Completion | Sink holes are evident in the crossing on class III | Existing crossing near the top of a class III watercourse. Sink holes are evident in the crossing. Excavate crossing to sinkhole depth, back fill with a mix of rock sizes to regain road grade and surface with road rock. |
| RD: U07 STATION: 360 SITE: C1 WOID: -1358500653 SEDD: 11713 REPAIRED: NO | Crossing | 10 | 10 100% | Low | Prior to THP Final Completion | Partially pulled crossing on class III | Existing partially pulled crossing. Install a permanent 24" culvert |
| Total Estimated Yards | | 2142 | 2142 | | | | |

278.1



Humboldt Redwood
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Revised March 11, 2013

HRC Forestry Department.
P.O. Box 712
Scotia, Ca. 95565

ATTENTION: Jon Woessner, North Area Manager

NEW ROAD CONSTRUCTION PROPOSED ACROSS ADJACENT LANDOWNER FOR MCCLLOUD SHAW THP

Introduction

This report is a disclosure statement regarding known unstable areas associated with the road and specific road construction standards we intend to implement. The THP proposes the construction/reconstruction of roughly 3000 feet of road across an adjacent landowner to provide access to the southern bank of Elk River. Figure 1 shows the location of the new road alignment. The alignment will include one Class III culvert install (new) and a railcar bridge installation over the South Fork of the Elk River. The alignment will also include the new construction of approximately 1500 feet of keyway/cut and fill road.

Back Ground Information

The proposed road alignment will occupy an existing grade that trails south from Elk River Road adjacent and south of the HRC's Ridge Road. New construction will begin where crossing Elk River, extend across the field, switchback and climb to intersect an existing road within HRC Property. HRC intends to use the road to provide equipment access to the Tom Gulch area in lieu of utilizing the triple span bridge located on a different adjacent landowner.

Geology

As presented in Figure 2a of Oswald (2012), the road alignment will cross predominantly undifferentiated Wildcat group sediments. The central section will cross the modern flood plain/pasture of the South Fork Elk River. This segment is underlain by recent alluvial deposits comprised of fines. A WNW trending anticline is mapped to the immediate north of the proposed project. This would suggest that the northern segment of road construction (the existing road from Pt. 0 to ~1050) would expose dip slopes. This would also suggest the proposed new construction from roughly PT. 1300 to 2450 would create end grain cut slopes with strata dipping into the slope. Our observations of existing road cuts atop both the northern and southern road segments suggests that structurally controlled mass wasting as a result of road construction within the dipping strata is a low likelihood. We noted soils varying from silty clays to silty sands where underlain by undifferentiated Wildcat Group sediments. We also noted that soil thickness ranged from 0 where cut away to about 4 feet. The transition from soil to bedrock was often difficult due to a gradual change in color.

Proposed Alignment Characterization

The road alignment reoccupies ~1000 feet of existing road on the north bank of the South Fork of Elk River to access South Fork Elk River. The road is moderately inclined and appears to cross a watercourse in response to Elk River Road (paved county road runoff). Once crossing South Fork Elk River, the road will cross low gradient, pasture grass covered alluvium for roughly 250 feet. The remainder of the road will climb across 50 to 60% inclined slopes. The alignment will cross several muted swales and downhill trending, through-cut skid roads. Several old growth stumps will likely need to be excavated as well. The regional slope surface morphology is irregular with smoothed edges. We noted several locations within and adjacent the proposed road alignment of concentrated runoff in response to both skid road surface hydrology alteration and truncated soil pipes typically located basal to old growth stumps.

Construction Design

The following section provides site specific characterization of the proposed road segments.

0 to 1050: This segment will extend from Elk River Road down an existing road grade to the South Fork of Elk River. The road surface is currently vegetated with grass and brambles. An obvious gully with evidence of perennial flow is located at Pt. 360. This gully will be treated as a Class III watercourse and receive a 24" culvert. HRC intends to rock the surface of the road from the Elk River Road to the Bridge.

1050: HRC intends to bridge the South Fork of Elk River utilizing two 89' long railcars placed side by side. Figure 2 shows a valley wide profile of the bridge location. The active channel of SF Elk River will accommodate roughly 20% of the Q100 flow before flowing to the west and around the bridge installation. Figure 3 provides a detail of the bridge, abutments and included culverts in the bridge approaches. Throughout the designing of this installation we found that as the bridge location increases in elevation to accommodate additional cross-sectional area, the approaches increase in length and depth. As the ramps lengthen they reduce the cross-sectional area of flood water flowing to the west of the bridge installation. A small portion of this increase was alleviated through the installation of culverts within the bridge ramps.

HRC opted for the use of 90' railcars to place the abutments well outside of the current active channel. Recognizing that the soils within the valley would likely be highly compressible, this was done to provide loading at a distance where significant bank soil would be retained between the foundation and the active channel banks reducing bank collapse potential.

For abutment construction, we anticipate utilizing interlocking pre-fabricated concrete blocks furnished by local concrete companies. The blocks measure 2' square and extend 5' in length and include an angled protrusion on the top and one side with a corresponding angled trough on the bottom and remaining side to allow for interlocking. The interlocking creates a uniform gravity abutment that significantly resists lateral forces created from channel flow. Our design places the 1st and likely the 2nd course founded below the current grade to provide normal load transfer at depth while minimizing swell of the adjacent ground surface. Prior to placement, the foundation of the precast concrete blocks will be inspected by a CLG for load bearing purposes. Past experiences suggests that we will likely place geo-textile fabric at an over-excavated depth and backfill with pit run to the desired elevation for the first course of abutment block. This helps create a spread foundation for which the individual blocks will be laid. Additional courses (anticipated to be four) will be stacked until the bottom of the railcar bridge is located at an elevation higher than the 100-

year flow elevation. Figure 3 shows this to be roughly 16.5 feet above the lowest elevation found in the thalweg.

Dependent on the subsurface condition encountered during excavation, HRC may also include placing a single layer of geotextile fabric between the upper two courses of block and extending into the approach prism fills as a tie back to the block wall.

Typically, logs are used as a sill between the top of the block abutment and the bottom of the railcars. To keep the bridge located atop the abutments and resist dislodging during moderate to high flows events (think bombardment from floating large woody debris), HRC will anchor the bridge via a single steel cable fastened on the bottom to a single precast block (deadman) buried within the fill approaches (one per side).

Within 100 feet upslope of the proposed bridge location, there is a significant assemblage of large woody debris within the South Fork active channel. We noted that extensive channel widening (by 1/3) is coincident with the assemblage of woody debris. In essence, channel flow has been forced into the banks (predominantly western) resulting in widening of the channel. HRC proposes to retrieve/remove/reposition a significant amount of the LWD to limit future channel widening at this location. From our estimates, a component of the removed LWD will need to be hauled away from the site and may be used as fill prism buttress material (topically applied) elsewhere within this project.

1050 to ~1300: This section of road will cross grass covered Elk River alluvium (pasture). We anticipate that about 1/4 to 1/3 of this road segment will be located within the 100-year flow margins. This segment will include a fill prism extending from the railcar bridges down.

HRC intends to excavate into the alluvium about 1-foot in depth (12' to 14' wide), blanket the exposed surface with woven geotextile fabric and backfill above the native surface with crushed rock. The basement layer of crushed rock will vary from 4 to 2 inches with the cap rock being a 1.25" minus base. HRC may change this design to include three dimensional geo-web to vertically hold road prism aggregates in place. This application would still utilize a surface layer of woven geotextile fabric to prevent aggregate sinking.

As presented on Figure 3, HRC intends to install various culverts within the bridge approach fills. These are intended to reduce the volume of fill necessary for construction as well as alleviate some of the dam effect created by the fill approaches. The fill material will be comprised of either local materials (field verified by CLG to be of high percentage sands) or pit run which will be angular gravels with fines. The fillslope inclination will be dependent upon the texture of soil used. That is, 3H:1V for a sand core fill and ~1.5 to 2H:1V for the pit run core fill. The culvert ends facing upstream will be miter cut to match the fill slope gradient. The culvert ends will terminate within 2 feet of the base of the fill to reduce fill slope scour effect created by culvert inflow. HRC intends to armor the fill faces with a mix of pit run (typically 8" minus, well graded angular rock), barley grass seed (later infilled with native pasture grasses) and LWD either removed from the channel or imported from other sites locally.

~1300 to 2450: The new construction will cross moderate to steeply inclined forested slopes that include several muted swales. The forested slopes are overprinted with a cross hatch of deeply cut legacy skid roads. Unstable areas do not exist within the road alignment. Shallow, typically skid road

and legacy haul road related fill slope failures exists upslope of the alignment. These failures are small in size and include limited runout distances.

The new segment will be constructed with cut and fill techniques. Where the alignment crosses a pronounced swale or throughout skid road where fill placement will result in the forming of a dam, HRC will provide drainage. The method of drainage will vary from the installation of a basal layer of angular, highly permeable rock to support the road fill or culverts (18" diameter).

The road segment will be rocked in its entirety.

Considerations

HRC/PALCO has gained significant experience regarding road construction, reconstruction and abandonment in this geographic area with these fine grained soils over the last decade. We have learned that the fine grained soils do not stack well, include very low levels of inherent soil strength when wet and are difficult to compact. We have also learned that due to past logging activities, the surface hydrology of the Tom Gulch area is highly disrupted and due to this legacy road building, a very unique and complex subsurface hydrologic system has been exposed. This system includes perched aquifers and a dense well connected array of shallow soil pipes. The proposal to construct a new cut and fill, although including short cutslope heights, could result in undercut slopes with respect to slope stability and / or drainage alterations. Consistent with HRC's intent to construct environmentally benign roads, this is furthered by our intent to create a well designed and constructed road on an adjacent landowner. We have rationalized the potential of this road project to create significant mass wasting / sediment delivery into the following points:

Bridge Installation:

- 1) The limited depth and width of the active channel of SF Elk River will not accommodate significant flows. As such, this design fully anticipates that a significant volume of flood waters will flow around the bridge installation to the west.
- 2) Utilization of prefabricated blocks was intended to produce a robust structure that would retard erosion, piping and debris impacts during high water elevation events that could compromise the structure.
- 3) Due to the wide and flat valley at this location, flow velocities during flood events are anticipated to be low or more akin to a slow moving lake.

Road Construction:

- 4) The anticipated cutslope heights are likely not going to exceed 4 to 6 feet in any given locations. We observed several existing skid roads throughout the adjacent landowners property and found no indication that this would trigger failure.
- 5) No watercourses have been identified to be crossed by the proposed new road alignment. This significantly limits the potential to deliver sediment to a higher order watercourse.
- 6) Exposed soil pipes were located along the alignment. These were typically identifiable by a gully formed downslope of an old growth stump. HRC will accommodate this flow either through culverted crossings or the construction of a permeable road prism (course angular basal layer, subdrains, etc).
- 7) Where old growth stumps are to be removed from the alignment, inspection of the resulting hole will occur to determine if soil pipes exist. If so, site specific mitigations will be employed to provide effective drainage of the water in a manner that does not concentrated flow surficially or saturated road bed materials.

Drainage and Surface Erosion

The primary drainage structure utilized will be rolling dips. We have no intent to create inside ditches requiring ditch relief culverts. Surface erosion of the road itself should be minimized since the surface will be rocked. Exposed soils resulting from road construction will be treated with barley seed and covered with either straw, slash generated from the road construction or both.

Road Work Order Entry:

Segment U07: Road Points 0 to 1050

- Upgrade existing road to a rocked road.
- Remove vegetation to determine best locations for drainage, grade for drainage prior to rocking.

Segment U07: Road Point 360

- Install 24" culvert. Consider this crossing to be a watercourse. Excavate upslope to create a channel that will direct flow to the culvert inlet. Armor the outlet of the culvert.

Segment U07: Road Points 1050

- Install Railcar Bridge. Intent is to follow Figure 3. Contact Roads Department Manager for assistance.

Segment U07: Road Points 1050 to ~1300

- Excavate road to 1-foot depth, remove grasses and rooted soils.
- Blanket exposed road with woven geotextile fabric.
- Backfill excavated road grade with angular barrow pit rock (4" to 2" diameter) for a depth of 6 to 8 inches.
- Finish rock the grade to at or above the adjacent grassland with cap rock (1.25" minus).

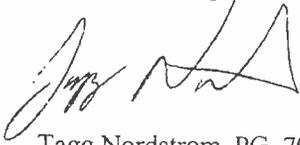
Segment U07: Road Points ~1300 to 2450

- Construct new cut and fill road along proposed alignment.
- Contact Roads Department Manager for assistance during construction of this segment.
- Where alignment crosses a swale or skid road and subsequent finished road grade will "dam" swale, install basal angular rock or culvert to provide drainage.
- Where removing stumps, inspect excavated area for soil pipes. If present, provide means to drain water so as not to saturate road bed materials.
- Grade road for drainage. Avoid creating inside ditches.
- Rock road surface.

Summary

HRC proposes the construction of this road to provide additional and more direct access to land holding south of Elk River. This road crosses an adjacent landowner. The road alignment has been reviewed for existing and potential hazards with respect to mass wasting and sediment delivery. Where these hazards were identified to exist, design changes were implemented to reduce their potential. We are of the opinion that the proposed work fits with the location in both constructability and limited environmental impacts. To further reach these goals, a CLG will provide supervision as construction proceeds to verify that the geologic conditions are as presented above and the construction guidelines provided are being met.

HRC Roads Department



Tagg Nordstrom, PG, 7950
Road Department Supervisor / Geologist



Attached:

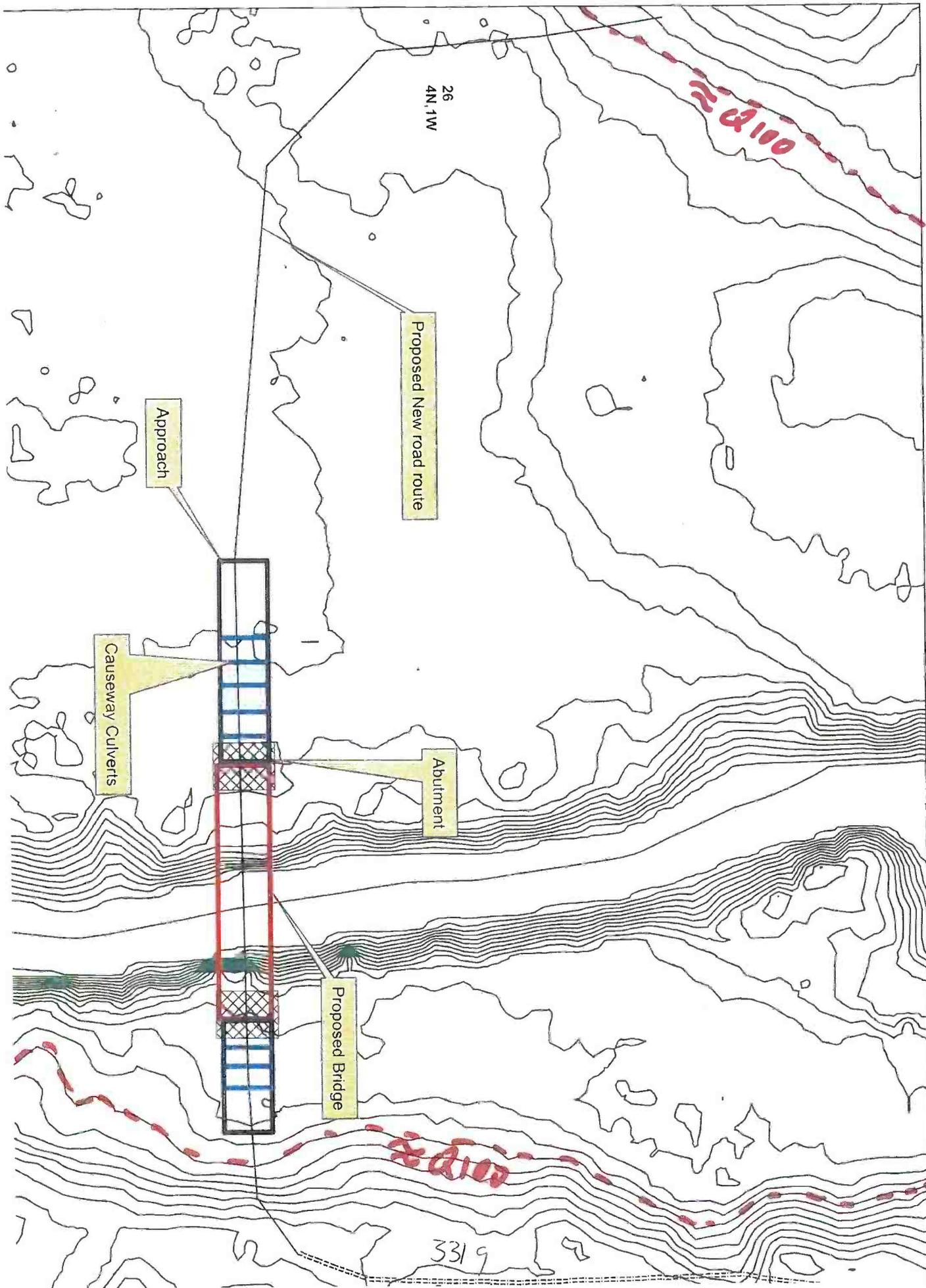
- Figure 1: Road Construction Location Map
- Figure 2: Westfall Bridge SF Elk Valley Profile
- Figure 3: Westfall Bridge Construction Design

References:

Oswald, 2012, Engineering Geologic Evaluation of the McCloud-Shaw THP, Humboldt County, California, unpublished geology report submitted to Mr. Jon Woessner, RPF, Humboldt Redwood Company.

HRC, 2012, unpublished stream gauge station SF 510 data. Available for review and discussion upon request.

Westfall Bridge - Plan and Elevation view
Scale 1:500 Contour interval = 1'





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January 25, 2013

Mr. Jon Woessner
Northern Area Manager
Humboldt Redwood Company

SUBJECT: Response to California Geological Survey Pre-Harvest Inspection (PHI) Report for THP# 1-12-110 HUM (McCloud Shaw).

INTRODUCTION

This letter contains responses to comments contained within the Pre-Harvest Inspection (PHI) report written by California Geological Survey (CGS) staff for Timber Harvesting Plan (THP) 1-12-110 HUM (McCloud Shaw) (Marshall, 2012). This letter was prepared by the Humboldt Redwood Company (HRC) Geoscience Department and specifically addresses CGS's request for additional information relating to Road Point (Rd Pt) 10100 on the U02 road and Rd Pts 7465 to 8365 (CGS 1) on the U06.0852 road. CGS comments contained in the Site-Specific Recommendation section of the PHI report are presented in *Italics* with our responses immediately follow in regular text.

Rd Pt 10100

As written the project geologist's recommendation is not understandable in light of the on the ground observations. Either the recommendation must be modified so as to be clear to the LTO or an alternate prescription proposed. The plan discussed by the company geologist during the PHI appears workable. This proposal is to ramp down onto the slide body and place no more than 2 feet of fill across the slide.

The road segment associated with Rd Pt 10100 should be re-established by reducing existing grades to access the down dropped roadbed. Recommendations pertaining to the re-construction of this distressed road segment follow below.

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HRC GeoScience Department
Response to CGS PHI Report Comments
THP# 1-12-110 HUM (McCloud Shaw)

- Ramp down and across the displaced road segment. Access to the lowered roadbed should be obtained by grading through the lateral flanks of the slide that altered the pre-existing travelway.
- If fill is required to establish a manageable grade, it can be placed directly onto the displaced roadbed. Keyway structures are not necessary for the placement of fill material, unless slope gradients in the foundation areas are steeper than 4:1 (Horizontal to Vertical [H: V]).
- Excavation spoils are acceptable for fill material provided they contain no organic material or over-sized debris.
- All areas to receive fill shall be stripped of surface debris, vegetation, and major root systems.
- Fill material should be moisture-conditioned and placed in lifts not exceeding 8 inches in loose thickness. Thoroughly trackwalk and compact the finished fill surface.
- If development of a fill embankment in excess of 2 feet in vertical thickness is required to establish a safe passable roadway, the embankment should be re-contoured at the completion of summer operations so that it is no more than 2 feet thick prior to the ensuing winter period. Two feet of material is unlikely to impart a significant enough surcharge load onto the slide area to trigger a renewal of movement.
- To prevent the accumulation of runoff onto the repair area, water breaks should be established near the upslope edges of the approaches providing access to the lowered road surface.
- Slash-pack the down dropped roadbed shoulder and embankment face with 1- to 4-inch diameter woody debris at the completion of summer operations and prior to the ensuing winter period. Woody debris should be tamped into place.

This package of woody debris (windrow) will reduce the surface erosion hazards associated with the development of the new road surface, which for all intensive purposes will act in a manner similar to that of a very broad, deep rolling dip.

- The road at this site crosses the head of a historically active landslide and could therefore be subject to intermittent movement in the future. Maintenance is likely to be required should there be a renewal of movement at this location.

Rd Pts 7465 to 8365 (CGS-1)

The area surrounding section of the U06,0825 road between Road Points 7465 and 8365 shall be characterized by a California Licensed Geologist. Discovered unstable areas will be added to appropriate plan maps and mitigations appropriate for the planned operations, particularly the planned road U06,0825 reopening, shall be devised and made a part of the plan. The characterization and mitigations shall be presented for agency review prior to second review.

The subject segment of the U06.0825 discussed above contours across the upper margins of a pair of large earthflows or deep-seated rotational-type failures (Figure 1). These slide complexes have clearly been associated with movement over a prolong period of time, based on their geomorphic expression and scale. Their surface expressions alternates between smooth and well rounded to

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**HRC GeoScience Department
Response to CGS PHI Report Comments
THP# 1-12-110 HUM (McCloud Shaw)**

hummocky and broken, depending on age and magnitude of ground movement. The hummocky and broken slopes are commonly associated with those areas altered by recent movement. These areas typically support warped and jackstrawed conifers, as well as tilted stumps. Deformation of the existing road grade was also common in these historically mobile regions.

Encroachment of the more mobile portions of the slides into adjoining stream channels has resulted in the activation of a number of shallow debris slides along the impacted stream banks. Inactive (dormant-historic or older) areas have muted and subdued surface expression, but retain recognizable slide morphology. There is a general absence of deformed trees and distressed road surfaces in the dormant areas. Old growth stumps are in natural growth positions and there is no surface evidence of recent or historic ground movement.

The U06.0825 roadbed consist of a shallow cut surface (1 to 3 feet high) and for the most part, follows the natural grade, although locally the road is associated with fill embankments of unknown thickness. Reopening of the roadway will be limited to simple excavation or fill-ramping across displaced travelways to re-establish a usable running surface. Minimal cuts or fills will be required to mitigate the distressed road segments. Currently, the road does not appear to significantly impact the landslides, and the underlying features should not have a major influence on the stability of the roadbed. Deformation at the site, based on based performance, would require no more than periodic maintenance.

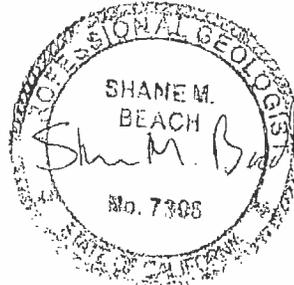
Based on the site conditions, it is our opinion that if the subject road segment is re-graded in compliance with state standards and HCP protocols there is a low probability that the roadway and subsequent uses will have a significant impact on slope stability or water quality. Therefore, we have no site-specific recommendations for the re-opening of the U06.0825 road between Rd Pts 7465 and 8365.

Please feel free to call me at 707-764-4224 if you have any questions, or require any additional information regarding items contained in this response letter.

Respectfully,

HRC GeoScience Department

Shane M. Beach, P G #7396
Senior Geologist
707 764-42924



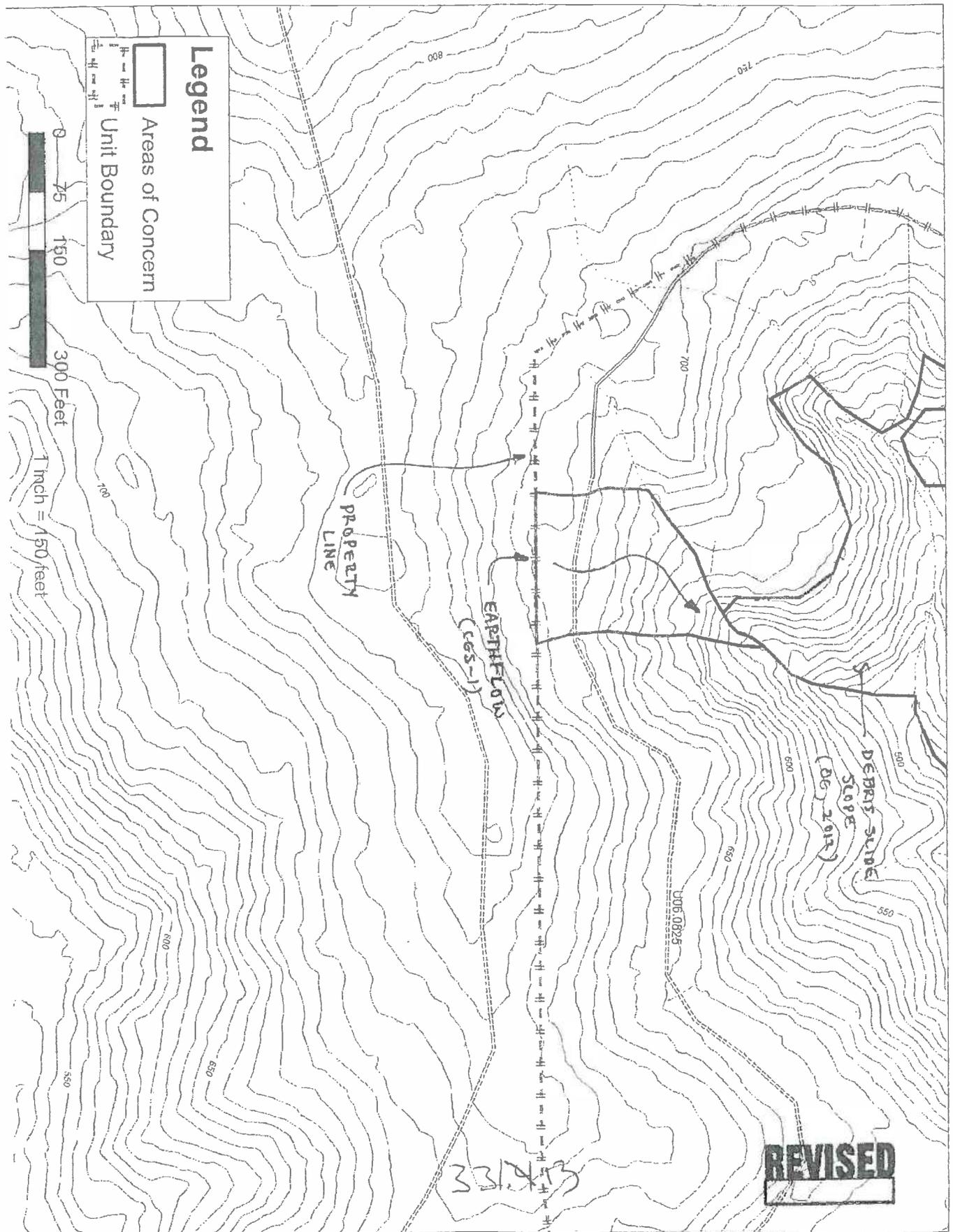
Attachments & References

Figure 1: Revised Landslide Map

Marshall G.J., (2012). "Engineering Geologic Review of Timber Harvesting Plan 1-12-110 HUM (McCloud Shaw) Humboldt Redwood Company," unpublished memorandum to William E. Snyder, Deputy Director, Resource Management California Department of Forestry and Fire Protection. NR:NR.

331,812

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Legend

- Areas of Concern
- Unit Boundary



1 inch = 150 feet

REVISED

331.413

EXHIBIT 6

Memorandum

To: William Snyder, Deputy Director
Resource Management,
Sacramento Headquarters

Date: January 29, 2013

ATTN: Leslie Markham, Deputy Chief
Forest Practice Coast Region Headquarters
Santa Rosa

Telephone: (916) 653-9455

Website: www.fire.ca.gov

From: 
PETER H. CAFFERATA, Professional Hydrologist No. 1676 (AIH)
California Department of Forestry and Fire Protection (CAL FIRE)

Subject: Hydrologic Review of THP 1-12-110 HUM

This memorandum reports the results of a field and office review of the potential hydrologic impacts associated with the McCloud Shaw THP (1-12-110 HUM). Field inspection participants for the first day of the Pre-Harvest Inspection held on January 9, 2013 when Unit 3 was evaluated, included the following individuals:

| | |
|-----------------|---|
| Mark Distefano | RPF |
| Jon Woessner | Area Manager, Humboldt Redwood Company |
| Shane Beach | Senior Geologist, Humboldt Redwood Company |
| Maggie Robinson | NCRWQCB |
| Joelle Geppert | NCRWQCB |
| Gerald Marshall | CGS, Senior Engineering Geologist |
| Jim Robbins | CAL FIRE Humboldt-Del Norte Unit Forester |
| Bill Forsberg | CAL FIRE Forest Practice Inspector |
| Pete Cafferata | CAL FIRE Watershed Protection Program Manager |

I did not attend the second day of the PHI, held on January 10, 2013.

Background Information

The McCloud Shaw THP covers 590 acres in the Elk River watershed, located in Humboldt County. Unevenaged management is proposed, with 234 acres to be selectively harvested and 305 acres harvested with the group selection silvicultural system. Road right-of-way (1.2 ac) and no-harvest areas (49.8 ac) compose the remainder of the THP. The THP is made up of three units; Unit 1 is 197 acres, Unit 2 is 149.5 acres, and Unit 3 is 243.5 acres. Both ground-based and cable yarding are proposed, with approximately 73% of the area to be cable yarded. These units are located in the Lower Elk River and Lower South Fork Elk River planning watersheds, with a very small portion of Unit 3 situated within the Fields Landing planning watershed. Unit 3 is nearly entirely located within the Lower Elk River planning watershed; Units 1 and 2 are

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located within the Lower South Fork Elk River planning watershed. Unit 2 is located in the Railroad Gulch headwater basin, a tributary to the Lower South Fork of Elk River (Figure 1). The watershed assessment area for the THP includes Clapp Gulch, Shaw Gulch, South Fork Elk River, McCloud Creek, Railroad Gulch, and Tom Gulch. NCRWQCB (2011a) provides considerable information on sediment sources for these Elk River tributaries.

The Lower Elk River planning watershed (#1110.000402) drains 6223.9 acres. The Lower South Fork Elk River planning watershed (#1110.000302) drains 5692.1 acres (CAL FIRE Watershed Mapper webpage). Railroad Gulch has a drainage area of 768 acres, Clapp Gulch 640 acres, McCloud Creek 1,510 acres, and Tom Gulch 1,606 acres (NCRWQCB 2011a).

Protection of watercourses in this THP are proposed through the use of Riparian Management Zones (RMZs), as defined by the HRC Habitat Conservation Plan (HCP) and the Prescriptions Based on Watershed Analysis for Elk River and Salmon Creek, which provide increased protection over the standard California Forest Practice Rules. The previous landowner, PALCO, completed a Level II watershed analysis for the Elk River watershed in 2005, which provides site-specific prescriptions, as agreed to in the 1998 HCP.¹ The watershed analysis-generated specific recommendations for limiting sediment production are incorporated in this plan.

The Elk River watershed is listed as an impaired watershed under Section 303(d) of the federal Clean Water Act, with sediment being the impairment. The North Coast Regional Water Quality Control Board (NCRWQCB) established a Watershed-Wide Waste Discharge Requirement (WWDR) for the Elk River watershed in 2006 after determining that the watershed had been cumulatively impacted by sediment and nuisance flooding related to the intensity of timber harvesting. Compliance with harvesting acreage limitations was required by the NCRWQCB to allow for watershed recovery, and this constraint has been followed (as described in the THP's Cumulative Impacts section).

The THP is underlain by Wildcat Group marine sediments in the lower elevation portion of the plan area and Hookton Formation sediments in the upper elevation portion of the plan (Marshall 2013). The Wildcat Group is described as poorly to moderately consolidated silty sandstone and siltstone, and the Hookton as unconsolidated sand, gravel and silt. These formations are considered to be highly erodible. Erosion and sedimentation related to legacy logging practices and more recent timber operations conducted prior to the implementation of the HCP and WWDR requirements has significantly modified the channel conditions of Elk River and its tributaries, increasing the magnitude and frequency of overbank flooding (Stillwater Sciences 2007, NCRWQCB 2011b).

The effects of contemporary logging practices on peak flows and flooding in the Elk River watershed located in Humboldt County have been studied extensively in the past 15 years (e.g., PALCO 1999, Conroy 1999, Reid 1999, Lisle et al. 2000, Salminen 2001, Munn 2002,

¹There were slight modifications to the HCP's interim measures following the completion of watershed analysis in Elk River.

Patenaude 2004, Sullivan and Dhakal 2005, HRC 2010). The California Department of Forestry and Fire Protection set an interim limit on the annual harvest rate of 600 clearcut equivalent (CCE) acres per year prior to completion of watershed analysis to address the flooding issue in 2000. Munn (2002) used a regression equation developed from data obtained in the North Fork of Caspar Creek to predict peak flow changes and identify an acceptable rate of harvest in the Elk River watershed. Increased peak flows were raised as an issue during public review of THPs and were determined to be a threat to public health and safety. In May 2006, the North Coast Regional Water Quality Control Board adopted an interim limit on harvesting in the Elk River watershed prior to completion of TMDL work; the limit was set at 420 clearcut equivalent acres per year. An upper limit of 264 clearcut equivalent acres per year was set by the Water Board for the North Fork of Elk River.

Field Observations

Only Unit 3 and appurtenant roads were observed on the first day of the PHI. During this field evaluation, approximately 0.5 inches of precipitation fell, mainly in the morning hours (0900 to 1200).² The PHI field inspection team walked several miles of roads, both on HRC timberlands, and on an adjacent landowner where HRC has an easement to use existing roads. We observed several through-cut road segments that were draining runoff for considerable distances. The plan proposes road upgrading work and remediation of old watercourse crossings, both of which will reduce long-term sediment entry into Elk River watercourses. We observed several crossings to be improved along the roads accessing Unit 3. Recommended mitigations included in the THP were judged to be generally appropriate for these poorly performing road segments and crossings. Some relatively minor suggestions for improvement were made during the PHI (see Forester Forsberg's PHI report and Marshall 2013 for specific recommendations).

We also inspected two small headwater Class III watercourses located in Unit 3 for signs of channel incision and recent bank erosion. One of the channels displayed active downcutting and channel incision through previously deposited material likely resulting from first-cycle logging. The second headwater channel did not appear to be actively downcutting. PWA (1998) reported that channel infilling in the Elk River watershed began with corduroying for oxen and train tracks and continued during the tractor logging era of the 1940s to 1970s. Many low-order stream channels were filled in with soil and organic debris to form tractor yarding corridors. Sullivan et al. (2012) reported that sediment budget analysis found that channel cutting and bank erosion associated with first-cycle logging is a significant source of sediment in this watershed. HRC monitoring work has confirmed that this sediment source is active and possibly contributing as much as one third of the current observed sediment export during average years (Sullivan et al. 2012). Similarly, NCRWQCB (2011a) reports that these sediment sources are significant in Elk River tributary basins.³

² The rainfall estimate is based on telemetry data from the National Weather Service website.

³ Small streamside landsliding was the largest source category in the NCRWQCB (2011a) sediment source analysis, accounting for 34% of the management-related sources, followed by management-related open-slope shallow hillslope landslides, accounting for 15% of the management-related loading.

Rapid Peak Flow Assessment for Units 1 and 2 of the McCloud Shaw THP

Peak flow results from the North Fork Caspar Creek can be extended to other forested watersheds in rainfall-dominated portions of the California Coast Ranges (Cafferata and Reid in review). The regression equation used by Munn (2002) was developed from the North Fork Caspar Creek dataset to predict changes in peak flow after logging (Lisle et al. 2000, Lewis et al. 2001). Specifically, the following equation can be inserted into a spreadsheet and used to make predictions about how a specific silvicultural prescription or prescriptions in a THP can be expected to change winter peak flows (Cafferata and Reid 2011, in review):

$$E(r) = \exp\{[1+B_2(t-1)]c[B_4+B_5\ln(y_c)+B_6\ln(w)]\}$$

Where:

| | |
|----------------|--|
| r | ratio between the observed peak flow and the expected flow without a logging effect in a watershed as the result of a storm |
| B ₂ | logging recovery coefficient (-0.0771) |
| t | number of summers since logging |
| c | proportion of the watershed logged |
| B ₄ | constant (1.1030) |
| B ₅ | storm size coefficient (-0.0963) |
| y _c | expected mean peak discharge of control watersheds in Caspar Creek to a storm having the return period of the storm being estimated (m ³ s ⁻¹ ha ⁻¹) |
| B ₆ | watershed wetness coefficient (-0.2343) |
| w | watershed wetness index |

In order to use the equation, the number of clearcut equivalent acres proposed for harvesting must be determined. Past research at Caspar Creek has shown that reduced canopy from clearcut timber harvesting results in greatly reduced interception loss and secondarily lower evapotranspiration, resulting in increased peak flows during mid-winter months (Reid and Lewis 2007, Reid 2012). Different silvicultural prescriptions produce varying levels of canopy reduction.⁴

Unit 1 of the THP proposes to selectively harvest 108 acres and use group selection on an additional 80.2 acres in the South Fork watershed. It is assumed (as discussed on the PHI) that group selection will not exceed 20% of the THP area, so this is equivalent to clearcutting 16.0 acres (80.2 x 0.2). The clearcut equivalent factor for selection harvesting is 0.5 (NCRWQCB 2005), so the 108 selection acres can be considered to equate to 54 clearcut equivalent acres (108 x 0.5).⁵ There are no road right-of-way acres in this unit. The total clearcut equivalent equals 70.0 acres in Unit 1.

⁴ It is reasonable to assume that a watershed's peak flow response to a partial harvest (e.g., single tree or group selection) is similar to that expected for a clearcut harvest with the same proportional canopy reduction in the watershed (Lewis and Ziemer 1999) and use this as an upper bound. A lower bound could be estimated by assuming the response for selection logging is approximately 60% of that expected for clearcutting (Cafferata and Reid in review).

⁵ Information provided in the THP indicates that it is likely that post-harvest canopy in the area harvested with selection silviculture will be 50-60%.

Unit 2 of the THP under review proposes to selectively harvest 80 acres and use group selection on an additional 45 acres in the Railroad Gulch watershed (Figure 1). The group selection proposed is equivalent to clearcutting 9.0 acres (45 x 0.2). The selection area can be considered to equate to 40 clearcut equivalent acres (80 x 0.5). Additionally, there are 0.5 acres of road right-of-way, with a CCE factor of 1.0. The total clearcut equivalent equals 49.5 acres in Unit 2.

Unit 3 of the THP under review proposes to selectively harvest 46 acres and use group selection on an additional 179.8 acres in the lower Elk River watershed. The group selection proposed is equivalent to clearcutting 36.0 acres (179.8 x 0.2). The selection area can be considered to equate to 23 clearcut equivalent acres (46 x 0.5). Additionally, there are 0.7 acres of road right-of-way, with a CCE factor of 1.0. The total CCE equals 59.7 acres in Unit 3. Since this unit drains into multiple tributary basins (e.g., Clapp Gulch, Shaw Gulch), as well as more broadly into the 58.3 square mile Elk River watershed, no modeling on potential increases in peak flows was undertaken for Unit 3.

The Caspar Creek peak flow prediction equation was used for predicting the 2-year peak flow increase expected from Units 1 and 2 the first winter after harvest. As stated above, the drainage area of Railroad Gulch equals 768 acres (Stillwater Sciences 2007, NCRWQCB 2011a); the drainage area for the South Fork (upper and lower planning watersheds) is 13,184 acres (CAL FIRE Watershed Mapper webpage).

Estimates for two year recurrence interval peak flow increases are shown in Table 1. Note that these projections are provided here only as rough estimates to show the approximate level of expected impacts, and do not take into account changes in peak flows due to new road construction.

Table 1. Estimated changes in two-year recurrence interval peak flows associated with the proposed harvesting in Units 1 and 2 of the McCloud Shaw THP.

| Watershed | Drainage Area (acres) | Clearcut Equivalent (CCE) Acres | 2-yr RI Peak Flow Increase (dry soil wetness, w = 50) | 2-yr RI Peak Flow Increase (average soil wetness, w = 304) | 2-yr RI Peak Flow Increase (moist soil wetness, w = 600) |
|--------------------------------------|-----------------------|---------------------------------|---|--|--|
| Railroad Gulch (Unit 2) | 768 | 49.5 | 4.7% | 1.7% | 0.5% |
| South Fork Elk River (Units 1 and 2) | 13,184 | 119.5 | 0.6% | 0.2% | 0.1% |

No changes in estimated suspended sediment load resulting from increased peak flows in small headwater channels are provided in this report. A draft procedure is under development by Dr. Leslie Reid, USFS PSW (Cafferata and Reid in review), based on Caspar Creek sediment measurements in small headwater basins. This method estimates added input from in-channel sources such as bank erosion and channel incision (i.e., those affected by increased peak flows after logging). The approach is expected to be applicable to other areas where erosion processes and runoff generation processes are similar to those in the North Fork Caspar Creek watershed (for example, see Cafferata 2012). The geologic composition of the Elk River watershed is considerably different than at Caspar Creek, and it is unknown if the relationship generated from Caspar Creek data is applicable in Elk River for estimating sediment changes associated with small increases in peak flows. Due to the small estimated increases in peak flows in headwater basins such as Railroad Gulch, however, the change in sediment due to in-channel erosion is expected to be small. Similar conclusions were reached for THP 1-11-054 HUM (Dunlap Brown THP); see Cafferata 2011.

Agency Questions Asked at First Review and Adequacy of HRC Response

Agency Review Team questions 16 through 19 for the RPF are applicable to this report, addressing cumulative watershed effects, ongoing sediment deposition, channel filling, increased peak flows and channel incision, increased flooding, adverse impacts to downstream domestic water supplies, and the efficacy of proposed THP mitigation measures to address these issues.

I have read the cumulative impacts section of the THP addressing these issues, as well as the written response to the Review Team questions provided by the RPF during the first day of the PHI. These responses are generally adequate. Question 17 asks for a numeric analysis of potential changes in peak flows associated with the expected canopy reduction which would occur with the THP. This analysis was not provided in the RPF response, but a rapid numeric analysis is provided above in this report (see Table 1).

One of the statements in the peak flow cumulative impacts section of the THP could be improved. The document includes the following verbiage:

Removing vegetation reduces the amount of water removed from the soil by plants (which transpire water that is evaporated into the atmosphere). Several studies (Ziemer 1981 and 1998; Wright 1985) have noted significant increases in peak flows following timber harvesting, attributing those increases to changes in soil moisture due to evapotranspiration losses. However, they noted that the significant effect was greatest during small, early season (e.g., late fall or early winter) rainstorms, and that the effect became insignificant as the winter progressed (i.e. the soil moisture was naturally becoming more saturated) and size of storm increased. For storms with low frequency of occurrence (e.g., a 100-year rain storm), anthropogenic activities have insignificant influence on peak flows. In addition, the mild, wet climate in Humboldt County produces conditions encouraging rapid regeneration following harvest operations. This has the effect of rapidly reducing the potential effects on small, early season peaks with each successive year following harvest. Therefore, this factor is unlikely to have significant effects on peak flows.

While the literature is correctly cited, the information above has been updated by more recent work in the Caspar Creek experimental watersheds. The paragraph above implies that removing vegetation canopy is unlikely to have significant impacts on mid-winter peak flows. In winter, when differences between soil moisture levels between logged and unlogged areas are minimal,

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peak flows do increase after clearcutting, primarily due to reduced interception loss after logging, and secondarily due to reduced winter transpiration (Reid and Lewis 2007, Reid 2012). For example, the dense second-growth forest canopy in the Caspar Creek watershed was found to intercept and evaporate approximately 21% of incoming rainfall, even during large storms (Reid and Lewis 2009). Changes in interception loss from reduced canopy is a significant factor in producing mid-winter, wet mantle increases in peak flows that should be discussed here.

Conclusions

As stated in the THP cumulative impacts assessment for peak flows, harvesting trees at the sub-basin scale can increase peak flows on headwater streams. In this case, the prediction ranges from 0.5% to 4.7% depending on the winter soil moisture level for the Railroad Gulch tributary (approximately 2% for average soil wetness).⁶ Elevated peak flows in headwater drainages can increase channel incision and bank erosion (i.e., in-channel erosion) (Reid et al. 2010, Buffleben 2009). The level of change in winter peak flows predicted for Railroad Gulch associated with the harvesting proposed in Unit 2, as well as those anticipated to occur for the headwater streams draining logging Units 1 and 3, is expected to have a minor impact on channel incision and bank erosion. Mechanisms that have been suggested to reduce headward channel incision and gullying related to timber operations include: (1) reducing the amount and rate of clearcutting, or changing silviculture to selection harvesting; (2) using equipment limitation zones for headwater streams and swales; and (3) using aerial yarding systems rather than ground-based yarding (Buffleben 2010). The guidelines suggested by Buffleben (2010) to reduce sediment generation associated with headwater channel bank erosion are being followed for this THP and the impact is expected to be less than significant.⁷

Based on my field observations in and near proposed logging Unit 3 during a relatively minor precipitation event, the proposed road upgrading work is needed to improve watershed conditions in this portion of the Elk River watershed. Overall, I find that the conclusions reached in the THP's cumulative impacts section regarding peak flow changes and sedimentation, as well as the Review Team question responses addressing these issues, are acceptable.

⁶ For comparison purposes, the estimated 2-year recurrence interval storm peak increased 14 percent for the 8-year period following completion of selection logging in the entire South Fork Caspar Creek watershed, where 65% of the volume was removed with crawler tractors (South Fork Caspar Creek watershed area is approximately 1,050 acres) (Keppeler et al. 2008).

⁷ Under average soil moisture conditions in the winter period, an increase of 2 percent in the sub-basins is less than the typical error rate in measurement of streamflow, which is commonly + 5 to 10 percent (Gordon et al. 1992). The predicted increases in peak flows at both the large watershed scale and the sub-basin are minor and unlikely to be detectable in the field.

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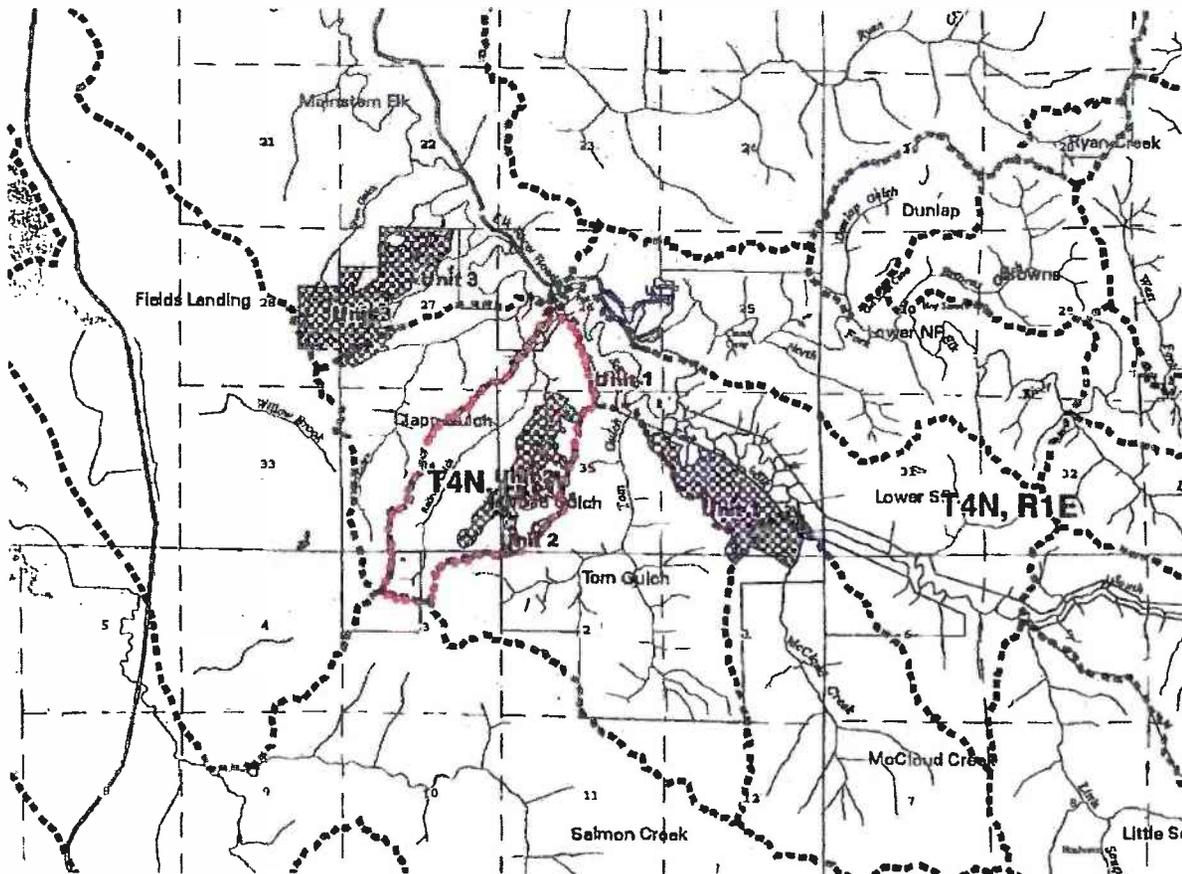


Figure 1. Map of the three units associated with the McCloud Shaw THP. Unit 2 is shown within the Railroad Gulch tributary (outlined in red).

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EXHIBIT 7



DEPARTMENT OF FORESTRY AND FIRE PROTECTION

135 Ridgway Avenue
 Santa Rosa, California 95401
 (707) 576-2275
 Website: www.fire.ca.gov



Date: April 26, 2013
 THP #: 1-12-110 HUM

Mark Distefano
 165 South Fortuna Blvd.
 Fortuna, CA 95540

LETTER OF CONFORMANCE

Enclosed is a true copy of your Timber Harvesting Plan (THP) identified by the number shown above. The Director of Forestry and Fire Protection finds that the plan conforms with the Rules and Regulations of the Board of Forestry pursuant to the provisions of the Z'Berg-Nejedly Forest Practice Act of 1973. Conformance is indicated by the facsimile signature of the Director's duly constituted representative being shown on the attached copy of the plan.

You may begin the timber operations proposed in the plan according to the conditions specified therein, and subject to the Forest Practice Act, Forest Practice Rules of the Forest District in which the operations will take place, related Board of Forestry regulations and other applicable laws, regulations and ordinances.

The Forest Practice Act requires the filing of the two reports listed below for each timber harvesting operation undertaken:

1. Timber Operations Work Completion Report: Within one month after completion of work described in a Timber Harvesting Plan, excluding work for stocking, a report shall be filed by the timber owner or his agent with the Director that all work, except stocking, has been completed.
2. Report of Stocking:
 - A. X Within six months after completion of timber operations covered by this THP, a Report of Stocking shall be filed by the timber owner or his agent with the Director.
 - B. NA Within five years after completion of timber operations covered by this THP, a Report of Stocking shall be filed by the timber owner or his agent with the Director.
 - C. Stocking obligations do not apply because:
 - NA Timberland Conversion Permit is in effect.
 - NA The THP is for road right-of-way construction only.

In future correspondence, please refer to the THP number in the upper right corner of the attached plan.

Sincerely,


 LESLIE A. MARKHAM
 Deputy Chief, Forest Practice
 RPF #2529

cc: TO, TLO, PS: Humboldt Redwood Company, LLC
 TO, TLO: A. & S. Westfall
 TLO: Green Diamond Resource Company-Korbek, Kristi Wrigley
 Unit, File, [ftp://thp.fire.ca.gov/THPLibrary/North_Coast_Region/](http://thp.fire.ca.gov/THPLibrary/North_Coast_Region/)

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APRIL 26, 2013
Date of Director's Decision

OFFICIAL NOTICE OF THE DIRECTOR OF FORESTRY'S DETERMINATION
OF CONFORMANCE OF TIMBER HARVESTING PLAN OR AMENDMENT TO TIMBER
HARVESTING PLAN WITH THE FOREST PRACTICE ACT
AND BOARD OF FORESTRY REGULATIONS

The Director of Forestry found, on the date shown above, that the Timber Harvesting Plan, Non-Industrial Timber Management Plan (NTMP), or amendment (AM) listed below is in conformance with the Forest Practice Act, and Board of Forestry regulations pursuant thereto. This notice is posted in compliance with sections 1037.1 and 1037.8, Title 14, California Code of Regulations.

Copies of this Harvest Document and related documents are available for inspection at: 118 Fortuna Blvd., Fortuna, CA 95440
(707) 725-4413.

| Plan number County | Submitter | Acres | Location | Waterway | Silviculture or Proposed Amendment |
|--------------------------|------------------------------------|-------|---|-------------------------|---|
| 1-12-110 HUM HUMBOLDT | HUMBOLDT REDWOOD COMPANY LLC | 590 | SECS 1,2,3 T3N R1W, SECS 26,27,28,34,35,36 T4N R1W HBD&M | SOUTH FORK EEL RIVER | SELECTION; GROUP SELECTION; RIGHT-OF-WAY |

TO POSTING AGENCY: Please post this Notice at the place where official notices concerning Environmental Quality Act compliance are usually posted. If there are questions concerning posting, please contact: Forest Practice Office, California Department of Forestry and Fire Protection, 135 Ridgway Avenue, Santa Rosa, CA 95401

Telephone : (707) 576-2959

cc: RPF, TO/TLO/SUBMITTER, HUU, CC, EQ, SAC, POST, FILE, http://thp.fire.ca.gov/THPLibrary/North_Coast_Region/

Posting Period is 30 Days

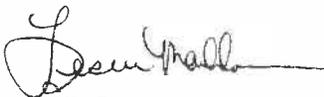
**OFFICIAL RESPONSE TO SIGNIFICANT ENVIRONMENTAL POINTS
RAISED DURING THE TIMBER HARVESTING PLAN EVALUATION
PROCESS**

**FROM THE DIRECTOR OF THE CALIFORNIA DEPARTMENT OF FORESTRY
AND FIRE PROTECTION (CAL FIRE)**

| | |
|----------------------------------|------------------------------|
| TIMBER HARVESTING PLAN (THP) No: | 1-12-110 HUM |
| SUBMITTER: | Humboldt Redwood Company LLC |
| COUNTY: | Humboldt |
| END OF PUBLIC COMMENT PERIOD: | March 25, 2013 |
| DATE OF RESPONSE AND APPROVAL: | April 26, 2013 |

The California Department of Forestry and Fire Protection (CAL FIRE) serves as the lead agency in the review of Timber Harvesting Plans. These plans are submitted to CAL FIRE, which directs a multidisciplinary review team of specialists from other governmental agencies to ensure compliance with environmental laws and regulations. As a part of this review process, CAL FIRE accepted and responded to comments, which addressed significant environmental points raised during the evaluation of the plan referenced above. This document is the Director's official response to those significant environmental points, which specifically address this Timber Harvesting Plan. Comments, which were made on like topics, have been grouped together and addressed in a single response. Remarks concerning the validity of the review process for timber operations, questions of law, or topics and concerns so remote or speculative that they could not be reasonably assessed or related to the outcome of a timber harvesting operation, have not been addressed.

Sincerely,



LESLIE MARKHAM
Deputy Chief, Forest Practice
RPF #2529

STAFF FORESTER/NFM:staff/nfm

cc: RPF, Unit, File; Timber Owner, Timberland Owner and/or Submitter
CP, CDFW, DPR, & WQ (through http://thp.fire.ca.gov/THPLibrary/North_Coast_Region/)

PUBLIC NOTIFICATION

To inform the public of this proposed Timber Harvesting Plan (THP) and determine if there were any concerns with the plan the following actions were taken:

- Notification of the receipt of a Timber Harvesting Plan was sent to the adjacent landowner(s).
- Notice of the receipt of the plan was submitted to the county clerk for posting with other environmental notices.
- Notice of the plan was posted at the Department's local office and also at the regional office in Santa Rosa.
- Notice of the receipt of the THP was sent to those organizations and individuals on the Department's list for notification of plans in the county.
- A "Notice of the Intent to Harvest Timber" was posted near the plan site if the plan is within 300 feet from other ownerships.

THP REVIEW PROCESS

The laws and regulations that govern the Timber Harvesting Plan review process are found in Statute law in the form of the Forest Practice Act which is contained in the Public Resources Code (PRC) and Administrative law in the rules of the Board of Forestry and Fire Protection (the Forest Practice Rules) which are contained in the California Code of Regulations (CCR).

The Forest Practice Rules are lengthy in scope and detail and provide explicit instructions for permissible and prohibited actions that govern the conduct of timber operations in the field. The major categories covered by the rules include:

- Timber Harvesting Plan contents and the Timber Harvesting Plan review process
- Silvicultural methods
- Harvesting practices and erosion control
- Site preparation
- Watercourse and lake protection
- Hazard reduction
- Fire protection
- Forest insect and disease protection practices
- Coastal Commission Special Treatment Areas
- Use, construction and maintenance of logging roads and landings
- County-specific rules

When a THP is submitted to the Department, it undergoes a multidisciplinary review consisting of several steps. In addition to CAL FIRE, the Review Team members include representatives of the California Department of Fish and Wildlife (CDFW, formerly the Department of Fish and Game, DFG); the appropriate Regional Water Quality Control Board (RWQCB or WQ); California Geological Survey (CGS); the Department of Parks and Recreation (DPR); the appropriate County Planning office; and if within their jurisdiction, the Coastal Commission (CC) (14 CCR §1037.5(a)). Once submitted the Director determines if the plan is accurate, complete, and in proper order, and if so, files the plan (14 CCR §1037). In addition, the Review Team determines whether a Pre Harvest Inspection (PHI) is necessary, and what areas of concern are to be examined during the inspection (14 CCR §1037.5(g)(1)).

If the plan is accepted for filing, and a PHI is determined to be needed, a field review is conducted to evaluate the adequacy of the THP. All agency personnel who comprise the multidisciplinary Review Team are invited to attend the PHI as well as other experts and agency personnel whom the Department may request. During this field review, additional mitigation and/or recommendations may be formulated to provide greater environmental protection. These recommendations are forwarded to the RPF along with the Review Team member's PHI Report. The RPF will respond to the recommendations made and forward these to the Region office and Second Review Team Chair.

A Second Review Team meeting is held where members of the multidisciplinary Review Team meet to review all the information in the plan, and develop a recommendation for the Director (14 CCR §1037.5(g)(2)). Prior to and/or during this meeting they examine all field inspection reports, consider comments raised by the public, and discuss any additional recommendations or changes needed relative to the proposed THP. These recommendations are forwarded to the RPF. If there are additional recommendations, the RPF will respond to each recommendation, and forward his responses to the regional office in Santa Rosa.

The representative of the Director of the Department reviews all documents associated with the proposed THP, including all mitigation measures and plan provisions, written correspondence from the public and other reviewing agencies, recommendations of the multidisciplinary Review Team, and the RPF's responses to questions and recommendations made during the review period. Following consideration of this material, a decision is made to approve or deny a THP.

If a THP is approved, logging may commence. The THP is valid for up to five years, and may be extended under special circumstances for a maximum of two more years, for a total of seven years.

Prior to commencing logging operations, the Registered Professional Forester must meet with the licensed timber operator (LTO) to discuss the THP (CCR §1035.2); a CAL FIRE representative may attend this meeting. The Department makes periodic field inspections to check for THP and rule compliance. The number of inspections depends upon the plan size, duration, complexity, and the potential for adverse impacts. Inspections include but are not limited to inspections during operations pursuant to Public Resources Code (PRC) section 4604, inspections of completed work pursuant to PRC section 4586, erosion control monitoring as per PRC section 4585(a), and a stocking inspection as per PRC section 4588.

The contents of the THP, the Forest Practice Act, and rules, provide the criteria CAL FIRE inspectors use to determine compliance. While the Department cannot guarantee that there will be no violations, it is the Department's policy to vigorously pursue the prompt and positive enforcement of the Forest Practice Act, the Forest Practice Rules, related laws and regulations, and environmental protection measures that apply to timber operations on non-federal land in California. This enforcement is directed primarily at preventing forest practice violations, and secondarily at prompt and adequate correction of violations when they occur.

The general means of enforcement of the Forest Practice Act, the rules, and other related regulations range from the use of violation notices, which require corrective action, to criminal proceedings through the court system. Timber operator and Registered Professional Forester licensing action may also be pursued. Most forest practice violations are correctable and the Department's enforcement program assures correction. Where non-correctable violations occur, criminal action is usually taken. Depending on the outcome of the case and the court in which the case is heard, some sort of environmental corrective work is usually done. This is intended to offset non-correctable adverse impacts.

Once harvesting operations are finished, a completion report must be submitted certifying that the area meets the requirements of the rules. CAL FIRE inspects the area to verify that all aspects of the applicable rules and regulations have been followed, including erosion control work. Depending on the silvicultural system used, the stocking standards of the rules must be met immediately or in certain cases within five years. A stocking report must be filed to certify that the requirements have been met.

ABBREVIATIONS

| | | | |
|-----------------|---|-----------------|--|
| BOF/Bof | Board of Forestry | mi ² | Square mile |
| CAL FIRE | Ca. Dept. of Forestry and Fire Protection | mm | millimeter |
| CCC | California Coastal Commission | NCRWQCB | No. Coast Reg. Water Qual. Control Board |
| CCR | California Code of Regulations | NMFS | National Marine Fisheries Service |
| CDF | Ca. Dept. of Forestry and Fire Protection | NOAA | Natl. Oceanographic and Atmospheric Admin. |
| CDFG | California Department of Fish and Game | NSO | Northern Spotted Owl |
| CDFW | California Dept. of Fish and Wildlife | PHI | Pre-Harvest Inspection |
| CEQA | California Environmental Quality Act | PRC | Public Resources Code |
| CGS | California Geological Survey | RMZ | Riparian Management Zone |
| dbh | Diameter Breast Height | ROWD | Report of Waste Discharge |
| DFG | Ca. Department of Fish and Game | RPF | Registered Professional Forester |
| ELZ | Equipment Limitation Zone | RTQ | Review Team Question |
| ERSC | Elk River/Salmon Creek | RWB | No. Coast Reg. Water Qual. Control Board |
| FPR | Forest Practice Rules | THP | Timber Harvesting Plan |
| HCP | Habitat Conservation Plan | TMDL | Total Daily Maximum Load |
| HMP | Hillslope Monitoring Program | USFWS | U. S. Fish and Wildlife Service |
| HRC | Humboldt Redwood Company | WAA | Watershed Assessment Area |
| km ² | Square Kilometer | WEPP | Water Erosion Prediction Project |
| LTO | Licensed Timber Operator | WLPZ | Watercourse & Lake Protection Zone |
| LWD | Large Woody Debris | yd ³ | Cubic Yard |
| MCR | Modified Completion Report | | |

[sic] Word used verbatim as originally printed in another document. May indicate a misspelling or incorrect word usage

NOTE: Wherever the name California Department of Fish and Game, Department of Fish and Game or the acronyms DFG, CDFG, DF&G, CDF&G are used in this document they refer to the California Department of Fish and Wildlife (CDFW), the new name for that agency.

SIGNIFICANT ENVIRONMENTAL CONCERNS AND RESPONSES

(listed in order of receipt)

Concerns 1-8 below were received on December 3, 2012 and are general in nature. For the most part these concerns have been thoroughly evaluated at the ownership level and addressed in the plan submitter's Habitat Conservation Plan (U.S. Fish and Wildlife Service, 1999 [Revised 2008]) and other documents that are incorporated by reference into this THP. The HCP is a CEQA document and has concluded that the operations on this property, as mitigated in the HCP, will not have a significant impact on fisheries, wildlife, water quality or other resource values. The Habitat Conservation Plan includes an Aquatics Conservation Plan, road stormproofing, hillslope management and adaptive management.

- 1. CONCERN:** This THP utilizes Watercourse and Lake Protection (WLPZ), Equipment Limitation Zones (ELZ), and/or Riparian Management Zones (RMZ) to provide buffers for streams and unstable areas and wildlife/plant habitat. Although these strips act as buffers to some extent; they offer minimal protections in terms of streamside shade, bank stabilization, landslide protection and wildlife habitat. The Forest Practice Rules as written do not adequately protect streamside vegetation from drying out and from water temperature increases when even-aged and intensive logging practices are used adjacent to buffer areas. Intensive logging next to buffer areas increases overland warm air flow and removes canopy cover to create "edge habitat" which favors wildlife and plants well adapted to disturbance and cannot be relied upon as a strategy to recover threatened, endangered and sensitive plant and animal species.

This THP proposes to allow operations inside of Watercourse and Lake Protection (WLPZ), Riparian Management Zones (RMZ) and/or Equipment Limitation Zones (ELZ). Such areas are intended to act as filtering buffers for streams, seeps, wet and unstable areas and provide minimal wildlife habitat; and should not be degraded by logging operations. Operations should only be approved to correct chronic adverse conditions in buffer zones. Selection

(WLPZ) logging and the practice of end- lining trees from buffers should not be allowed solely due to the presence of insect and/ or disease, as they are natural processes.

RESPONSE: CAL FIRE in cooperation with the California Department of Fish and Wildlife participated in the Board of Forestry and Fire Protection's rule development process which led to adoption by the Board of specific prescriptive rule standards for protection of listed salmonids, known as the Anadromous Salmonid Protection Rules. CAL FIRE is familiar with the scientific basis which supports the specific language in the rules. Class I watercourses in the Coast Forest Practice District within the coastal anadromy zone (CAZ), include a 30 foot no-harvest Core Zone and an additional 70 foot Inner Zone, requiring 80% overstory canopy (along with leaving the 13 largest conifer trees in these zones). The literature supports the contention that these zones are sufficient to provide an adequate buffer to prevent significant water temperature increases, as well as to provide for the protection or recovery of other riparian functions (e.g., sediment filtration, microclimate protection, large wood recruitment, bank stability). It should be noted that this plan exceeds these measures by providing a 50 foot no harvest buffer on all class I watercourses, and 18 of the largest trees per acre will be retained on each side of Class I watercourses (page 24). No timber harvest is proposed within 30 feet of Class II watercourses (page 28).

CAL FIRE does not have the authority to revise the rules, but rather is required to enforce the rules the Board has developed. It is recognized that monitoring of implementation and performance of these new rule provisions is necessary. Monitoring of compliance and implementation of specific measures will be performed by the Registered Professional Forester (RPF) retained by the plan submitter pursuant to code sections 14 CCR 1035, 1035.1(e), (f) and (g) and 1035.2. The Licensed Timber Operator (LTO) is expected to comply with the Act, Rules and the approved Timber Harvesting Plan, and keep the RPF informed of the status of operations as well (code section 14 CCR 1035.3). CAL FIRE actively inspects ongoing operations and conducts work completion and road monitoring inspections.

The Department also conducts implementation monitoring inspections as part of its Forest Practice Rules Implementation and Effectiveness Monitoring (FORPRIEM) program. The FORPRIEM monitoring of plans is a more intensive monitoring inspection conducted on a subset of plans chosen through a randomized selection process. Based on past monitoring results, CAL FIRE anticipates a high level of implementation and compliance of Forest Practice Rule provisions and mitigation measures included in the Timber Harvesting Plan (Cafferata and Munn 2002, Brandow et al. 2006). Given that the Department has found through its FORPRIEM monitoring program that the requirements of the Forest Practice Rules adequately protect filtering buffers and wildlife habitat associated with Class I and II WLPZs, and watercourse and lake protection zones are effective in retaining canopy cover and surface cover (both of which minimize drying of the soils and increases in water temperatures), CAL FIRE has found that adverse impacts are unlikely. Conclusions reached in past monitoring are summarized below (Cafferata and Munn, 2002):

“Watercourse protection zones provide for adequate retention of post-harvest canopy and surface cover, and for prevention of harvesting related erosion.

... Statewide, mean post-harvest total canopy cover exceeded 70 percent, regardless of instrument used for measurement. Mean total canopy exceeded Forest Practice Rule requirements in all three Forest Practice Districts, and was approximately 80 percent in the Coast Forest District for both Class I and II watercourses. Surface cover exceeded 75 percent for all watercourse types in all three Forest Practice Districts. Required WLPZ widths generally met Rule requirements, with major departures from Rule requirements recorded only about one percent of the time. Additionally, the frequency of erosion events related to current timber operations in watercourse protection zones was very low for Class I, II, and III watercourses.”

Additionally, Brandow et al. (2006) state:

“In most cases, Watercourse and Lake Protection Zone (WLPZ) canopy and groundcover exceeded Forest Practice Rule (FPR) standards. For Class I and Class II WLPZs, average total percent canopy was 84% for the Coast area (Region 1) With rare exceptions, WLPZ groundcover exceeds 70%, patches of bare soil in WLPZs exceeding the FPR standards are rare, and erosion features within WLPZs related to current operations

are uncommon. Moreover, in most cases, actual WLPZ widths were found to meet or exceed FPR standards and/or widths prescribed in the applicable THP.”

Operations along with associated mitigation and protection measures have been identified under Items 14 - 38 of the plan (see plan Sections II and III). Items 26 and 27 specifically address WLPZ and ELZ operations and protection, Item 18 identifies soil stabilization measures to be applied, and Item 32 addresses potential impacts to wildlife species. The plan discusses the watershed and stream conditions on page 98. A cumulative impacts discussion is included in Section IV of the plan, which includes assessments of the watershed, soil, and biological resources, in addition to other resources. The project was found not to have a reasonable potential to produce significant adverse effects, after mitigation (reference page 147). Also noteworthy, in addition to the specific mitigation measures identified in the plan, compliance with the Forest Practice Rules is required.

The plan was reviewed by a multi-disciplinary review team at First Review, and was reviewed in the field by CAL FIRE, North Coast Regional Water Quality Control Board (NCRWQCB) and the California Geological Survey (CGS). CAL FIRE’s PHI report specifically addresses the concerns raised (please see the CAL FIRE PHI report).

In this 590 acre plan 1.2 acres are road right of way, 49.8 acres are no-harvest areas, and the remaining 539 acres will be selectively harvested. Stand structure, including a multi story large canopy will be retained and/or recruited on the entire plan area, excluding the road right of way. Intensive harvesting is not proposed and will not occur adjacent to WLPZs. Intensive logging has not been proposed, therefore the potential for increases in overland warm air flow and creation of “edge habitat” has been minimized. The Department finds that operations associated with the various riparian zones will not result in significant adverse impacts.

2. **CONCERN:** Roads including temporary roads are the single greatest cumulative contributor of soils discharge in watersheds that are in a degraded condition. New road construction should not be allowed in watersheds suffering from sediment problems. Only roads that correct existing problem roads should be approved and problem roads should be decommissioned as a requirement of THP approval.

The more roads constructed per square mile the greater the disturbance to wildlife and the watershed so new roads should not be allowed in highly roaded watersheds. Watersheds containing more than 2 miles of road per square mile impact wildlife and watershed health so new roads should not be built unless they replace existing problem roads that will be closed and decommissioned.

RESPONSE: The CAL FIRE inspector specifically addressed these concerns on page 8 of the PHI report. New road construction has been limited to the minimum amount of road necessary to operate the THP and reuses existing skid trails when possible. The plan was reviewed by a multi-disciplinary review team at First Review, and was reviewed in the field by CAL FIRE, NCRWQCB and the CGS during the PHI. The recommendations made by these agencies, based on the field review, were addressed by the RPF and incorporated into the plan as appropriate. Watercourse protection measures were evaluated in the field and determined to be appropriate.

Roads do not appear to present a significant barrier to wildlife movement (ref. Section IV, 6.3 Biological Resources Assessment, D. Road Density, page 186). Page 1.2 of the plan includes: “Since the inception of HRC, on those lands, over 231,000 cubic yards of sediment have been controlled and 353,788 trees planted.”

Likely impacts on wildlife and watershed conditions have not been found to be significant. The new road construction proposed in the plan has been found to be appropriate for site conditions and unlikely to add to existing conditions downstream of the plan area.

3. **CONCERN:** This THP proposes to allow operations within a watershed or upstream of a watershed where Coho Salmon are known to exist. Wet season (Wet Weather Period and Winter Operations) elevate the risk that a large storm or intense cloudburst could result in a sudden pulse of sediment. Sediment from roads and logging sites are a leading cause of salmon decline in Coho Salmon watersheds.

This THP has drainage features that collect runoff from adjacent areas with impaired water quality, or areas with continuing, significant adverse impacts from past land use activities. Wet season (Wet Weather Period and Winter Operations) within WLPZs, RMZs, ELZs and unstable landforms should not be allowed to add to already existing cumulative watershed impacts.

The following species may exist within the THP or within the THP assessment area because habitat exists for these species: Red Legged Frog, Southern Torrent Salamander, Steelhead and Coastal Cutthroat Trout. The following species [sic] may exist downstream of the THP or THP assessment area and could be impacted by logging operations: Chinook Salmon. By allowing wet season (Wet Weather Period and/or Winter Operations) use the risk is elevated for a large storm or intense cloudburst to result in a sudden pulse of sediment. Logging operations can disturb soils or roads under operation can cause sediment to harm aquatic species.

This THP would allow the construction, use or re-construction of roads inside or adjacent to areas of unstable soils or known slide prone areas. Roads can be difficult to gauge in terms of causing or contributing to landslide potential. Roads are the single greatest contributor to watershed degradation and such roads should not be used during the wet season (Wet Weather Period and Winter Operations).

This THP has at least 47 road related sites identified as in need of construction, maintenance, repair and/or upgrading. The courts have ruled that sediment delivery from roads to streams = pollution and roadside conveyances (ditches, culverts, dips, channels, pipes, rocked fords, etc) must not be allowed to contribute sediment to streams. Wet season (Wet Weather Period and/or Winter Operations) logging and hauling should not be allowed in watersheds suffering from cumulative effects (sediment, temperature, etc) impaired watersheds, TMDL listed, or 303.d-listed watersheds. This THP must identify all existing and potential road related sediment sources, and propose remedies to dissipate and prevent sediment pollution, and must not rely solely on programmatic permits or the Forest Practices Act for compliance.

This THP is located upstream or within a water body that is listed as water quality limited under section 303(d) of the Federal Clean Water Act. Wet season (Wet Weather Period and Winter Operations) within WLPZs, RMZs, ELZs and unstable areas should not be allowed in watersheds that contain 303(d) listed streams.

RESPONSE: Humboldt Redwood Company (HRC) originated on July 30, 2008, following the purchase of the Pacific Lumber Company (PALCO). All references to PALCO in historical documents and guidance materials are now the property of HRC. Because the company's timber harvesting in Humboldt County, California could potentially result in the take of listed species, PALCO obtained an Incidental Take Permit (ITP) under Section 10 of the Endangered Species Act from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). To obtain an ITP, PALCO prepared an HCP that provides survey requirements and mitigation measures for key species. The HCP covers the marbled murrelet (MAMU), northern spotted owl (NSO), Chinook salmon, coho salmon, cutthroat trout, steelhead trout, southern torrent salamander, tailed frog, red-legged frog, foothill yellow-legged frog, northwestern pond turtle, bald eagle, American peregrine falcon, western snowy plover, bank swallow, Pacific fisher, California red tree vole, and sensitive plants. The HCP was reviewed by federal and state agencies. In addition, plan proponents must follow all Forest Practice Rules, in addition to mitigation measures that are included and specific to the proposed plan.

As written, the THP will not cause significant adverse impacts to Chinook salmon, coho salmon, cutthroat trout, steelhead trout, frogs, salamanders or other aquatic species. These species were assessed during plan layout and given protection by way of the expanded retention standards for the WLPZs. See response 1. Every consideration required by the Forest Practice Rules and the California Fish and Game Code has been given to these species. These species were discussed, and protection measures described, in Sections II, III, and IV of the plan. The landowner's HCP covers protection and mitigation measures for species that inhabit the plan area and will reduce any effects the proposed harvest might have on these species.

The landowner's HCP includes an "Aquatics Conservation Plan" (U.S. Fish and Wildlife Service, 1999 [revised 2008]): "The goal of the aquatics conservation plan is to maintain or achieve, over time, a properly functioning aquatic habitat condition. This condition, as defined by NMFS, is essential for the long-term survival of anadromous salmonids and is identified in a matrix with habitat variables necessary to achieve this goal." The Aquatics Conservation Plan

includes, among other features: a requirement that watershed analysis be conducted, control of sediment from roads and other sources, wet weather road use restrictions, hillslope management (restrictions on operations where mass wasting is of concern), measures to minimize surface erosion in riparian areas, aquatic habitat conservation, compliance and effectiveness monitoring, retention of large woody debris and riparian buffers, and amphibian and reptile habitat and population monitoring.

The specific measures pertaining to wet weather operations can be found under Items 18 and 23. Item 23 includes numerous provisions that are proposed to minimize the mobilization of sediment during the wet season (wet weather period and winter operations).

The plan generally addresses all the concerns raised above. In addition to that described above and in other responses, the plan specifically addresses: ground based operations (Item 21); unstable areas in the Geology Report (Section V); roads (Items 24 and 25); watercourse crossings (Items 25 and 26); in lieu proposals (Item 27 in Sections II and III); potential impacts to listed anadromous salmonids (Item 32 in Sections II and III); the 303(d) listing of Elk River (page 150 and 161); and cumulative impacts, including the potential for sediment impacts (Section IV).

The CAL FIRE inspector evaluated the concerns raised, and addressed these in the PHI report on pages 8-12. The Department finds that operations conducted pursuant to the plan and Forest Practice Rules should not result in significant adverse impacts.

- 4. CONCERN:** This THP will allow the removal and/or downgrading of nesting, roosting and/or foraging habitat from spotted owl territories. The cumulative effect of reducing nesting, roosting and/or foraging habitat across spotted owl territories in the region has not been determined so the overall impact to the species is unknown. The implementing regulations under the Endangered Species Act does not authorize the delegation of effects determinations to non-federal entities (i.e CA Dept of Fish & Game and/or company wildlife biologists) nor does it allow for the degradation of habitat elements when the effects are unknown. Agencies must not depend on public lands to support owl reproduction and survival nor HCPs when the effect of logging across multiple territories has not been determined.

This THP assessment area has logging units within or adjacent to 12 historic 1.3 mile spotted owl territory(s). Since private lands logging tends to simplify stand structure to ease operations (maximize profit), a multi story large canopy is rarely allowed to develop and spotted owl habitat is degraded over time. Spotted owls need a functional canopy to disperse and hunt through so the argument that logging enhances the prey base does not equate to owl populations increasing over time. The removal of a multi layer canopy and simplification of stand structure gives the barred owl a competitive advantage and discourages the spotted owl from responding to survey calls.

RESPONSE: This plan does not propose delegation of effects determinations to non-federal entities as implied in the concern. Northern spotted owls (NSO) are provided protection on this ownership through an approved Habitat Conservation Plan (HCP) initially issued by the United States Fish and Wildlife Service in February 1999, and updated May 2, 2002 and February 25, 2009. This is in compliance with 14 CCR § 919.9(d). The conservation strategy is outlined in the HCP, which is incorporated in the plan by reference and available for public review on Humboldt Redwood Company's website:

<http://www.hrcllc.com/pdf/hcpr/HCP%20INTERIM%20PRESCRIPTIONS%20updated%20to%209-30-08.pdf> .

As described in HCP § 6.2 "Northern Spotted Owl Conservation Plan", the conservation strategy is a habitat-based approach which includes harvest, retention, and recruitment of requisite habitat types and elements within watershed assessment areas and individual activity sites. The approach is complemented by procedures to minimize disturbance to NSO activity sites, monitor whether the efforts maintain a high-density and productive population of NSOs on the ownership and apply adaptive management techniques when the landowner, the USFWS, CDFG, and the scientific community learn more about the biology of the NSO and/or assess how well management objectives are met. U.S. Fish and Wildlife Service (1999 [Revised 2008] section 6.2 states:

"The NSO strategy will rely upon other conservation elements of the HCP for the retention and recruitment of potential foraging, roosting, and nesting habitat in watersheds across the ownership and through the HCP period.

Specifically, the silvicultural requirements associated with RMZs, the mass wasting avoidance strategy, the cumulative effects/disturbance index restrictions, the MMCAs, and the retention standard of 10 percent late seral habitat for each watershed assessment area (WAA) are likely to provide habitat which NSOs may find suitable. At individual activity sites, the strategy provides specific habitat retention requirements to conserve habitat for foraging, roosting, and nesting.”

The concern states that a functional (multi-story large) canopy is necessary for spotted owls to disperse and hunt through and that such a canopy is rarely allowed to develop leading to degraded habitat over time. The silviculture proposed in this plan will retain a multi-storied canopy including trees of all size classes, including large trees. A canopy that will allow northern spotted owls to disperse and hunt will remain following harvest operations. The argument that logging enhances the prey base, contrary to the statement in the concern, has been found to equate to spotted owl populations increasing over time in certain forest types. This is addressed in “Regulatory and Scientific Basis for U.S. Fish and Wildlife Service Guidance for Evaluation of Take for Northern Spotted Owls on Private Timberlands in California’s Northern Interior Region,” (U.S. Fish and Wildlife Service 2009). For redwood forests at least, there may be a positive correlation between the prey base and owl numbers:

“... [E]xtensive use of younger forests by spotted owls tends to be reported in unusually productive forest types in coastal areas ... In particular, NSO have been shown to nest and forage successfully in young redwood forests; in such areas their densities are among the highest on record (Diller and Thome 1999). Young redwood forests have also been associated with high reproduction in spotted owls (Thome et al. 1999). The ability of NSO to successfully occupy young redwood forests has been attributed to resource availability; young forests have been found to produce the highest abundance of woodrats in Douglas-fir/tanoak forests (Sakai and Noon 1993), and in the redwood/Douglas-fir zone, woodrats were most abundant in stands 5 to 20 years of age (Hamm et al. 2007: USDA Forest Service Gen. Tech. Rep. PSW-GTR-194). Ward et al. (1998) described the benefit of an energy rich woodrat diet; and White (1996) describes the positive influence of woodrat consumption on nesting success. ...”

The USFWS website <http://www.fws.gov/yreka/barredowl.html> includes the following as it pertains to barred owls and their impacts on NSOs:

“Barred owls ... are becoming more abundant within the range of the federally threatened northern spotted owls. Barred owls occupy similar habitats to northern spotted owl, but are more aggressive and may be displacing northern spotted owls from their territories. The Final Recovery Plan for the Northern Spotted Owl identified the barred owl as a threat to the continued persistence of northern spotted owls in the Pacific Northwest.”

Livezey (2009) has explored the western movement of barred owls:

“...what prevented Barred Owls from expanding their range westward during recent millennia and what allowed them to do so during the past century... Overall, it appears the historical lack of trees in the Great Plains acted as a barrier to the range expansion and recent increases in forests broke down this barrier. Increases in forest distribution along the Missouri River and its tributaries apparently provided Barred Owls with sufficient foraging habitat, protection from the weather, and, possibly, concealment from avian predators to allow Barred Owls to move westward. Decades later, increases in forests in the northern Great Plains allowed Barred Owls to connect their eastern and western distributions across southern Canada. These increases in forests evidently were caused by European settlers excluding fires historically set by Native Americans, suppressing fires and planting trees.”

This western movement of Barred Owls has resulted in competition for habitat with the NSO. The cause and effect relationships of barred owls with populations of NSO appear to be complex, varied and not well understood at this point in time, as described in the “Final Recovery Plan for the Northern Spotted Owl” (Region 1, Portland, Oregon; May 2008). While it appears that barred owls 1) occupy similar habitats to northern spotted owls, 2) are more aggressive and 3) may be displacing northern spotted owls from their territories, it is not clear if timber harvest has an impact on the process.

For example, Courtney *et al.* (2004) reported low numbers of barred owls on industrial timberlands, greater impacts in areas where harvest has not occurred recently on National Forest lands and similar barred owl numbers in areas that have never been harvested:

“The Barred Owl now occupies a range roughly coincident with that of the Northern Spotted Owl. Within this range, Barred Owls continue to move into new areas (Dark et al 1998, Gremel, pers. comm. 2003). For instance, the species is beginning to use higher elevation forests on the Olympic peninsula, having earlier colonized lower forest (Gremel, pers. comm. 2003.). At the edges of their current distribution there is continued expansion. For instance Barred Owls have recently colonized Marin County, California and the central Sierra Nevada....

It is also clear that, in some portions of the Northern Spotted Owl’s range, Barred Owls are increasing and Spotted Owls are declining to some degree independently of forest management history in the area. For example, the population of Spotted Owls has decreased on both the Plum Creek Cascades HCP area (with extensive harvest) and nearby reserve areas without harvest. Similarly, Barred Owls are increasing while Spotted Owls are declining throughout the Olympic peninsula in both industrial and national forest land, but also in the National Park (in areas never harvested) (see Anthony et al. 2004 for trend information). On the Gifford Pinchot National Forest (Washington), the density and impact of Barred Owls appears higher in areas without timber harvest (Pearson and Livezey 2003).”

Recognizing the various challenges for NSO, the “Recovery Plan” indicates:

“Managing sufficient habitat for the spotted owl now and into the future is essential for its recovery. However, it is becoming more evident that securing habitat alone will not recover the spotted owl. Based on the best available scientific information, competition from the barred owl (*S. varia*) poses a significant and complex threat to the spotted owl.”

Based on the literature, barred owls are known to occur in many California counties, including all coastal counties from the Oregon border into Marin County, in areas where timber management has and has not occurred (e.g. parks and Marin County). There is no substantial evidence that logging as proposed in THP 1-12-110 HUM will give the barred owl a competitive advantage because of the loss of cover for the canopy dependent spotted owl as described in the concern. Based on the information provided in the plan and obtained during review, the plan is in compliance with 14 CCR 919.9(d). As such, CAL FIRE has determined that timber operations as proposed in the plan will not result in a significant, adverse cumulative impact on northern spotted owl.

- 5. CONCERN:** This THP claims herbicides may be used to control vegetation. The use of herbicides to control vegetation will prevent and/or delay a shrub and herbaceous cover layer from developing providing less than ideal early seral habitat for wildlife. Some herbicides are harmful to amphibians, reptiles and fish and have been linked to declining populations.

RESPONSE: The THP addresses herbicide use under the heading “Chemical Contamination” (pages 166-167). Page 167 includes:

“Herbicide use was evaluated for potential impacts in the PALCO FEIS/EIR conducted in association with the HCP, with an entire section of Chapter 3 devoted to the subject, beginning on page 3.14-1 of that document. The FEIS/EIR clearly states how and why herbicides are used, discusses the chemicals that may be used, discloses target species to be treated, and describes the methods of application, potential impacts, and the mitigation measures taken to reduce potential for significant adverse impact.”

While some herbicides may be harmful to amphibians, reptiles and fish and may have been linked to declining populations, it has not been demonstrated that herbicides that might be used by this plan submitter are among those. There are hundreds of herbicide combinations, of which only a very few are used in forestry applications. Herbicide use is also restricted to avoid contact with open water, limiting the potential for impacts to most fish and amphibian species. In addition, this landowner follows practices (i.e. hardwoods in WLPZs will not be treated) that minimize the potential for fish or frogs to come into contact with the products that may be used.

This plan submitter has very active wildlife and sensitive plant programs which keep careful track of certain indicator species on the ownership. The CAL FIRE inspector evaluated the concerns raised, and addressed these in the PHI report. The Department has, in accordance with the Forest Practice Act, Forest Practice Rules and the California

Environmental Quality Act, determined that the plan is unlikely to result in significant adverse impacts to wildlife or wildlife habitat.

6. **CONCERN:** This THP contains scattered large trees (trees greater than 21" dbh start to exhibit characteristics beneficial to canopy dependant wildlife), which are often deficient in the landscape, a source of future snags, and the most fire resistant in terms of bark thickness. Large trees should not be removed unless absolutely necessary for safety issues, nor should they be removed simply because of the presence of insect or disease which is a naturally occurring and cyclic process.

RESPONSE: Because unevenaged management is proposed in this plan and is widely practiced on the ownership as a whole scattered large trees are being retained and are not expected to become deficient in the landscape. Characteristics beneficial to canopy dependent wildlife species are being retained. See other responses. Trees that will provide future snags are being retained.

The plan includes descriptions and/or assessment of: vegetation and stand conditions on page 97, discussion of potential impacts to biological resources under Item 32 (Sections II and III) and Section IV, discussion of snags and habitat structural components under Item 33, and discussion of late succession forest stands and late seral forest under Item 34. Snags and large trees are not being removed simply because of the presence of insect or disease. The plan as proposed has not been found to likely result in significant adverse impacts.

7. **CONCERN:** This THP has terrain features inside or adjacent to unstable landforms. Helicopter logging is always an option when unstable features exist; not allowing timber harvest on unstable lands would be the safest course of action instead of allowing operations when impacts are unavoidable

This THP proposes to use ground-based machinery on steep slopes. Slopes over 50% and even slopes under 50% that contain soils prone to erosion can be displaced by ground-based machinery that can eventually trigger landslides. Helicopter logging should be considered as an alternative to allowing the use of ground based logging equipment on steep slopes or tractor end-lining across steep pitches.

RESPONSE: Item 21 indicates that no ground based equipment operations are proposed on unstable soils or slide areas, slopes over 65%, slopes over 50% with high or extreme EHR, slopes between 50% and 65% with moderate EHR where heavy equipment will not be restricted to the limits described in 14 CCR 914.2(f)(2)(i) or (ii), or slopes over 50% that lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake. Item 24 indicates that logging roads are not proposed in areas of unstable soils or known slide prone areas. The plan as mitigated has not been found to result in potential significant adverse impacts, and no additional mitigation measures were identified as needing consideration.

The plan was reviewed by a multi-disciplinary review team at First Review, and was reviewed in the field by CAL FIRE, NCRWQCB and the CGS. Watercourse protection measures were evaluated in the field and determined to be appropriate. See other responses regarding wet weather and winter operations.

The choice of silviculture and yarding methods has been found by the Department to adequately avoid the potential for adverse impacts. Therefore, an alternative to use of ground based equipment is not called for. However, the plan does consider helicopter yarding (ref. page 103). Due to the selective nature of the proposed harvest, helicopter yarding could prove to be more damaging to the trees being retained than the proposed site-specific yarding by tractor (including end/long lining), rubber tired skidder/forwarder, or feller buncher or various types of cable set ups with option to cable yard all ground based yarding areas at the discretion of the LTO. See other responses. It was noted elsewhere in the concern letter that northern spotted owl are present in the general vicinity of the plan area. Helicopter operations could have an adverse impact on the northern spotted owl.

8. **CONCERN:** The following species are [sic] known to occur within the THP or within the THP assessment area: Osprey. The following species may exist within the THP or within the THP assessment area because habitat exists

for these species: Bald Eagle, Peregrine Falcon, Willow Flycatcher, Red Tree Vole and Pacific Fisher. This THP will reduce canopy cover, which could have an adverse impact on some canopy dependant species including sensitive, rare and endangered species. The widespread removal of canopy cover as allowed under the Forest Practice Rules has led to increased stream temperatures, sediment pollution and a loss of nesting, roosting and hiding cover.

RESPONSE: As indicated in response 3, Humboldt Redwood Company has an Incidental Take Permit (ITP) under Section 10 of the Endangered Species Act from the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). To obtain an ITP, an HCP was prepared that provides survey requirements and mitigation measures for key species. The HCP covered the bald eagle, American peregrine falcon, California red tree vole, Pacific fisher and other species of animals and plants. The HCP was reviewed and approved by federal and state agencies. Protection measures provided for various species of birds (marbled murrelet, northern spotted owl, bald eagle, American peregrine falcon, western snowy plover and bank swallow) in the HCP also provide protection for other species of birds. The HCP for the landowner includes a specific conservation plan for bald eagles under HCP 6.4, and Pacific fishers under 6.8.

As described on THP page 182 for birds and page 183 for mammals, respectively: "Because of the significant amount of mid- to late-seral habitat that will be present within the assessment area as a result of the proposed THP and future projects, no significant adverse individual or cumulative effects to bird [mammal] species are anticipated."

With regard to osprey, the timberland owner operates under a 2006 property-wide osprey consultation with CDFW. Measures to be applied pursuant to that consultation are found on pages 40 -42, with the osprey location map found on page 88 and additional information on pages 126 and 182. The THP addresses bald eagle, peregrine falcon, red tree vole and Pacific fisher specifically under Item 32 (Section II and III) and Section IV. Bald eagle assessment maps are provided on pages 83-87. Although, Pacific fisher is covered by the Humboldt Redwood Company ITP, page 43.1 provides mitigation measures for Pacific fisher during the candidacy period under the California Endangered Species Act. The willow flycatcher mitigations (i.e. Standard Protection Measures) are directly from the "DFG Willow Flycatcher Consultation Procedure manual (ref. page 43)." Additional willow flycatcher information is found on pages 127 and 182.

The fact that the plan is proposing operations that retain fully stocked forest stands (retaining canopy) immediately upon completion of harvest; and includes "no-harvest" areas adjacent to the watercourses (protecting stream temperatures) means that the plan area will retain existing habitat for the species listed in the concern and any other species that may currently be found in the plan area. See the response above regarding retention of large trees. Also see other responses.

Additionally, per HRC's management policies if an occupied nest of a listed bird species is discovered during timber operations, the LTO shall cease operations and contact the RPF, the Area Forester, or the Submitter's wildlife biologist. Operations may not resume until a determination is made as to the species, status, and protection measures(s) (that may be necessary) has been determined (page 49). Also reference 14 CCR 919.2. The Department has found that streamside shade, bank and slope stability, and wildlife habitat are being adequately protected in this harvesting plan and on the plan submitter's property as a whole.

Concerns 9-13 were received between March 18, 2013 and March 25, 2013, following the completion of the PHI (conducted on January 9 and 10, 2013) and second review team meeting (March 14, 2013).

9. CONCERN: Comments on THPs 1-13-005Hum: 1-12-113Hum and 1-12-110 Hum

Those of us who live next door to CalFire's work are in a unique position to evaluate their performance. We can read their own written expressions of their work and we can see, hear, and feel the **outcome** that actually occurs. In effect, we residents are expert witnesses to CalFire's performance.

After evaluating your performance in Elk River over the past 15 years we find that:

1) The THP process lacks clarity, transparency and responsiveness and is therefore unenforceable. The written descriptions of what is going to occur and what has actually happens, are inconsistent with the reality on the ground. CDF doesn't use plain English to describe situations; instead CDF covertly translates the word "severe" to mean "less than significant." Such a perverse translation demonstrates **CDF's lack of transparency**.

2) Substantial, deliberate, continuous and verifiable violations of PRC rule 916 are the status quo:

916 PROTECTION of the BENEFICIAL USES of WATER and RIPARIAN FUNCTIONS

"The quality and beneficial uses of water shall not be unreasonably degraded by timber operations."

That rule is a mandate. Therefore the only way domestic water supplies can be degraded is in a *reasonable* manner. But CDF "forgot" that there can be no degradation of a family's sole domestic water supply and, therefore any degradation is *unreasonable*. The reasonable person and the Legislature agree, "It is not the intent of the Legislature by the enactment of this chapter to take private property for public use without payment of just compensation in violation of the California and United States Constitutions." FPA 4512(d). CDF's two decades-long policy of declaring that impacts to certain humans are "less than significant" or that destruction to those humans "is acceptable" (Pete Cafferata Hydrologic Review of THP 1-12-110) is disturbing evidence of government malfeasance.

Furthermore, the Legislature did not authorize the Board of Forestry to write rules giving CalFire and/or CDF the discretion to approve dangerous timber operations. The public record confirms: past and present timber harvest activities are the cause of the destruction of human health and habitation in Elk River. CDF's believes its only real mission is to enhance timber productivity, so CDF refuses to acknowledge any consequential damages to human health and habitat that could interfere with that mission. All damages to humans and their homes in Elk River are robotically declared "less than significant" by CDF.

CalFire is the expert agency responsible for determining which timber operations are compliant with Legislative intent. Severe damage to the health and safety of families is confirmed, as well as severe degradation to the beneficial uses [footnote: "To date, management -related sediment loads and hydrologic modifications in Elk River have resulted in water quality objectives not being achieved: beneficial uses not being supported, and altered flood frequency and magnitude constituting nuisance conditions. Ongoing deposition under current sediment loading has been documented by HRC as continuing through 2011.RWB staff believe it is incorrect to state that this THP is unlikely to contribute to cumulative impacts..."], from CDF's and CalFire's performance. The critical coho salmon habitat is suffering as well, from CDF's policy of failure to consider and protect these beneficial uses.

When was the Anti-degradation Hearing conducted? There are no documents with findings that degradation of water quality in Elk River is permissible [footnote: *Public Records Act request of May 13, 2008. NCRWQCB document 061908_RRK_NoellPRA_6608*]. The public is unaware of any exemptions or exclusions to this mandatory anti-degradation process. **Therefore the degradation that has occurred is both unreasonable and illegal.** Of course, any planned degradation such as in THPs 1-13-005 HUM and 1-12-113[and 1-12-110], are also unreasonable and illegal.

CDF and CalFire exceed their authority when they conduct public business illegally or unreasonably. Water Quality, the experts in beneficial uses of the water supply in Elk River, has declared **severe degradation**. [footnote: *CalFire First Review Questions dated December 3, 2012 for THP 1-12-113*] Therefore THPs 1-12-113 and 1-13-005[and 1-12-110] must be denied until the beneficial uses are both protected and restored. CalFire does not have the authority to supersede the Legislative intent.

Furthermore, CalFire's and CDF's policy of piecemeal authorizing "less than significant" or "patchwork" degradation of domestic water supplies does not comply with federal antidegradation policy. Both Resolution 68-16 and the federal requirements for Tier II simply state that existing high water quality "shall be maintained." CDF has again failed in its performance to uphold the People's mandates.

Finally, CalFire and CDFs rely on Cal. Code Regs. tit. 14, § 15125(a) [*footnote: (environmental conditions as they exist at the time of the notice of preparation serve as the baseline for CEQA analyses)*] to avoid compliance with the Clean Water Act. We would like to bring it to CalFire's attention that the baseline for federal antidegradation is the highest water quality reached since 1975. CalFire must also note that the Clean Water Act's central goal is eliminating discharges, not just managing their impacts. [*footnote: (33 U.S.C. § 1251(a)(1) ("it is the national goal that the discharge of pollutants into the navigable waters be eliminated by 1985").*)] By approving a THP Calfire is granting dischargers an effective "license to pollute." CalFire frustrates the goal of the Clean Water Act.

RESPONSE: The concern implies that the Department's hydrologist, Peter Cafferata, in his Hydrologic Review of THP 1-12-110 stated that destruction to certain individuals (those with domestic water supplies in the Elk River drainage) "is acceptable." No such statement was made by Mr. Cafferata in either his January 29, 2013 "Hydrologic Review of THP 1-12-110 HUM" or in his February 22, 2013 "Addendum to Hydrologic Review of 1-12-110 HUM." Mechanisms to reduce headward channel incision and gullying (a potential source of sediment that could be transported downstream to where domestic water supplies are located) have been included in the plan. Mr. Cafferata's January 29, 2013 memorandum notes:

"Protection of watercourses in this THP are proposed through the use of Riparian Management Zones (RMZs), as defined by the HRC Habitat Conservation Plan (HCP) and the Prescriptions Based on Watershed Analysis for Elk River and Salmon Creek, which provide increased protection over the standard California Forest Practice Rules. The previous landowner, PALCO, completed a Level II watershed analysis for the Elk River watershed in 2005, which provides site-specific prescriptions, as agreed to in the 1998 HCP. The watershed analysis-generated specific recommendations for limiting sediment production are incorporated in this plan.

...The plan proposes road upgrading work and remediation of old watercourse crossings, both of which will reduce long-term sediment entry into Elk River watercourses."

As noted in other responses, in addition to minimizing sediment that may be produced by the proposed operations page 1.2 of THP 1-12-110 HUM discloses that: "The plan proposes remediation of several old crossings which will remove and or control a total of 2166 cubic yards of sediment from entering a watercourse." The plan includes clear and enforceable provisions for the protection of soils from erosion and the removal of existing potential sediment sources from access to the watercourses. For example, page 6 of the plan discloses that no harvest will occur in Class I Channel Migration Zones, within 50 feet of Class I watercourses (the no-harvest inner band) or within 30 feet of Class II watercourses (the no-harvest inner band). These no-harvest areas total 16.6 acres or more than 7% of the plan area. Page 7 of the plan shows that the majority of the plan area is to be cable yarded or not harvested at all (over 75%). Page 11 of the plan discloses that no heavy equipment operation is proposed on unstable areas. Pages 11 and 12 show no heavy equipment operations are proposed on steep slopes. All of these provisions are enforceable. The proposed plan does not propose operations that will unreasonably degrade the quality and beneficial uses of water.

The Department has not refused to acknowledge impacts from historic logging, impacts that have had an effect on human health and habitat downstream of the plan area. The Department's hydrologist, Peter Cafferata, in his January 29, 2013 memorandum regarding "Hydrologic Review of THP 1-12-110," summarized the origin of a significant source of logging related sediment:

"We also inspected two small headwater Class III watercourses located in Unit 3 for signs of channel incision and recent bank erosion. One of the channels displayed active downcutting and channel incision through previously deposited material likely resulting from first-cycle logging. The second headwater channel did not appear to be actively downcutting. PWA (1998) reported that channel infilling in the Elk River watershed began with corduroying for oxen and train tracks and continued during the tractor logging era of the 1940s to 1970s. Many low-order stream channels were filled in with soil and organic debris to form tractor yarding corridors. Sullivan et al. (2012) reported that sediment budget analysis found that channel cutting and bank erosion associated with first-cycle logging is a significant source of sediment in this watershed. HRC monitoring work has confirmed that this sediment source is active and possibly contributing as much as one third of the current observed sediment exported during average years (Sullivan et al. 2012). Similarly, NCRWQCB (2011a) reports that these sediment sources are significant in Elk River tributary basins."

In the absence of highly regulated current harvest plans such as this one, sediment from these historic sources would receive no treatment to attempt to reduce the volume of stored sediment that has yet to work its way out of the watershed. As noted above this plan alone proposes remediation of several old crossings which will remove and or control a total of 2,166 cubic yards of this historic sediment from areas where it has the potential to be delivered to the watercourses. In the North Fork Elk River alone, page 173 notes that, since 1997 an estimated 217,358 cubic yards of sediment has been treated. See response 11. The reduction in potential sediment delivery over time is expected to be beneficial for downstream human water users as well as coho salmon and their habitat.

The concern included, as a footnote, an incomplete quote that appears to have originated as a first review team question posed by the North Coast Regional Water Quality Control Board for THP 1-12-110 HUM (corrected version dated December 2, 2012). The complete quote is provided below, underlining identifies the portion quoted in the concern above, and strike out type showing text not provided by NCRWQCB for this particular plan:

“To date, management –related sediment loads and hydrologic modifications in Elk River have resulted in water quality objectives not being achieved; beneficial uses not being supported, and altered flood frequency and magnitude constituting nuisance conditions. Ongoing deposition under current sediment loading has been documented by HRC as continuing through 2011 monitoring (see RTQ #20 below for further information). Both Regional Water Board staff and Section IV of the THP are in agreement that there are ongoing, significant cumulative impacts resulting from timber harvesting (THP pages 147, 150), the dominant land use in upper Elk River. Until there is a more complete understanding and discussion in the THP of the relationships between rates of harvest, catchment sizes, increases in peak flows and streamside landsliding processes, and hydraulic and sediment transport capacities in the depositional reaches of Elk River, RWB staff believe it is incorrect to state that this THP is unlikely to contribute to cumulative impacts...”

The key section of this statement is in regard to the understanding and discussion of processes leading to water quality impacts. In a letter dated January 7, 2013 the RPF responded to this NCRWQCB review team question and made appropriate changes to the plan:

“HRC believes the significant adverse impact occurred as a result of forest practices no longer used on the property and changes/lack of maintenance on the lower Elk River. This THP will not contribute to the already significant adverse impacts. The THP contains information which is embellished in this response that point to a level of understanding significant enough to make the determination that this THP is unlikely to contribute to cumulative impacts.

There are metrics that can be used to look at the net effects of the relationships proposed by the reviewers comment. By reviewing what is coming out of the managed watersheds, one can make inferences about the effects of the past operations in the watershed and compare that with what is currently proposed for this THP.

HRC has prepared analysis of sediment related trends in water quality after a decade of management under the Habitat Conservation Plan in Elk River and Freshwater Creek (Sullivan et al, 2012 draft) The THP references the findings on page 174. The Analysis sought to answer two questions; 1. Do the current management practices prevent sediment delivery at the subbasin level and 2. Does the application of practices and strategies for the watershed as a whole result in the declining sediment loads and improving water quality over time? Answering these questions would sum up the answer to the reviewers comments about relationships of individual processes and their impacts on sediment delivery to the depositional reaches.

The analysis considered parameters of annual, 2 year, and past harvest (10-15 years) and the amount of road restoration. Some of the key findings

- No indication that how these parameters are conducted influenced sediment yield or 10% turbidity exceedance from 2003-2011 (study period).
- Sediment budget analysis found channel cutting and bank erosion associated with first cycle logging to be significant source of sediment throughout the watershed.
- The dominant pattern in annual sediment characteristics at each subbasin (except for a few where there was recent road decommissioning) was a strong downward trend from 2003 to 2011 with upticks in years (06,

11) when flows significantly exceeded bankfull. HRC recognized the potential for sediment delivery with road decommission in preparing this plan. The plan does not propose to decommission any road.

- There has been a general decline in sediment sources in the watershed, due largely to reduced landsliding and improved roads.

Additional metrics pointing to the same trend.

- HRC has measured the channel cross section on the mainstem just below Railroad Gulch (site 509). This graph is included in the plan on page 257. ... No real pattern filling or scouring is observed in this graph. Operations since 1999 have not added to the channel filling.

The THP specifically addresses channel aggradation and flooding on page 173. There are additional factors that affect the altered flood frequency and nuisance conditions.

- Channel roughness – In comparing historical aerial photos with current photos there has been significant changes in riparian vegetation along the nuisance reach. Copies of these photos have been included with this response. See inserted page 173.3. Increased riparian vegetation adds channel roughness, which slows the river down, reducing the capacity of the channel. Several papers (Sullivan and Dhakal 2005, Patenude 2004 and Conroy 98) have all pointed to channel roughness as a problem, and suggested manipulations to this vegetation as a way of increasing capacity. A moderate partial clearing would increase channel capacity by 17% at Deadwomans corner, reducing the number of floods from 17 to 7 (Sullivan and Dhakal).
- Location of access roads. Elk road at Deadwomans corner is with[in] the bankfull channel. Raising the road will improve access during flood events. Concrete bridge on Elk River roads acts as a constrictor, slowing the river and reducing capacity.

HRC has looked at watershed products, sediment transport, turbidity and downstream channel condition, in order to gauge the impacts of our current operations and likely impacts of our proposed operations on the current condition [of] Elk River. HRC has found that current operations do not add to existing significant adverse impacts that are caused by legacy forest practices and changes/lack of channel maintenance in the lower Elk River. ...

... Efficacy of mitigation measures over the last fifteen years has reduced sediment inputs from current operations and legacy roads in those time frames. The response above along with the THP detail HRC's analysis in determining this. The analysis has shown that current operations do not influence sediment yields or turbidity trends, with a few exceptions where roads were decommissioned. Rapid rate of road decommissioning may have increase[d] sediment delivery over the short term as compared to not treating.

HRC has used the lessons learned from the past 15 years to improve the current THP. For example HRC did not propose to decommission any roads. All roads, if used will be upgraded/stormproofed.

The landowner and its predecessor do not control the nuisance reach of Elk River where direct mitigation measures would be applied. HRC has routinely stated it is willing to participate jointly in developing and implementing mitigation measures to the nuisance reach. Several papers (Conroy, Patenaude and Sullivan) all have suggested reducing the roughness and improvements to county road in order to reduce the effects of flooding. Palco proposed correcting Deadwoman's corner. To date none of the measures for the nuisance reach have been implemented."

The concern also makes reference to "Resolution 68-16." The anti-degradation Resolution 68-16 reflects state policy with respect to maintaining high quality waters and mandates that high quality waters be maintained. In the case of the watersheds in which this plan is located, the North Coast Regional Water Quality Control Board has designated the streams as impaired. Non point sources such as logging, construction and associated activities are subject to specific waste charge prohibitions and are subject to specific guidelines. As such timber harvesting operations are subject to the Nonpoint Source Policy of the Basin Plan. Pursuant to this policy all current proposed Non Point Discharges are regulated under Waste Discharge Requirements (WDRs), Waivers of WDRs, Basin Plan prohibition or some combination of these approaches. Additionally, because the harvesting will occur in watersheds that have been designated as impaired, the proposed timber operations will also be subject to Region-Wide policies affecting TMDLs. The plan submitter has designed the harvest plan to comply with the Nonpoint Source strategy

and will seek coverage of activities to be undertaken through obtaining a WDR or waiver of a WDR. Operations will comply with the appropriate Region-wide Policies Affecting TMDLs. Given the designation as impaired, the Nonpoint Source Strategy and Region-wide Policy Affecting TMDLs apply to this Timber Harvesting Plan. Given that these waters are not high quality waters as defined in Resolution 68-16, the Anti-degradation policy would not be applicable.

The concern concludes by stating that the Clean Water Act's central goal is eliminating discharges, not just managing their impacts. As noted above and in other responses this plan proposes eliminating discharges; a total of 2,166 cubic yards of potential future sediment discharge from existing sources if left untreated. In addition for the North Fork Elk River as a whole (over a period of 15 years) a total of 217,358 cubic yards of sediment has already been treated.

10. CONCERN: I realized I forgot to send this report in a separate email with my comments to THP 1-13-005 and 1-12-110 and 1-12-113 all in Hum. Referenced in my comment letter as "Salmon Forever Annual Report on Channel Aggradation in Freshwater and Elk River 2013" [attached is a 21 page document titled "Salmon Forever's Annual Report on Channel Aggradation in Freshwater Creek and Elk River SWRCB Agreement No. 707-508-551-0?" dated February, 2013, submitted to Redwood Community Action Agency by Salmon Forever]

RESPONSE: No concern was raised with this submission.

11. CONCERN: 1. Find attached the final Cover Page to the Report I included in comments on THPs 1-13-005 Hum, 1-12-113 Hum and 1-12-110 Hum.

2. Below is a printout of the body of the attached comment letter. Please answer my questions. Living with the present logging is scary without adding the nearly 1000 acres planned [sic] for our watershed; some of which is clear cut although the 590 acres in this plan is not but the sheer size and location make it very ultra dangerous to the residents. Our situation is very serious. Why are we the citizens and residents of upper Elk River who have been so damaged by logging always insignificant in the THP process?

Comment [sic] contained in the attached letter:

THP 1-12-110 HUM Comments: [as well as 1-13-005 Hum & 1-12-113 Hum situated in the Elk River Watershed]

I oppose these plans. Logging in Elk River has caused severe damage to water, private property and health and safety to all the residents of what we call upper Elk River [sometimes referred to by others as the middle reach.] This area has been repeatedly logged in the last 25 years. The FPA has not protected people, fish or water in Elk River. It should be obvious when people can't get to and from their homes because flooding from logging has increased at least 300 fold, that more "better" logging is not going to fix the problems already created by past permitted logging. Any responsible person, agency or landowner would fix the problem in reality before indulging in more of the activity that caused the problem... it is common sense, good judgment and consideration for innocent victims' rights. Obviously both the plan proponent and the regulator have put the industrial landowners' right to a profit by logging above the right of home owners to live peacefully in their homes in the upper Elk River valley. Is it the intent of the BoF to attack residents and their ability to live in their home?

The deposition of sediment in this reach is especially egregious. This reach of the river is already so impacted from the cumulative effects of logging from previous permitted plans. No words on paper proclaiming sediment "savings" has ever proved effective in the Elk River watershed where extremely fine sediment is the problem. We are the residents. We see first-hand what logging has done and continues to do to our lives, property and water. We can't use the water directly from the river as we always did, our fences are buried, are fields are inundated with water saturating the soil and leaving sediment deposits which lowers the quality of the hay[and destroys farms and orchards.] My home on Elk River Road is already flooded so badly and frequently now that it cannot be lived in because of the mold growth caused by the now frequent flooding caused by logging. Where are adequate provisions which will be implemented to make water quality better, the capacity of the river improved and where are the monitoring measures to ensure it is so? All of the words on paper in previous plans did not protect Elk River

nor its residents even though you proclaimed in every THP that it did [to the extent feasible...whatever that may mean.] I do not see anything in these new plans to adequately address the harm that will come from this plan. You have a lot of words but no reality. Words did not fix anything for the residents. Because of the way you administer a THP and assess cumulative effects against only the "existing" conditions and the conclusion this one won't make things "significantly" worse, you can always turn what is severe and devastating to the residents into less than significant. When conditions are already intolerable that kind of assessment is inadequate and in direct opposition of restoring residents' property and civil rights.

I have walked the drainage just below where this plan is located and it is loaded with sediment as is Railroad Gulch. None of the measures previously applied have adequately prevented sediment from being delivered to these smaller drainages and eventually to Elk River itself. We see it with our own eyes when we walk the area. Railroad gulch used to support fish. It had 3 ft pools and had a gravel bed. Now a chair at the on the upper bank of Elk River in the area below this and other recently applied for plans in the vicinity was buried in 7 years. This sediment is caked on top of debris jams in the smaller drainages as well as on the banks at the bottom of the drainages where it is 10 to 12 feet high in places.

The older road system in the area is still concentrating and delivering water and sediment to the gulches and river. Hydrologic recovery has not taken place. In Elk River hydrologic recovery does not follow the BoF Rules or what is true for Casper Creek. By direct observation it takes much longer than 10 years...we have seen the results of logging and know how long it took to normalize river conditions. It is more like 30 years in Elk River. The existing logging bridge and new proposed bridge present problems that have not been adequately addressed. A community meeting should be held on this THP at the very least.

To log 590 acres when all the agencies, industrial landowners and government officials know Elk River residents have been severely harmed by previous logging is unconscionable. To follow rules that haven't protected the people living downstream, the water or the fish is unacceptable in a public agency and its officials. To treat residents as if their lives, their property and clean water are only significant to the point that is feasible for the plan proponent is a misappropriation of agency responsibility and residents' constitutional rights. Rule 916 says you are not to destroy water supplies...both the industry and the regulator knew back in 1997 that logging had done just that. Logging 590 acres at any time would be too much for Elk River with its propensity for fine sediment production and transport. At his [sic] point it is selfish, shortsighted and downright reckless.

Residents have a fundamental right to live peacefully in their own homes and should not be threatened by an industrial landowner's permitted activities. How is it that the upstream industrial landowners' right to log prevails over our personal property rights: our right to live securely in our home, to unimpaired access, to our historical water quality and historical land use? When did it become the government's obligation to favor our upstream neighbors' financial interests over the individual rights of the citizens? When was a feasibility study done to determine that denying residents' rights was done for the public good?

Furthermore Rule 4512(d) says that the BoF Rules are not intended to take private property for public use. CDF [now Calfire] knew back in 1997 that that had occurred with the increased flooding caused by logging. In 1997 when the agencies recognized damage from flooding the residents expected that the agencies would work in concert to correct the dangerous condition and restore normality. Instead CDF [Calfire] figured out a way to interpret the BoF Rules to allow even more logging causing ever more damage, leaving the residents to experience ever more harm to their lives, property, water and sanity. How is flooding a "public good"?

To log this much acreage when faced with a TMDL by water Quality which will take upwards to 2 years to implement is greedy. We needed relief in 1997. An interim period of severely reduced logging before the TMDL is completed seems the minimum requirement to address the severe damage the residents have had to endure for 16 plus years. What does "Safety first" mean to Calfire when it comes to assessing the damage of a THP to the residents who are already suffering from inadequately addressed severe damage from previous THPs?

How does this plan comply with the rule 916 which mandates that water supplies be degraded only in a "reasonable manner"...since when is it reasonable to destroy domestic water supplies as you have in Elk River? That situation has not been remedied...giving some residents expensive complicated water treatment systems is not equal to clean

quality water in a river; aesthetics are ugly, swimming is impossible, fish as we have historically experienced are now almost non-existent. It is never reasonable to destroy water. Until Elk River, its water and its residents are recovered to normal conditions that prevailed in 1985 logging in this plan and other plans needs to be severely curtailed.

RESPONSE: See response 9. In a letter dated January 7, 2013 the RPF addressed the residents' access to their properties as a result of flooding and the plan submitter has indicated a willingness to participate in projects to address constriction of flow and channel roughness even though the treatment areas would not be on the plan submitter's property:

"The THP specifically addresses channel aggradation and flooding on page 173. There are additional factors that affect the altered flood frequency and nuisance conditions.

- Channel roughness – In comparing historical aerial photos with current photos there has been significant changes in riparian vegetation along the nuisance reach. Copies of these photos have been included with this response. See inserted page 173.3. Increased riparian vegetation adds channel roughness, which slows the river down, reducing the capacity of the channel. Several papers (Sullivan and Dhakal 2005, Patenaude 2004 and Conroy 98) have all pointed to channel roughness as a problem, and suggested manipulations to this vegetation as a way of increasing capacity. A moderate partial clearing would increase channel capacity by 17% at Deadwomans corner, reducing the number of floods from 17 to 7 (Sullivan and Dhakal).
- Location of access roads. Elk road at Deadwomans corner is with[in] the bankfull channel. Raising the road will improve access during flood events. Concrete bridge on Elk River roads acts as a constrictor, slowing the river and reducing capacity. ...

The landowner and its predecessor do not control the nuisance reach of Elk River where direct mitigation measures would be applied. HRC has routinely stated it is willing to participate jointly in developing and implementing mitigation measures to the nuisance reach. Several papers (Conroy, Patenaude and Sullivan) all have suggested reducing the roughness and improvements to county road in order to reduce the effects of flooding. Palco proposed correcting Deadwoman's corner. To date none of the measures for the nuisance reach have been implemented."

By removing potential sediment sources ("sediment savings") as described below, the proposed harvest will not add to the existing downstream issues such as flooding. However, as noted above, sediment delivery is not the sole factor contributing to the flooding near the confluence of the North and South Forks of the Elk River. One proposed solution (described in the quote above) is the partial clearing of the channel. As noted above, the plan submitter has stated a willingness to participate in such a project even though it is not within their ownership. Even a moderate amount of channel clearing has been calculated to reduce the number of floods to less than half of the current frequency.

In the "Engineering Geologic Evaluation of the McCloud-Shaw THP" (page 288) an effort has been made to fully disclose effects the preceded the implementation of the Forest Practice Rules. These effects of historic logging have shaped the existing drainages, existing sources of on-going sediment delivery and potential for sediment reduction associated with current operations:

"The initial harvest history maps show the plan area as initially harvested circa 1860-1870. Timber harvesting methods at this time used railroad access along Class I and larger Class II watercourses, log drag roads (corduroy road), steam donkey timber yarding, and livestock power. Later entries in the 1930's to 1940's used gas and diesel powered tractors in harvest operations. The yarding of timber typically utilized topographic swales as yarding corridors and roads. Harvested logs were brought downslope to a railroad located adjacent to and within Elk River. Railroad construction techniques generally consisted of 50/50 cut and fill with un-engineered sidecasted fills and raised trestles with pilings driven into the creek bed. Harvested timber was dragged across the ground with little to no suspension of the log and resulted in concentrated areas of significant disturbance focused on watercourse swales. A second harvest entry in the 1970-1980's used ground-based, track mounted, bulldozers and cable yarding techniques to harvest timber. This harvest entry occurred pre- and post- California Forest Practice Rules and spanned the change from unregulated construction techniques to more regulations to avoid construction of roads in creeks and on steep slopes. Fills on steep slopes were often 'cribbed' or reinforced with logs. Over time, the log

cribbing rots and results in an apparent increase in landsliding. The most recent harvesting occurred under the early HCP prescriptions prior to watershed analysis and consisted of clearcuts and selections using largely cable and helicopter yarding with large stream buffers. The landscape mass wasting response to this harvest entry appears to be significantly reduced by these harvest methods and significant areas of concentrated ground disturbance are not visible. This harvest entry is the third for the plan area”

The plan has addressed the older road system described in the concern as still concentrating and delivering water and sediment to the gulches and river. Page 279 identifies at least 38 existing watercourse crossings that were used in previous harvest operations for tractor yarding. The areas where they are located will be cable yarded. The plan states that none of these crossings will be used for current or future timber operations. Treatment of these small crossings is not proposed as the movement of equipment into the area to do the work would generate a greater impact than currently exists. However, there are more accessible crossings, associated with truck roads, that also have larger amount of stored sediment with potential to enter watercourse channels. These crossings will be treated to remove that sediment. One such crossing, at station 1100 on road U06.082517, is an existing failing Humboldt crossing located on a Class II watercourse. This crossing was likely constructed prior to the enactment of the Forest Practice Rules and prior to date of 1985 mentioned in the plan as the desired condition for the watershed. page 278 of the plan shows that If this crossing is left untreated, it will have the potential to deliver 1,796 cubic yards of sediment into a Class II watercourse in Unit 2 of the plan. While harvest in the Lower South Fork Elk River Planning Watershed is estimated to produce 53 cubic yards of sediment (page 232--not all of which will have the potential to be delivered to a watercourse) this is 1,743 cubic yards less than what will be prevented from entering the Planning Watershed from the single treatment site described above. Severely curtailing logging in this plan and other plans, as suggested in the concern, would be likely to increase the period of time for the Elk River to be “recovered to normal conditions that prevailed in 1985” as sediment removal projects such as the one described above would be foregone and the sediment found in those sites would eventually be delivered to downstream waters.

The concern mentions an existing logging bridge and new proposed bridge as presenting problems that have not been adequately addressed in the plan. The only reference to an existing bridge appears to be a triple span bridge identified on page 331.1 of the plan as being located on the property of a different landowner. The plan does not propose to use that bridge to access the plan area. Prior to second review additional details regarding the details of the bridge site and construction were provided and made part of the plan (pages 331.1-331.5.1). At PHI the California Geological Survey evaluated the site and design as provided in the plan. The design was deemed to be workable. Significant issues with the proposal were not raised, only that the design discussion should be expanded. The abutments for the bridge will be located outside of the active channel of the South Fork Elk River, back from the active channel banks. The base of the bridge will be higher than the 100-year flow elevation allowing unhindered flow of most winter storm events. Culverts will be placed in the approaches to the abutments to allow over bank flows to pass without washing over the road. The design of the bridge has been evaluated for potential hazards by a licensed Professional Geologist and designed to avoid adverse impacts. Page 331.5 states that a California Licensed Geologist; “... will provide supervision as the construction proceeds to verify that the geologic conditions are as presented above and the construction guidelines provided are being met.” Given the straightforward design of the bridge and mitigation measures included, the Department did not find a need for a public meeting. It should be noted that between the submission of the plan on November 15, 2012 and the second review team meeting on March 14, 2013 there was a single generic letter of public comment. That letter did not indicate a need for a public meeting.

The concern noted that: “By direct observation it takes much longer than 10 years... we have seen the results of logging and know how long it took to normalize river conditions.” For current road construction, where road and skid trails incorporate low maintenance drainage features, outsloping is used to maintain natural drainage, watercourse crossings are kept to a minimum and alignments are kept out of WLPZs to the extent possible, etc. there is little impact during and following harvest, with conditions normalized in ten years or less. However, as described in the “Engineering Geologic Evaluation of the McCloud-Shaw THP” (page 288) quoted above, the harvests of 1860-1870 and those immediately preceding the implementation of the Forest Practice Rules did not incorporate these or similar measures. The failing Humboldt crossing described above is a good example. Such a crossing would not be permitted in a current harvest plan. Unaided, natural recovery associated with legacy features like this one can often take many decades, as indicated in the concern. However, this harvest plan proposes to greatly accelerate the recovery process by physically removing the sediment that is incorporated within the crossing itself as well as decades of material that has built up behind the structure. Once the Humboldt crossing and associated stored sediment (the 1,796 cubic yards of sediment

described in a previous paragraph) has been removed the structure that will replace it will be a rocked ford. The ford will be well armored and provide a low maintenance stream crossing structure for the existing permanent road that is not prone to failure, erosion or blocking flows in such a way that a new sediment deposit is formed behind the structure.

Page 174 of the plan reiterates: "...The channel aggradation and flooding issues are a result of impacts associated with legacy timber harvesting utilizing practices not permitted today under the FPR or HCP, HRC's proposed harvest includes measures, such that it will not add to the continuing channel aggradation. Harvesting allows for revenue generation which supports the sediment remediation that is ongoing in Elk River." In addition pages 173-174 address flooding:

Excess sediment has been aggrading in the lower end of the North Fork Elk River to the confluence of the south fork Elk River. As shown on the table below there continues to be a net decrease in the cross section area since 1998 and net increase in area after 2009. This has resulted in more frequent over bank flooding. These changes likely occurred prior to 1997, but became noticeable in 1997 with a large storm event and subsequent landsliding (NCRWQCB, 2011). The more frequent over bank flooding has caused impacts to beneficial uses such as nuisance flooding, domestic water supply, aesthetics and fisheries. Increased flooding can affect health and safety risk for resident by blocking access routes for extended periods of time. ...

Practices prior to 1997 resulted in significant sediment deposits on the Lower North fork Elk River. Since 1997 practices have significantly changed. PALCO entered into a Habitat Conservation Plan, which HRC still employs. The HCP required Watershed Analysis which made watershed specific recommendations for limiting sediment production. Restrictions on harvesting on unstable areas, road construction and road maintenance standards and yarding restrictions were employed to reduce sediment production. Landslide rates have diminished. Roads have been storm proofed. Also the NCRWQCB issued a Cleanup and [Abatement] order (CAO) for controllable sediment. To date 72% of the inventoried controllable sediment or 217,358 cubic yards has been treated.

HRC recently summarized the effectiveness of the road treatments (Sullivan and Simpson 2012) and found that

- Zero or small volumes (<1 yd³) of sediment were delivered following construction at 71% of crossings. Delivery was less than 10 yd³ at 90% of sites. Each year, a few sites had large volumes of erosion. A number of these have been investigated to determine how to prevent such erosion in the future. Taking the population as a whole, generally about 0.6% of the sediment saved each year by stormproofing projects delivers to the stream.
- The sample data is highly skewed towards zero delivery and is therefore best represented by some percentile of the cumulative population distribution. Comparing erosion volume at the 85th percentile shows that sediment delivered has declined from 7.36 yd³ to 1.66 yd³ per site in 2010. Post-construction erosion volumes are substantially lower than reported from elsewhere in the region. The Elk River TMDL (NCRWQCB 2011) cites a range of about 9 to 60 yd³ per site reported from various studies within the northern coast of California.

There have been various studies evaluating the hydraulics of the area around the confluence of North and South Fork Elk River. While the studies have been focused and contain some questionable analyses and conclusions, they indicate, along with recent stream gage [data] that:

- Stream velocities are low, especially during floods, allowing suspended sediment to drop out, especially on recessional limbs.
- The channel is choked with riparian vegetation that has fallen in and contributes to the channel roughness elements.
- Bridges and associated approaches likely act as constrictions.
- There has not been much recent residential development in the flood plain.
- The water surface slope indicates a backwater effect at high flows.
- The channel now cannot contain flows associated with relatively frequent streamflow events. (NCRWQCB 2011)

- The confluence of the south and north fork Elk River is located 4 air miles and 8 stream miles from Humboldt bay. The elevation is less than 50' at the confluence. The river has an average gradient of 0.12%, making this stretch of river depositional rather than a transport reach.
- This portion of Humboldt County is systemically active. Earthquakes can reactivate or initiate landslides.

Actual and Potential Protection Measures/Mitigations that minimize sediment discharges and/or improve conveyance

- Reduce/Prevent sediment from entering the watercourse (HRC Standards)
 - HRC Treats controllable erosion sites
 - HRC winter road monitoring identifies and treats potential sediment discharges where feasible.
 - Upgrade road system to pass a 100 year storm event.
 - Restrict operations during wet weather operations
 - Additional treatment of bare soils in areas of highly erosive geology.
 - Restrict operations on unstable areas
 - Employment of HCP and watershed specific slope stability measures
 - Preclude Clear cut harvesting.
 - Landscape level planning that concentrates harvest and road restoration activities in order to reduce the amount of road opened and used each year. Most amount of surface erosion is likely to occur within the first winter of use. Limiting road use to one year precludes a road system from being in a recent open state for multiple seasons.
- Channel conveyance
 - Place LWD to route and sort sediment through the system. HRC is working with DFG, NOAA and CCC to develop a plan of LWD placement on the Lower North Fork Elk.
 - Remove evasive exotic plants from the stream banks. This will reduce the roughness of the channel, increasing the velocity allowing for more sediment to be conveyed.
 - Dredging portions of river will increase the channel capacity and reduce the amount of over bank flooding
 - Replace or maintain the concrete bridge on Elk River Road. The bridge currently constricts the river, slowing the velocity and allowing sediment to be deposit. Removing the constriction will allow the river to maintain velocity and transport sediment

Previous landowner prepared an assessment of potential remedies for flooding in Elk River (Sullivan and Dahkal, 2005). They found that:

- Reducing timber harvest rates below levels currently applied in the watershed, or even completely eliminating harvest altogether, will result in no tangible difference in the frequency or severity of flooding in the short- or mid-term.
- Sediment delivery from the upper watershed has declined significantly in recent years and some channel recovery downstream is evident. Continued efforts at reducing sediment input from the upper watershed will prove to be beneficial, but alone are unlikely to provide significant improvements.
- Dense growth of riparian vegetation and accumulation of large volumes of woody debris in the channels is shown to be a significant factor affecting flow capacity. Stream cleaning efforts would make a surprisingly substantial improvement in the frequency of flooding. The vegetation roughness can also be a significant factor in causing sediment deposition, and it appears to be off-setting much of the positive gains that should accompany the reduction in sediment delivered from the upper watershed.
- Feasible infrastructure fixes would provide complete relief from current flood levels.

Recently HRC completed a summary of the trends in turbidity monitoring report (Sullivan, et al 2012 Draft). Some key findings:

- Sediment budget analysis found channel cutting and bank erosion associated with first cycle logging to be a significant source of sediment throughout the watersheds. The hydrology monitoring was able to confirm that this legacy source is still active and possibly contributing as much as one third of the current observed sediment export during average years and increased background by 2 times.
- Based on a series of statistical tests, we found no indication that the rate at which these management activities are conducted systematically influenced the sediment yield or 19% turbidity exceedance during the 2003 to 2011 interval.

- Indeed, the dominant pattern in annual sediment characteristics at each subbasin (except a few) was a strong downward trend from 2003 to 2011, with upticks in event years when flows significantly exceeded bankfull in 2006 and 2011.

HRC completed an Instream Effects from Timber Harvest Analysis in adjacent Freshwater Creek (Sullivan and Manthorne, 2011) and found increase were far less than predicted in THP for HCP required sediment offsetting and ROWD submitted to the Water Board.

- HRC logging increased annual median turbidity in a range of 30% to 60%. Annual sediment load associated with this increase was estimated at 0.012 cubic yards/ac (7.68 yd³/mi²) (3.63 metric tonnes/km²) for an average rainfall years. This sediment contribution is 5% of that predicted by WEPP and used for the THP sediment mitigation target. Sampling ended at the same time as logging so it is unknown how long HRC logging effects persisted. This is considerably less sediment than estimated during THP planning using the WEPP model.

Finding: The channel aggradation and flooding issues are a result of impacts associated with legacy timber harvesting utilizing practices not permitted today under the FPR or HCP, HRC's proposed harvest includes measures, such that it will not add to the continuing channel aggradation. Harvesting allows for revenue generation which supports the sediment remediation that is ongoing in Elk River. This proposed THP is unlikely to result in a cumulative impact."

Pages 162-164 address sediment, concluding (page 164):

"Finding: The proposed THP operations and mitigations attain the goal of net sediment reduction leading to minimization of controllable sediment sources. Because past projects have eliminated substantial amounts of controllable sediment sources, and because other present and future projects are expected to avoid similar impacts by applying standard rules or mitigation, this THP will avoid significant adverse cumulative watershed effects caused by sediment. In fact, significant beneficial cumulative watershed effects relating to sediment are expected because of the reduction in controllable sediment sources that would not otherwise be corrected. The benefit is less sediment introduction in the watercourse over time from legacy features that are sure to fail in some degree or another. The sediment mitigation work may cause some minor amount of sediment to enter the watercourse, but this combined with other activities, and the biological process of forest regrowth and its impacts on soil stability, should not create an adverse cumulative impact on the Planning Watersheds. Harvesting of trees provides a revenue source to fund sediment reduction efforts."

Page 163 of the plan discloses additional sediment reduction activities that have been completed throughout the Elk River watershed in the recent past: "... As of 2010 54% of the roads in Elk river have been stormproofed. Such activities have included road upgrading such as installing hundred year crossings (culverts, fords), decommissioning roads and crossings that do not have a planned future use, pulling back perched fill material, and rocking roads. These activities control sediment that might have delivered during a large storm event."

The concern suggests an interim period of severely reduced logging before the TMDL is completed, a TMDL described in the concern as one that will take upwards to 2 years for the North Coast Regional Water Quality Control Board to implement. It should be noted that the North Coast Regional Water Quality Control Board does have oversight on this and other harvest plans in the Elk River drainage. It should also be noted that this particular plan is not located exclusively in the South Fork or lower Elk River drainages. Less than 350 acres are located in the South Fork drainage, less than 250 acres drain to the main stem of the Elk River downstream of the confluence of the North and South Forks. Because the harvest is selection and group selection, the harvest impact is much less (approximately half) than if clearcutting was proposed. Also see other responses; harvest is not proposed on all acres. Other plans mentioned in this concern letter are small (99 acres, THP 1-12-113 HUM) or located in the North Fork Elk River Drainage (THP 1-13-005 HUM). The combined effect of these plans, which may not all be harvested in the same year, is well within previous limitations placed on the North and South Forks of the Elk River. This is mentioned on page 170 of the plan:

"Cal Fire performed a peak flow analysis for the Elk River watershed in 2002. Calfire determined that harvest rates of up to 600 clearcut equivalent acres per [year] would not result in an increase in peak flow over current

conditions. Cal fire limited harvest to 600 clear cut equivalent acres per year. Subsequent harvest levels have been well below 600 clear cut equivalent acres. Between 2002 and 2011 harvest levels have been at 386 clearcut equivalent acres.”

In addition, as required by the North Coast Regional Water Quality Control Board’s Cleanup and Abatement Orders R1-2006-0055 and R1-2004-0028 Humboldt Redwood Company completes Annual Summary Reports presenting detailed information on all treatment work and corrective actions conducted in the North and South Forks Elk River. Suspended sediment and streamflow are measured at 10 locations in the mainstem and tributaries of the Elk River to determine trends in sediment conditions within the watershed. The project objective is to measure a complete record of streamflow and its relationship to stage, and sediment and turbidity samples collected over a range of flows. Each year, raw and processed data are submitted to the North Coast Regional Water Quality Control Board per requirements of the Watershed Waste Discharge Permit for Elk River (R1-2006-0039). In addition, seven of the ten Aquatic Trends Monitoring sites in the Elk River watershed are sampled each year at the request of the NCRWQCB, the remaining sites (located in the headwaters of the North Fork) are sampled every three years. Measurements of interest for this concern include channel dimensions (gradient, width, cross-sectional area, thalweg elevation profile), particle size of stream bed (surface and subsurface) and pool characteristics. Annual habitat monitoring trend reports are prepared that provide current data from the long-term stream habitat monitoring stations and present a simplified method for tracking habitat conditions and trends that is consistent with the plan submitter’s HCP’s overall goal to achieve the Aquatic Properly Functioning Condition targets for stream and riparian habitat characteristics. (see the plan submitter’s website specific to aquatic monitoring - <http://www.mrc.com/monitoring/aquatic-conditions/>) The Department has not found additional restrictions to be necessary.

12. CONCERN: I just sent you comments as outlined below.

I have now reduced the size of the Salmon Forever Report so though I sent you the final Front Cover I have now attached the reduced file size pdf of the Report. I hope this makes it easier and not more complicated. You can remove the older word doc I sent. If anyone would like a CD of the associated links please allow us to send it in.

Dear santa [sic] Rosa Public Comment please note:

1. Find attached the final Cover Page to the Report I included in comments on THPs 1-13-005 Hum, 1-12-113 Hum and 1-12-110 Hum. **Previous email...deleted here**
2. Below is a printout of the body of the attached comment letter. **Deleted this.** Please answer my questions. Living with the present logging is scary without adding the nearly 1000 acres planned [sic] for our watershed; some of which is clear cut although the 590 acres in this plan is not but the sheer size and location make it very ultra dangerous to the residents. Our situation is very serious. Why are we the citizens and residents of upper Elk River who have been so damaged by logging always insignificant in the THP process?

Comments contained in the attached letter: **deleted**

THP 1-12-110 HUM Comments: [as well as 1-13-005 Hum & 1-12-113 Hum situated in the Elk River Watershed]

RESPONSE: No new concerns were presented in this correspondence. The “printout of the body of the attached comment letter” and “Comments contained in the attached letter” referenced in this concern are found in concern 11 above.

It should be noted that while THP 1-12-110 HUM is 590 acres in size, harvest is not proposed on that many acres. Page 6 of the plan shows that 49.8 acres are designated as “No-harvest Areas” areas, which includes: a channel migration zone, within 50 feet of Class I watercourses, and within 30 feet of Class II watercourses. As noted in the concern no clearcutting is proposed in this plan, all harvest is to be unevenage management (selection and group selection). This plan is located primarily in two Planning Watersheds (Lower Elk River and Lower South Fork Elk River). Operations are not confined to a single tributary of the Elk River or even a single major fork of the Elk River. A substantial portion

of THP 1-12-110 HUM is located downstream of the residents that submitted this concern. Unit 3, 243.5 acres, drains to Shaw Gulch, to a tributary to Clapp Gulch and to two unnamed tributaries to Elk River. All of these watercourses are located downstream of the confluence of the North and South Forks of the Elk River.

The three plans referenced in the concern (THP 1-12-110 HUM, 1-12-113 HUM and 1-13-005 HUM) total 926 acres (590 acres, 99 acres and 237 acres), of which 68.9 acres will not be harvested. Unevenaged management (selection and group selection) is proposed on all but 70.2 acres. THP 1-12-113 HUM, the smallest of the three plans is located in the Lower South Fork of the Elk River Planning Watershed. THP 1-13-005 HUM is in a different Planning Watershed than either of the other plans, Lower North Fork Elk River. The combined acreage of the planning watersheds where these three plans are located is 20,986 acres (Lower South Fork of the Elk River Planning Watershed approximately 5,690 acres; Lower Elk River Planning Watershed 6,257 acres; and Lower North Fork Elk River Planning Watershed 9,039 acres). The combined harvest acreage of these three plans is 857.1 acres. Combined these plans represent only 4% of the combined watershed areas. As described above and in the previous response, the harvest proposed is low impact. As mitigated the Department has not found these harvest plans to be likely to have an adverse impact on downstream residents. As noted in other responses Page 1.2 of THP 1-12-110 HUM discloses that: "The plan proposes remediation of several old crossings which will remove and or control a total of 2166 cubic yards of sediment from entering a watercourse." Treatment of existing sediment sources is also included in the other harvest plans mentioned in the concern. Also see other responses.

13. CONCERN: Dear santarosapubliccomment@fire.ca.gov: Comments on 1-12-110HUM and 1-13-005HUM attached.

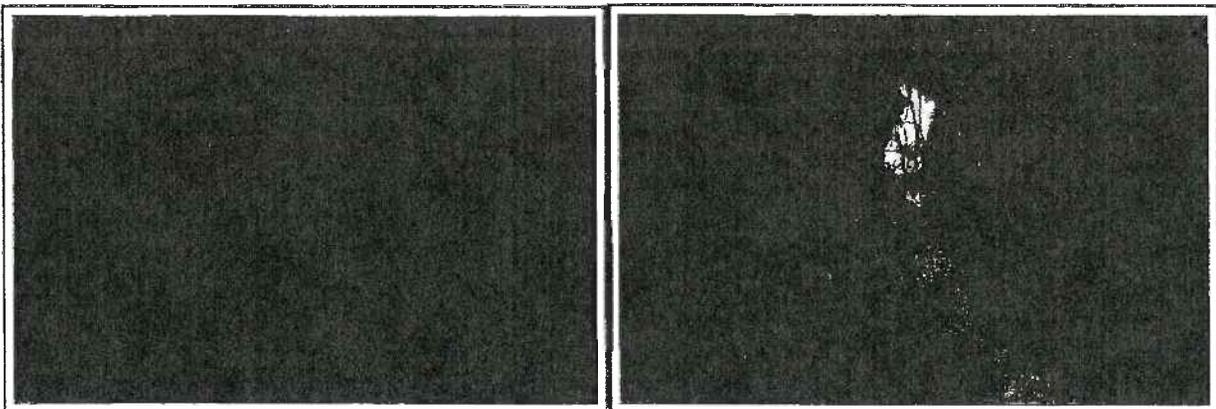
TO: CDF/CalFire
RE: thp 1-12-110 McCloud-Shaw

Dear SantaRosaPublicComment@Fire.ca.gov:

Saturday, I was working on my alternative water supply that is located in Railroad Gulch on Kristi Wrigley's property. We have been forced to use Railroad Gulch water now that the South Fork Elk River has been polluted by government-planned activities.

Because we frequently walk on Kristi's land we are quickly alerted to any changes. Recent pool filling in Railroad Gulch is now evident. Fine sediments cover many of the gravels that were visible last year, creating a viscous sludge. Kristi Wrigley and I traced the sediment deposits upstream in Railroad Gulch.

The side tributary above HRC monitoring station 542, has large amount of woody debris. This debris is heavily caked with obvious recent sediment, as are the banks.



This mess extends upstream into the Casey Jones 2003-'04 harvest area. 1-02-217HUM. Why is so much sediment coming from this 10 year old harvest plan area? CDF and HRC foresters assert that there is 100% recovery from all cumulative effects in less than 10 years. Such ignorant assertions are proven to be faith-based at best, and an intentional deception at least. Public agencies like CDF have no business dabbling in religious beliefs

while using public funds to protect the Public Trust.

As is obvious to any percipient witness, Railroad Gulch channel upstream of the tributary is also heavily deposited with recent sediment. Several more recent harvest areas provide sludge to this reach. Predictably, this sediment sludge is also filling the main stem river channel. Most critically, it is rendering the water supply unfit for people and other sensitive species living downstream. Tom's Gulch and McCloud and Clapp also demonstrate continuing and severe erosion from harvest. This damage to the state owned streambed is man-made, government-approved and planned, and therefore preventable.

Does the Public know and agree that they will pay the price to restore this watershed once the timber harvesters have had their way? Has the public informed their elected officials that they favor *restoration* over *prevention*? Has the public declared its support for TAKING (by invasion, occupation, and destruction) the private property of the Elk River residents in order to satisfy the business objectives of industrial timber? The Legislative Intent is crystal clear: timber productivity shall not come at the expense of private property neighbors or the Public Trust.

The public's cost to compensate all the injured Elk River residents is already rising past 40 million dollars. Because we are American citizens and we are all protected by the US Constitution, we residents expect that our representatives are planning for this compensation by including it in California's budget. Our representatives are fully informed of this two-decades long continuing devastation from our timber neighbors to this community of Elk River and must understand their obligation to restore the human residents' habitat before funding is directed to restore animal habitat.

Clearly, mitigating all sediment discharge to the "less than significant" standard is a myth common to devotees of the twentieth century "logging cult." Now we have public agencies making life-threatening decisions for human and non-human species, based on extremist cult beliefs. Yes, timber harvest operations enjoy extensive public privileges to pollute, degrade, and even destroy any inconvenient neighbor in its path to satisfy its private business goals. CalFire, while operating with public monies persists in privileging this cult industry with extra-Constitutional favors regardless of who or what is destroyed as a result. This privileging of one kind of person to deliberately injure another kind of person is simply unpatriotic.

CalFire has a mandate to protect the beneficial uses yet for over two decades has intentionally degraded and even destroyed them. CalFire can degrade the residents' only domestic water supply because CalFire does not consider us humans in Elk River to be significant enough to protect. CalFire believes in classes of humans: those in the timber cults and those who are not. Because WQ and CalFire refuse to enforce pollution protections from plans such as 1-02-217 HUM to ensure that all beneficial uses are maintained, the residents are being exterminated. We understand that on all prior plans, predictable and preventable pollution was acceptable to the regulators. We residents suffer the continuing injuries of these timber harvest activities, yet CalFire ignores our cries for relief by imperiously declaring that any damage to people like us is merely "less than significant." We aren't members of the timber cults, but we are Americans.

PRC 916(a) "During and following timber operations, the beneficial uses of water, native aquatic and riparian-associated species, and the beneficial functions of riparian zones SHALL be maintained where they are in good condition, protected where they are threatened, AND INSOFAR AS FEASIBLE, restored where they are impaired." Our more than two decades of authentic experience and of working closely with both WQ and CDF, have proven that PRC 916(a) is either a sham, or these agencies are simply too impotent to honor it.

We request an "INSOFAR AS FEASIBLE" hearing. The Board of Forestry and the Office of Administrative Law can provide us with that hearing if CalFire cannot respond to this issue. The language of PRC 916(a) is written in clear and unambiguous English. Therefore, the reasonable English speaker would expect that the human residents' only domestic water supply would have been protected from the very injuries we are still observing today. We suspect that the reference for **feasibility** was made entirely for the benefit of the polluter, because for over two decades the regulatory agencies most involved with timber harvest have NEVER declared it feasible to prevent pollution to our community.

Now our community realizes that government planned for us human residents to become extinct, just like the salmon, because it's not **feasible** for the polluter to stop polluting. The Legislature needs to clarify their intent for this feasibility: is it feasible for the residents to incur extraordinary personal financial loss so that their cult neighbors can enjoy a private gain? And the salmon fisheries---what a huge loss to all of us, just so one selfish cult industry can make some money.

Industrial timber in Elk River is incompatible with the zoned and taxed use for residential habitation. One use must be terminated. It's not **feasible** for us residents to continue to pay a personal price for our neighbors' feeble business, especially because this business is planned and approved by government. Is it **feasible** for the public to

pay multi-millions of dollars to clean up the mess that the privileged polluter predictably, intentionally, and persistently causes? Did our elected officials hear from their constituents that they approved this public policy of forcing private neighbors to bear a private price for the public good? Is really more **feasible** to restore than **prevent**?

It is clear to us residents that: "...the Legislative intent is not...to take private property for public use without payment of just compensation." (PRC 4512(d)) We residents are still struggling after twenty years to receive the legally required and morally appropriate compensation that will restore our rights and property. This Act provides strict guidance for regulation of timber harvest activities. This two-decades long legacy of public agencies privileging preventable destruction to a selected group of humans is simply genocide, even if those humans are not part of the timber cult.

If CDF is required to support the U.S. Constitution and the fundamental American truth that all humans are equal, then the THPs in Elk River must be stopped until residents' health, safety, rights, and property are protected and restored.

We are asking CDF to provide a written response to the following:

- 1) Explain the discrepancy between the stated intent in BOF's rule 916 and the two decades of CDF's performance in Elk River (i.e. timber cult legacies)
- 2) Explain how CDF's perennial approval of preventable, intentional, and confirmable destruction to a discrete group of humans, is consistent with the United States Constitution's protections for just such humans.
- 3) Explain the criteria CDF uses to depict damage to Elk River residents as "less than significant" or "acceptable" while your sister agency, Water Quality, defines the precise same damage as "severe." (note: the cries of Elk River residents are well-documented in the public record since the mid 1990s; CDF cannot claim ignorance, but we will allow a claim of incompetence)
- 4) Describe CDF's timetable and funding source for restoring the Elk River residents' water supplies, homes, and properties (in compliance with PRC 4512(d) and 916(a))
- 5) Schedule a date and time for an "Insofar as Feasible Hearing": insofar as feasible *for whom*? CDF must explain from whose perspective this feasibility is determined. (CDF's decades of performance leads the public to believe that feasibility is specifically referenced to the desires of the polluter)
- 6) Explain how the maximum public benefit is achieved when the persistent polluter is privileged by CDF to avoid *both* the cost of compliance *and* the cost of restoration. (PRC 916(a); CACivilCode 3334 (b): the legislature established this policy to eliminate all economic benefits from pollution)

RESPONSE: The "Elk River/Salmon Creek Watershed Analysis, Scotia, California, Cumulative Watershed Effects Assessment" describes conditions found in Railroad and Clapp Gulchs that have been created by operations that predated the Forest Practice Rules, conditions that may explain the origins of the sediment described in the concern (http://www.mrc.com/pdf/Watershed_Analysis/HRC/Elk%20River_Salmon%20Creek%20-%20Cumulative%20Effects.pdf):

"The earliest truck roads in the ERSC followed railroad grades and were often adjacent to major streams ('stream-adjacent' roads) to take advantage of the gentle gradients. ... Stream-adjacent and mid-slope road systems have numerous stream crossings and opportunities for eroded sediment to be delivered to the streams. Clapp Gulch and Railroad Gulch and portions of the Upper North Fork and South Fork Basins provide good examples of this type of road layout, The channel infilling that began with corduroying for oxen and train tracks continued during the tractor logging era of the 1940s to 1970s. Many low-order stream channels were filled in with soil and organic debris to form tractor yarding corridors (PWA 1998)."

The sediment conditions found in these drainages is not of recent origin. Some of the sediment may also be of natural origins as described in the harvest plan cited in the concern, the "Casey Jones 2003-'04 harvest area," THP 1-02-217 HUM. The nature of the landscape is subject to mass movement even in the absence of human caused disturbance. This was explained in a geology report found in THP 1-02-217 HUM (a plan that was approved on November 18, 2003 and certified by the Department as completed on March 20, 2008). In the geology report specific slopes where the bedrock is particularly prone to earthflow and translational slippage (page 251) are described and the underlying forces that create these features are explained (page 252 of THP 1-02-217 HUM):

“The proposed Casey Jones THP is located in a tectonically active area, the Mendocino triple junction region. Seismogenic fault systems in the area include the north end of the San Andreas Fault zone to the south, the Mendocino fracture zone to the west, the southern end of the Cascadia subduction zone to the northwest and the Little Salmon Fault to the west. ... Recent earthquakes (the 1991 Honeydew Earthquake and the 1992 Cape Mendocino Earthquakes) resulted in uplift along the coast of about 3 feet in a single event. Ground shaking equal to Modified Mercalli Intensities of IV to VIII have occurred in the area of the THP (Reagor and Brewer, 1992, and McPherson and Dengler, 1992). Several seismically induced landslides were reported in Humboldt County in response to these earthquakes as well as past earthquakes (Youd and Hoose, 1978 and McPherson and Dengler, 1992).”

The report also describes the field inspection conducted for the THP 1-02-217 HUM plan area, including observed presence of ground cracks, freshly exposed scarps, and offset roads indicating that some of the large, deep-seated slides underlying the plan area were active. The sensitive nature of these areas was taken into consideration in plan preparation: “... [W]e have removed these slides from the proposed Harvest Units.” (page 252)

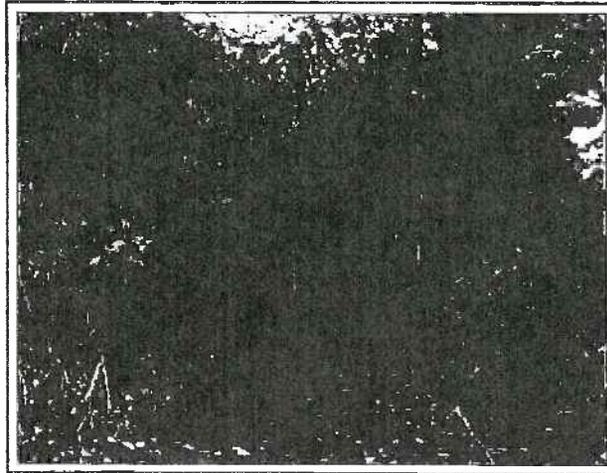
THP 1-12-110 HUM was also evaluated by a Registered Geologist prior to plan submission, with a report of that evaluation included in the plan (pages 283-331). While not addressing the section of Railroad Gulch where THP 1-02-217 HUM was located specifically this report also addressed existing conditions in the general area that can explain the sediment reported in the concern letter:

“Observation and analysis of the land use data and aerial photography reveal numerous shallow and deep-seated landslides underlie the plan area. The large deep seated landslides appear to have been locally, negatively impacted by legacy harvest and road construction activities on steep convergent slopes conducted in the earliest 1880 harvest entry and the 1980’s through 1990’s entry. Shallow landslides within the plan area are generally restricted to road related failures and appear to follow road use and periods of historically high significant storm seasons. It is likely that the road construction and harvesting likely exacerbated naturally unstable conditions through unregulated harvested and poor road construction techniques. It should also be noted that large portions of the plan area have performed adequately after two to three entries of clearcut and selection silviculture. These observations combined with detailed site mapping and knowledge of the regional geologic structure provides good indicators of potential unstable areas within the plan area.”

With the professional knowledge of how the landscape responded to previous harvest entries the geologist made recommendations with regard to both harvest operations and road construction/reconstruction that minimize the potential for adverse impacts as well as to treat existing sediment sources to prevent future delivery to downstream waters. In general, potentially unstable areas have been completely avoided, or if harvest is proposed the cutting proposed is extremely light, retaining substantial numbers of trees whose root systems will continue to provide binding structure following completion of operations.

However, there are and will continue to be unstable areas outside of harvest units that will continue to deliver sediment to the watercourses regardless of human activities in the area due to the seismically active nature of the terrain (as described in THP 1-02-217 HUM, quoted above). In addition, sediment that filled channels beginning with the harvests utilizing oxen and trains in the late 1800s up through and including the pre-Forest Practice Rule era of tractor logging in the 1940s to 1970s has not been completely washed from the system through the natural processes of erosion. Where such sediment can be treated, mainly in and behind old watercourse crossings, it has been and will continue to be treated (removed from access to downstream waters to the extent possible) in harvest plans carried out under the Forest Practice Rules and the plan submitter’s HCP. See other responses.

The conditions at Lower South Fork Elk River Site 175 (the Aquatic Trends Monitoring site located closest to the Railroad Gulch location described in the concern - seen in the photograph below), were reported in the plan submitter’s “Class I Stream Aquatic Habitat Trend Monitoring 2010 Annual Report” (http://www.mrc.com.php5-19.dfw1-2.websitetestlink.com/wp-content/uploads/2012/01/ATM-2010-Aquatic-Trends-Monitoring-Report-web_Part1.pdf). Those conditions reported as present in 2010 are consistent with the conditions photographed in the concern letter, in particular the high percentage of fine material (60.7% <0.85 mm and 91.8% <6.35 mm).



Pages 1b and 1c of the plan give two excellent examples of physical and financial efforts this plan submitter has undertaken with the primary goal of restoration of the watershed in which it operates:

“The following policies have been put in place at HRC that will lead to similar gains as we manage going forward:

1. Reduced harvest levels for the first decade of ownership to a level where HRC is harvesting only about half of what it grows annually. ... ; ...
5. Since the inception of HRC, on those lands, over 231,000 cubic yards of sediment have been controlled and 353,788 trees planted.”

The maximum public benefit is achieved through the efforts of this plan submitter to identify and treat existing sediment sources, upgrade and stormproof roads with the goal of reducing the production of sediment from these sources to less than that which would enter the drainage systems if the land were to be left untouched for the immediate future.

The plan, and previous plans in the watershed, has been found to be in conformance with code section 14 CCR 916(a), which reads:

“During and following timber operations, the beneficial uses of water, native aquatic and riparian-associated species, and the beneficial functions of riparian zones shall be maintained where they are in good condition, protected where they are threatened, and insofar as feasible, restored where they are impaired.”

Nothing in this code section requires that a hearing be held. However, measures for the restoration of beneficial uses of water were addressed in THP 1-02-217 HUM (a plan mentioned in the concern, on page 196 of that plan): “For this THP, there is an estimated 66 cubic yards of sediment which may be delivered to watercourses as a result of timber operations (Table 1). To mitigate the sediment production from this THP, a total of 1 road mitigation site was chosen, which total 120 cubic yards of sediment (see Section II attachments under the Work Order and Road Specifications Map). The upgrading of the mitigation sites chosen for this THP will result in a net sediment savings of 54 cubic yards.” Page 1.2 of THP 1-12-110 HUM discloses that: “The plan proposes remediation of several old crossings which will remove and or control a total of 2166 cubic yards of sediment from entering a watercourse.” This is discussed in greater detail on pages 175-176 of THP 1-12-110 HUM as well:

“The condition of the watershed’s resources as inferred through the conditions of the watercourses reveals a drainage basin that is in a state of improvement from the time of the last large disturbance for the South Fork Elk River. The unnamed tributaries to the South Fork are in a less improved stated from the last large disturbance due to their underlying geology, and lower flows. This is only in relative terms, because evidence of greater regional impacts from much larger prehistoric floods exists (Helley & Lamarche 1973). The conditions observed today within the assessment area are a product of many factors-both natural and human caused. Measureable and meaningful changes to watershed resources associated with past projects – with reasonable likelihood of having

been caused by the projects -- are road-caused erosion, removal of woody debris from streams, and removal of trees from streamside areas. It is evident that stream channel adjustments within similar tributaries have occurred within the past ten years. Many channels that were buried during initial logging of this area are beginning to move the stored sediment and reveal 'sink holes' of exposed channel. As a result many watercourse classifications are being upgraded as these channels become exposed. A flushing effect is expected as a result of mobilization of material from higher elevation low energy tributaries working its way through the hydrologic system. This is a positive sign that historic impacts, over enough time, will diminish & watercourse conditions are improving. Adding to these natural adjustments are a number of sediment savings sites that have been, are being, and will be repaired which will result in an increased rate of watercourse improvement. It is also becoming evident that a measurable quantity of large woody debris that was buried during initial logging is also becoming exposed within these 'sinkhole' channels. Desirable aquatic habitat substrates are often found at the bottom of these channels in the form of deep gravels which is a rarity within the plan area.

... The maintenance or achievement of properly functioning conditions within the assessment area is a primary objective of the landowner's HCP and this THP. Because the practices and mitigation measures proposed here carefully follow the HCP's guidelines designed to achieve properly functioning conditions, and were tailored for the specific field conditions within the assessment area, a trend towards healthy forest ecosystems with properly functioning conditions will be aided by the implementation of this THP. The ultimate finding by the forester based on interdisciplinary team review is that implementation of this THP will not have significant or cumulative adverse watershed effects."

The plan submitter is actively working to restore the beneficial uses of water, native aquatic and riparian-associated species, and the beneficial functions of riparian zones. Also see other responses.

As noted in an earlier response, monitoring done by the Department has found Forest Practice Rule erosion control measures to be effective in the control of erosion (Brandow et al. 2006):

"In both the MCR and the HMP studies, effectiveness of erosion control measures is based on the assumption that if soil is kept on site and out of stream systems, then water quality and riparian and aquatic habitat are protected from the effects of increased sedimentation.

Like HMP monitoring, MCR monitoring found that: 1) The rate of compliance with the FPRs designed to protect water quality and aquatic habitat is generally high, and 2) the FPRs are highly effective in preventing erosion, sedimentation and sediment transport to channels when properly implemented.

In most cases, Watercourse and Lake Protection Zone (WLPZ) canopy and groundcover exceeded Forest Practice Rule (FPR) standards. For Class I and Class II WLPZs, average total percent canopy was 84% for the Coast area (Region 1), 68% for the Inland North area (Region 2) and 73% for the Inland South area (Region 4). With rare exceptions, WLPZ groundcover exceeds 70%, patches of bare soil in WLPZs exceeding the FPR standards are rare, and erosion features within WLPZs related to current operations are uncommon.

Moreover, in most cases, actual WLPZ widths were found to meet or exceed FPR standards and/or widths prescribed in the applicable THP."

The conclusion of the Department and HRC foresters that recovery from harvest operations occurs within approximately 10 years is reasonable. This plan does not propose any clearcutting. The retention of substantial numbers of trees and sprouting of redwood from stumps will maintain existing root systems. These root systems of the trees that are retained maintain the binding characteristics that protect soil mantle from mass wasting and the litter layer replenished by the retained trees protect soil surfaces from erosion from raindrop impact. The proposed harvest utilizes mainly cable yarding systems, also minimizing impacts to soils. As noted above, work associated with roads incorporates measures to reduce future potential for sediment delivery by removal of old crossings and other features with a potential to fail in the future. Also see other responses.

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EXHIBIT 8

California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2006-0039

(As amended by Order No. R1-2008-0100 to reflect new ownership)

WATERSHED-WIDE WASTE DISCHARGE REQUIREMENTS
FOR TIMBER HARVESTING PLAN ACTIVITIES
CONDUCTED BY HUMBOLDT REDWOOD COMPANY, LLC
IN THE ELK RIVER WATERSHED

Based on the findings set out in Resolution No. R1-2006-0038, which adopts these watershed-wide waste discharge requirements (hereinafter "watershed-wide WDRs" or "this Order"), the California Regional Water Quality Control Board, North Coast Region, (hereinafter "Regional Water Board") orders that Humboldt Redwood Company, LLC (hereinafter referred to as the "Discharger") shall comply with the following:

SECTION I: OVERVIEW AND ORDER STRUCTURE

These watershed-wide WDRs apply to Timber Harvesting Plan (THP) Activities conducted on lands operated on and/or owned by the Discharger in the Elk River watershed. For purposes of this Order, the term "Elk River watershed" refers to the area comprised of the Lower North Fork Elk River (1110.000201), Upper North Fork Elk River (1110.000202), Lower South Fork Elk River (1110.000302), and Upper South Fork Elk River (1110.000301) planning watersheds (CalWater V2.2). A map delineating the planning watershed boundaries and the location of the Elk River watershed in the Humboldt Bay area is attached to this Order as Attachment A-1. A map delineating the Discharger's ownership within the Elk River watershed is attached as Attachment A-2.

As stated in the findings contained in Resolution No. R1-2006-0038, adopted with this Order, Elk River has been cumulatively impacted by discharges of sediment and nuisance flooding related to the intensity of Timber Harvesting Plan Activities. This Order, when coupled with applicable cleanup and abatement orders, addresses past, present and future impacts associated with discharges of Waste from THP Activities in the Elk River watershed.

The Discharger must apply for coverage of a THP under this Order by submitting an application and appropriate filing fee as detailed in Section VII: Application Procedures, below. Coverage does not take effect until the Discharger has received written notification from the Regional Water Board Executive Officer stating that coverage is approved. Under this Order, any initiation of a discharge (i.e., Timber Harvest Plan Activity) performed without Executive Officer approval (i.e., enrollment for coverage) is a violation of these watershed-wide WDRs and is subject to enforcement authorities provided to the Regional Water Board under the Porter-Cologne Water Quality Control Act¹ and the federal Clean Water Act.

¹ California Water Code (Water Code) § 13000 et seq.

This Order contains waste discharge prohibitions (Section II), discharge specifications (Section III) receiving water limitations (Section IV), specific provisions (Section V), general provisions (Section VI), application procedures (Section VII), procedures for termination of coverage (Section VIII), and grounds for rescission and denial of coverage (Section IX). All of these sections together are referred to as "Terms and Provisions." Definitions for key (capitalized) terms used in this Order are provided in Section X: Definitions.

SECTION II: WASTE DISCHARGE PROHIBITIONS

- A. Discharges of Waste, which are not otherwise authorized by waste discharge requirements issued by the Regional Water Board or the State Water Resources Control Board, to waters of the State are prohibited.
- B. Discharges shall not cause or threaten to cause pollution, contamination, or nuisance.
- C. Discharges shall not adversely impact human health or the environment or the beneficial uses of water defined in the *Water Quality Control Plan for the North Coast Region* (Basin Plan).
- D. Discharges of Waste shall not violate or exceed any applicable Water Quality Requirements as contained in, and as they may be modified from time to time pursuant to amendments to, water quality control plans adopted by the Regional Water Board and approved by the State Water Resources Control Board (Basin Plan), and all other applicable plans and policies adopted by the Regional Water Board or the State Water Resources Control Board.
- E. The discharge of soil, silt, bark, slash, sawdust, or other earthen or organic material other than large woody debris from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the Elk River watershed in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited. (Based on the Basin Plan, section 4-28.00, "Action Plan for Logging, Construction, and Associated Activities," hereinafter "Action Plan for Logging.")
- F. The discharge of soil, silt, bark, slash, sawdust, or other earthen or organic material other than large woody debris from any logging, construction, or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the Elk River watershed in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited. (based on the Basin Plan, section 4-28.00, "Action Plan for Logging, Construction, and Associated Activities.")
- G. The controllable discharge or deposition of soil, silt, bark, slash, sawdust, or other earthen or organic material other than large woody debris from any logging, construction or associated activity into the Elk River or its tributaries or to a location

where such material could pass into the Elk River is prohibited. Controllable discharges or depositions are those actions, conditions, or circumstances that may be reasonably controlled. (Basin Plan, section 3-1.00.)

SECTION III: DISCHARGE SPECIFICATIONS

- A. Discharges shall not cause coloration that causes nuisance or adversely affects beneficial uses.
- B. Discharges shall not cause the turbidity of Elk River or its tributaries to be increased more than 20 percent above naturally occurring background levels.
- C. Discharges shall not cause waters to contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or that cause nuisance or adversely affect beneficial uses.
- D. Discharges shall not cause waters to contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
- E. Discharges shall not cause the suspended sediment load to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
- F. Waters shall not contain settleable materials in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.
- G. Discharges shall not cause receiving waters in the Elk River watershed or its tributaries to contain any toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in, human, plant, animal, or aquatic life.
- H. Discharges shall not cause waters to contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.

SECTION IV: RECEIVING WATER LIMITATIONS

As set out in the Resolution adopting these watershed-wide WDRs, the receiving water limitations contained herein are numeric interpretations of applicable narrative objectives and prohibitions. Coupled with the other Terms and Provisions of this Order, the receiving water limitations are designed to address cumulative impacts from discharges related to Timber Harvesting Plan Activities. Specifically, the limitations set forth below are keyed to the discharge of runoff and sediment (wastewater) from Timber Harvesting Plan Activities, and are a function of the rate of cutting or felling of trees. In all cases, the more stringent of Limitation A or Limitation B shall apply.

- A. The discharge of runoff and associated discharges of Waste from THP areas shall not be permitted at or above levels that inhibit recovery from existing conditions of nuisance flooding and pollution. The numeric receiving water limitation is the volume of permitted wastewater runoff, calculated using the Empirical Peak Flow Reduction Model (Peak Flow Model) described in Attachment B, as applied to all lands in the North and South Fork Elk River watersheds on an annual (calendar year) basis.²

² For purposes of this Order, the term "North Fork Elk River watershed" refers to the area comprised of the Lower North Fork Elk River (1110.000201) and Upper North Fork Elk River (1110.000202) planning watersheds (CalWater V2.2). Similarly, the term "South Fork Elk River watershed" refers to the Lower South Fork Elk River (1110.000302) and Upper South Fork Elk River (1110.000301) planning watersheds.

1. North Fork Elk River
 - a) Based on the design application of the Peak Flow Model described in Attachment B for a target peak flow increase of 7% after 10 years (see Figure 14 in Attachment B), compliance with this receiving water limitation (Receiving Water Limitation A) corresponds to the enrollment of a maximum annual harvest in the North Fork Elk River watershed of 264 Clearcut Equivalent Acres per year.³
 - b) In the event that the Discharger's Timber Harvesting Plan Activities in any calendar year exceed the harvest acreage associated with this receiving water limitation, no additional acreage shall be enrolled for the remainder of that year, and the Discharger shall be liable for exceedence of said limitation as a violation of this Order. Furthermore, acres harvested in excess of this receiving water limitation for any year shall be counted against acres allowed under the limitation for the subsequent year(s).
 - c) If the Regional Water Board staff or the Discharger identifies and demonstrates a significant change in the stage-discharge relationship or conveyance capacity of North Fork Elk River such that the design application of the Peak Flow Model described in Attachment B is no longer valid, either the Discharger or the Executive Officer can request that this receiving water limitation be adjusted and these watershed-wide WDRs modified. Monitoring required in the Monitoring and Reporting Program (MRP) associated with this Order (MRP No. R1-2006-0039) will inform the Discharger and Regional Water Board staff of changes in the stage-discharge relationship and conveyance capacity. Any revision to this receiving water limitation must be approved by the Regional Water Board and be subject to public review.
 - d) The Regional Water Board supports efforts to modify infrastructure (roads, bridges, etc.), to improve conveyance capacity, and to make other instream improvements to reduce nuisance flooding in the North Fork Elk River. Significant changes in nuisance flooding conditions will trigger a revision to this receiving water limitation. Any revision of this receiving water limitation must be approved by the Regional Water Board and be subject to public review.

2. South Fork Elk River
 - a) Based on the design application of the Peak Flow Model described in Attachment B, existing conditions in the South Fork Elk River do not constitute nuisance.
 - b) If the Regional Water Board staff or the Discharger identifies and demonstrates a significant change in the stage-discharge relationship or conveyance capacity of South Fork Elk River such that the design application of the Peak Flow Model described in Attachment B is no

³ The volume of permitted wastewater runoff calculated using the Peak Flow Model in Attachment B is based on existing conditions at the concrete bridge on Elk River Road at the intersection with Wrigley Road, which constitute nuisance at a recurrence interval of 0.25 years and a wetness index of 150.

longer valid, either the Discharger or the Executive Officer can request that this receiving water limitation be adjusted and these watershed-wide WDRs modified.

- c) Monitoring required in the Monitoring and Reporting Program (MRP) associated with this Order (MRP No. R1-2006-0039) will inform the Discharger and Regional Water Board staff of changes in the stage-discharge relationship and conveyance capacity. Any revision to this receiving water limitation must be approved by the Regional Water Board and be subject to public review.
- B. The receiving water limitation for sediment discharges from harvest-related landsliding is 25% above background.⁴ Sediment discharges from harvest-related landsliding are predicted using the Empirical Harvest-Related Landslide Sediment Delivery Reduction Model (Landslide Reduction Model) described in Attachment C, as applied to lands operated on and/or owned by the Discharger in the North and South Fork Elk River watersheds. Background is defined as predicted discharges from landslides on un-harvested areas.
1. North Fork Elk River
 - a) Based on the design application of the Landslide Reduction Model described in Attachment C, compliance with this receiving water limitation (Receiving Water Limitation B) corresponds to the enrollment of a maximum annual harvest on the Discharger's lands in the North Fork Elk watershed of 266 acres in low hazard zones, 21 acres in high hazard zones,⁵ or any combination of acres between the high and low hazard zones that satisfies the following relationship:
$$\text{Low Hazard Harvest Acres} = -12.807 * (\text{High Hazard Harvest Acreage}) + 266.01$$
 - b) In the event that the Discharger's Timber Harvesting Plan Activities in any calendar year exceeds the harvest acreage associated with this receiving water limitation, no additional acreage shall be permitted for the remainder of that year, and the Discharger shall be liable for exceedence of said limitation as a violation of this Order, except as provided under Provision IV(B)(3) below. Furthermore, acres harvested in excess of this receiving water limitation for any year shall be counted against acres allowed under the limitation for the subsequent year(s).
 - c) If the Regional Water Board staff or the Discharger identifies and demonstrates a significant change in landslide patterns and sediment delivery rates in the North Fork Elk River watershed such that the design

⁴ As described in Attachment C, this receiving water limitation is based on sediment TMDLs completed to date for North Coast streams. Because of the stochastic nature of landslide triggering events, this limitation necessarily must be described as a relationship between anthropogenic and background inputs, rather than a fixed rate (volume per time) or sediment delivery per year.

⁵ Hazard zones in the North Fork Elk River watershed are based on Hazard Map #3, as defined in the Landslide Reduction Model technical report (Attachment C).

application of the Landslide Reduction Model described in Attachment C is no longer valid, either the Discharger or the Executive Officer can request that this receiving water limitation be adjusted and these watershed-wide WDRs modified. Monitoring required in the Monitoring and Reporting Program associated with this Order (MRP No. R1-2006-0039) will inform the Discharger and Regional Water Board staff of changes in landslide patterns and sediment delivery rates. Any revision to this receiving water limitation shall not occur more frequently than on an annual basis and must be approved by the Regional Water Board and be subject to public review.

2. South Fork Elk River
 - a) Based on the design application of the Landslide Reduction Model described in Attachment C, compliance with this receiving water limitation (Receiving Water Limitation B) corresponds to the enrollment of a maximum annual harvest of 114 acres on the Discharger's lands in the South Fork Elk River watershed for all hazard zones combined.⁶
 - b) In the event that the Discharger's Timber Harvesting Plan Activities in any calendar year exceeds the harvest acreage associated with this receiving water limitation, no additional acreage shall be permitted for the remainder of that year, and the Discharger shall be liable for exceedence of said limitation as a violation of this Order, except as provided under Provision IV(B)(3) below. Furthermore, acres harvested in excess of this receiving water limitation for any year shall be counted against acres allowed under the limitation for the subsequent year(s).
 - c) If the Regional Water Board staff or the Discharger identifies and demonstrates a significant change in the landslide patterns and sediment delivery rates in the South Fork Elk River watershed such that the design application of the Landslide Reduction Model described in Attachment C is no longer valid, either the Discharger or the Executive Officer can request that this receiving water limitation be adjusted and these watershed-wide WDRs modified. Monitoring required in the Monitoring and Reporting Program associated with this Order (MRP No. R1-2006-0039) will inform the Discharger and Regional Water Board staff of changes in landslide patterns and sediment delivery rates. Any revision to this receiving water limitation shall not occur more frequently than on an annual basis and must be approved by the Regional Water Board and be subject to public review.

3. Zero Discharge Effluent Standard for North Fork and South Fork Elk River For Timber Harvesting Plan Activities in excess of the harvest acreage associated with this receiving water limitation, the Regional Water Board adopts a zero discharge effluent standard for sediment from harvest-related landsliding. The Discharger will become eligible to exceed the harvest

⁶ Hazard zones in the South Fork Elk River watershed are based on Hazard Map #3, as defined in the Landslide Reduction Model technical report (Attachment C).

acreage associated with this receiving water limitation only upon receiving written approval by the Executive Officer of an enforceable monitoring program to prove that no discharge has occurred.

- C. The numeric receiving water limitations specified above in this section are designed to comply with the waste discharge prohibitions and specifications listed in Sections II and III of this Order. These numeric limits are derived from the best available scientific methodologies, and according to the Regional Water Board staff's best professional judgment. Consistent with Section 13360(a) of the Porter-Cologne Water Quality Control Act, the Discharger may propose alternative means of compliance with the prohibitions as implemented through the receiving water limitations. For example, by altering the location, timing, and methods employed in its THPs, the Discharger may maximize the rate and scale of its THP Activities, while minimizing THP contributions toward the annual limits.

SECTION V: SPECIFIC PROVISIONS

A. Required Technical Reports

1. Annual Pre-harvest Planning Reports

The Discharger shall provide the Regional Water Board Executive Officer by December 1st of each year an Annual Pre-harvest Planning Report in both hard copy and electronic formats. The report shall contain the following information organized in tabular form, and corresponding to a detailed map, delineating the Discharger's anticipated harvest for the upcoming year in the Elk River watershed:

- Acres to be felled, by silvicultural prescription
- Clearcut Equivalent Acres to be felled
- Acres to be yarded, by yarding technique
- Acres to be subject to site preparation, by site preparation technique

All acres reported shall be accompanied by the corresponding watershed (i.e., North or South Fork Elk River), THP number, harvest unit number, and hazard class.⁷

2. Monitoring

a) The Discharger shall develop and implement a Compliance Monitoring Plan to demonstrate that the Discharger's activities in the North and South Fork Elk River watersheds are consistent with the provisions of these watershed-wide WDRs.

- i) The following parameters shall be measured under the Compliance Monitoring Plan, measured and reported to the 1/10 of an acre:
- Acres felled, by silvicultural prescription
 - Clearcut Equivalent Acres felled
 - Acres yarded, by yarding technique

⁷ Hazard zones in both the North and South Fork Elk River watersheds are based on Hazard Map #3, as defined in the Landslide Reduction Model technical report (Attachment C).

- Acres subject to site preparation, by site preparation technique
All acres reported shall be accompanied by the corresponding watershed (i.e., North or South Fork Elk River), THP number, harvest unit number, and hazard class.⁷
- ii) Locations
Any Timber Harvesting Plan Activities covered by these watershed-wide WDRs shall be tracked, recorded, and reported by the Discharger under the Compliance Monitoring Plan.
- iii) Methods of Measurement
The Discharger shall develop and implement reliable and repeatable methods of measurement for the Compliance Monitoring Plan.
- iv) Reporting
The Discharger shall submit electronic and hardcopy reports to the Regional Water Board Executive Officer by the tenth (10th) day of each month containing measurements taken pursuant to the Compliance Monitoring Plan during the previous calendar month. The reports shall contain the all data specified under Provision V(A)(2)(a)(i) above, organized in tabular form, and corresponding to a detailed map.
- v) Program Documentation, Quality Assurance and Quality Control
The Discharger shall develop a Quality Assurance Project Plan (QAPP)⁸ for the Compliance Monitoring Plan consistent with the terms described above.
- vi) Time Schedule for Implementation
The Discharger shall provide the QAPP to the Executive Officer for review by June 1, 2006. The Executive Officer shall have 30 days to review and provide comments to the Discharger, and the Discharger shall make the necessary responsive revisions, and resubmit the QAPP within 14 days. If however, the Executive Officer does not provide comments within 30 days upon receipt, then the submitted QAPP shall be considered accepted and the Discharger shall implement the accepted QAPP. No timber falling activities shall be conducted until an accepted QAPP is implemented.
- vii) Timing and Duration
The Compliance Monitoring Plan shall be implemented coincident with the adoption of this Order, and shall be in effect throughout the life of these watershed-wide WDRs.
- b) Receiving water monitoring and reporting shall be conducted per the requirements detailed in the Monitoring and Reporting Program (MRP) associated with these watershed-wide WDRs (MRP No. R1-2006-0039).

⁸ Guidance on the development of Quality Assurance Project Plans is available from the US Environmental Protection Agency at: <http://www.epa.gov/quality/>

3. Reports Attendant to the Application
The application for THP coverage under this Order requires submission of an Erosion Control Plan, which includes an inventory of Controllable Sediment Discharge Sources, a treatment implementation schedule, and an inspection plan as detailed in Section VII: Application Procedures.
 4. Spill Prevention Control and Countermeasure Plan for Petroleum
 - a) Applicability
The requirement to submit a Spill Prevention Control and Countermeasure (SPCC) Plan applies only to THPs that make use of Petroleum stored in a single aboveground tank with a storage capacity of more than 660 gallons, or multiple tanks with a cumulative storage capacity more than 1,320 gallons. California Health and Safety Code, Section 25270.2 (k) of the Aboveground Petroleum Storage Act defines certain tank facilities not subject to this requirement. A copy of the SPCC Plan must be kept at the storage facility for which it was developed.
 - b) Contents
The SPCC Plan shall be designed to prevent and minimize the discharge of Petroleum to waters of the State, and to ensure that THP Activities comply with all State and Federal regulations pertaining to the handling and storage of fuel. These regulations include the "California Aboveground Petroleum Storage Act with 1991 Amendments" (Cal. Health & Safety Code, Section 25270 et seq.) and the "U.S. Environmental Protection Agency Regulations on Oil Pollution Prevention" (40 CFR 112). The SPCC Plan shall specify the construction and maintenance of impermeable secondary containment.
 5. Other Technical Reports
The Executive Officer may require other technical reports as necessary to determine if the THP complies with the conditions for coverage under these watershed-wide WDRs.
- B. Implementation of Technical Reports
Once coverage under these watershed-wide WDRs is granted, the provisions of all required technical reports shall be fully implemented as approved.
- C. Required Changes to Technical Reports
The Executive Officer may require the Discharger to amend and/or update the required technical reports for cause. Any amendments or update required must meet the licensure requirements in Section VI(N).
- D. Required Corrective Actions
While implementing the provisions of the required technical reports, should the Discharger discover a previously undocumented Controllable Sediment Discharge Source, a previously documented but substantially changed Controllable Sediment

Discharge Source, or any discharge of Waste that violates a waste discharge prohibition listed in Section II above, the Discharger shall:

1. Implement corrective measures immediately upon discovering the discharge, and notify the Regional Water Board by telephone as soon as possible, but no later than 48 hours after the discovery. The Discharger shall follow the notification with a written report within 14 days to the Regional Water Board, unless otherwise directed by the Executive Officer, that includes:
 - a) The date the discharge was discovered;
 - b) The name and title of the person(s) discovering the discharge;
 - c) A map showing the location of the discharge site;
 - d) An estimate of the volume and a description of the type of material discharged;
 - e) A description of the nature and cause of the discharge, including a description of any failed management measure(s) that appear(s) to have contributed;
 - f) A description of recent weather conditions prior to discovering the discharge;
 - g) Photos of the discharge site and affected downstream areas;
 - h) A description of corrective measures already implemented;
 - i) An implementation schedule and accompanying description of further corrective measures that will be implemented in the future; and
 - j) The signature and title of the person preparing the report.
2. Revise, as necessary, the required technical reports and subsequent Erosion Control Plans to account for the additional management measures that have been and will be implemented, to make necessary changes to implementation schedules, and to account for any additional inspections or required Monitoring as a result of the discharge. The Discharger shall submit the revised reports to the Regional Water Board within 14 days following the submission of the written notification described in Section V(D)(1) above.

E. THP Amendments

The Discharger shall certify in writing that all amendments to THPs covered under these watershed-wide WDRs comply with the Terms and Provisions of this Order. The certification shall be submitted to the Regional Water Board upon CDF approval of the amendment, and before Timber Harvesting Plan Activities under the amendment commence. The Discharger shall also update the required technical reports as necessary to ensure that amended THPs remain consistent with these watershed-wide WDRs, and shall submit the updated reports to the Regional Water Board Executive Officer before THP Activities under the amendment commence. If the Discharger does not provide the required certification and updated technical reports prior to commencing the amended THP Activities, the Executive Officer may terminate coverage for the THP under these watershed-wide WDRs pursuant to Section IX(A) of this Order.

F. Grandfathering

1. During the development of this Order, and in the absence of these watershed-wide WDRs, certain THPs were granted coverage under the General Timber WDRs (GWDRs). Those enrollments were vacated by the State Water Board on June 16, 2005 (SWRCB/OCC FILES A-1683 AND A-1692). To continue operations on those THPs, the Discharger must now enroll those THPs into these watershed-wide WDRs. No new application fee will be required.
2. Except for the THPs set out in Provision V(F)(1) above, previously enrolled THPs that have not yet been fully cut as of the date of the adoption of this Order, and were previously enrolled in either the old WDRs (Order No. R1 2003-0118) or the GWDRs (Order No. R1-2004-0030) shall be automatically grandfathered into these watershed-wide WDRs. No new application fee will be required.
3. Except for the THPs set out in Provision V(F)(1) above, previously enrolled THPs that have already been fully cut, yarded and hauled, and were covered by a previous WDR or waiver, and have only planting, maintenance requirements, or Monitoring activities remaining on the THP, do not have to be enrolled in these watershed-wide WDRs.

SECTION VI: GENERAL PROVISIONS

The following general Terms and Provisions apply to all THPs covered under these watershed-wide WDRs.

A. CEQA Compliance

All THPs covered under these watershed-wide WDRs shall be in compliance with CEQA prior to the Executive Officer issuing, authorizing, or otherwise approving coverage.

B. Inspection and Entry

Subject to the requirements of Water Code Section 13267(c), the Discharger shall allow the Regional Water Board staff entry onto the affected property, with reasonable notice, for the purposes of observing, inspecting, photographing, video taping, measuring, and/or collecting samples or other Monitoring information to document compliance or non-compliance with this Order.

C. Proposed Pesticide Applications

1. For those THPs where application of pesticides is proposed or being considered, the Discharger shall notify the Regional Water Board in writing at least 45 days prior to any proposed aerial application of pesticides and 30 days prior to any proposed ground-base application of pesticides.
2. For aerial application of pesticides, the Discharger shall submit a Report of Waste Discharge containing, at a minimum, the items listed under the *Action*

Plan for Control of Discharges of Herbicide Wastes From Silvicultural Applications on pages 4-32.00 and 4-33.00, (a) through (e), of the Basin Plan. Waste discharge requirements will be prepared for the operation in conformance with the Basin Plan prohibitions and presented to the Regional Water Board for consideration.

3. The notification for ground-based application of pesticides shall include the type of pesticide(s), volume to be applied, method and area location of application (including Timber Harvesting Plan number, if associated with a THP), projected date of application, and measures that will be employed to ensure compliance with applicable Water Quality Requirements. Subsequent changes to the proposed application must be submitted in writing forthwith, and in no event less than 14 days prior to the pesticide application, unless Regional Water Board staff agrees in writing to a lesser notice. This Order does not authorize the application or the discharge of pesticides.
- D. **Civil Liability**
As provided by Water Code Section 13350(a), any person may be subject to civil liability if that person in violation of waste discharge requirements, discharges Waste, or causes Waste to be deposited where it is discharged, into waters of the state.
- E. **Burden on Discharger**
The burden is on the Discharger to demonstrate that the THP Activities proposed for enrollment will comply with the Terms and Provisions of these watershed-wide WDRs.
- F. **Need to Halt or Reduce Activity Not a Defense**
It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the Terms and Provisions of these watershed-wide WDRs.
- G. **Proper Operation and Maintenance**
The Discharger shall at all times properly operate and maintain all facilities and systems which are installed or used by the Discharger to achieve compliance with the Terms and Provisions of these watershed-wide WDRs and with the provisions of required technical reports. Proper operation and maintenance includes, but is not limited to, adequate laboratory controls and appropriate quality assurance procedures.
- H. **No Right to Discharge**
As provided by Water Code § 13263(g), these watershed-wide WDRs do not create a vested right to continue discharge, nor do they convey any property rights of any sort or any exclusive privileges, nor do they authorize any injury to private property or any invasion of personal rights, nor do they authorize any infringement of Federal, State, or local laws or regulations.

- I. **Duty to Provide Information**
Upon written request by the Executive Officer, the Discharger shall furnish the Regional Water Board, within a reasonable time, access to and copies of any requested information to determine compliance with these watershed-wide WDRs, including, but not limited to, records that must be kept under the Terms and Provisions of this Order.
- J. **Severability**
The Terms and Provisions of this Order are severable; and, if any term or provision of these watershed-wide WDRs or the application of any term or provision of these watershed-wide WDRs to any circumstance is held invalid, the application of such Terms and Provisions to other circumstances and the remainder of these watershed-wide WDRs shall not be affected thereby.
- K. **Reopener Clause**
These watershed-wide WDRs may be modified, revoked and reissued, or terminated for cause. Should data become available suggesting that the receiving water limitations set out herein, or other Terms and Provisions, are either too restrictive or not sufficiently restrictive to protect water quality, the Discharger, the Executive Officer, or any other affected member of the public, may request that the Regional Water Board consider appropriate amendments to these watershed-wide WDRs.
- L. **Availability**
The Discharger shall provide copies of these watershed-wide WDRs, required technical reports, and other applicable and associated documents to appropriate operating personnel, including, but not limited to, Registered Professional Foresters, Licensed Timber Operators and Monitoring staff. The Discharger shall maintain copies of these documents and reports and shall make them available for review by affected personnel at appropriate facilities.
- M. **Transfers**
Coverage under these watershed-wide WDRs is not transferable. A new owner of an enrolled THP must submit an application package, including filing fee, in accordance with the requirements of these watershed-wide WDRs to be authorized to discharge. An owner who sells property covered by these watershed-wide WDRs shall inform the new owner of the duty to file an application and shall provide the new owner with a copy of these watershed-wide WDRs. Failure to inform the new owner shall not release the buyer or the seller from any potential liability for failure to comply for coverage under these watershed-wide WDRs, or other provisions of the Porter-Cologne Water Quality Control Act.
- N. **Work Conducted by Licensed Professionals**
The practice of geology is identified and regulated under Chapter 12.5 (Geologists and Geophysicists Act) of the Business and Professions (B&P) Code, including

Rules and Regulations (CCR Title 16, Division 29) and any related sections of the B&P Code, Government Code, Penal Code, and/or Evidence Code. The practice of engineering in California is identified and regulated under Chapter 7 (Professional Engineers Act) of the B&P Code, including rules and regulations (CCR Title 16, Division 5) and any related sections of the B&P Code, Government Code, Penal Code, and/or Evidence Code. The Discharger shall fully comply with all aspects of existing statutes and regulations regarding the practice of geology and/or engineering while satisfying the Terms and Provisions of this Order.

O. Signatory Requirements

1. All applications, Notices of Termination, required technical reports, inspection reports, certifications, and other reports prepared in accordance with the Terms and Provisions of this Order submitted to the Regional Water Board shall be signed by the Discharger or the Discharger's duly authorized representative(s). All persons signing a document under this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete."

2. Duly authorized representatives include Registered Professional Foresters, Licensed Timber Operators, and other licensed professionals hired by the Discharger and responsible for some portion of the conduct of the THP and/or Monitoring activities. Irrespective of who signs any required documents, the timberland owner is ultimately responsible for compliance with all requirements of these watershed-wide WDRs.

P. Failure to Obtain Coverage

Dischargers who fail to obtain coverage for a THP under this Order or another applicable order will be subject to enforcement under Water Code § 13265 and other applicable laws.

Q. Regional Water Board Authority Not Limited

Compliance with the Terms and Provisions of these watershed-wide WDRs shall not prevent the Regional Water Board or the Executive Officer from taking enforcement action under its authority as appropriate for violations of applicable laws outside the scope of these watershed-wide WDRs.

R. Applicability to National Pollutant Discharge Elimination System Permits

This Order does not apply to discharges requiring a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act, including, but not limited to, silvicultural point sources as defined in 40 Code of Federal Register (CFR) 122.27.

SECTION VII: APPLICATION PROCEDURES

- A. To seek coverage for a THP under these watershed-wide WDRs, the Discharger shall submit an application and filing fee to the Executive Officer. The application shall consist of:
1. A letter requesting coverage under these watershed-wide WDRs, using a Report of Waste Discharge Form 200 or equivalent document that meets the requirements of Section VII(C)(1) below;
 2. The approved THP document when directed by the Executive Officer;⁹
 3. Required technical reports, which, if included by the Discharger in the approved THP document, shall be presented in clearly delineated sections as detailed in Section VII(C) below;
 4. A statement certifying that, while the THP is covered under these watershed-wide WDRs, the Discharger is and will remain in compliance with the Terms and Provisions of this Order; and
 5. The appropriate filing fee.
 6. All elements of an application shall comply with the signatory requirements contained in Section VI(O), above.
- B. Coverage under these watershed-wide WDRs shall not take effect until: (1) the Discharger's application is determined to be complete; and (2) the Discharger has received written notification from the Executive Officer stating that coverage under these watershed-wide WDRs is appropriate. It is anticipated that THPs which have had thorough Regional Water Board staff involvement in the review and approval process, and which have no unresolved water quality or procedural issues, will receive written notification of coverage within twenty (20) working days of receipt of a complete application.
- C. The Discharger shall incorporate the following technical reports into the THP document as clearly delineated sections or submit them with its application when seeking coverage under these watershed-wide WDRs:
1. **Watershed-wide WDRs Application Letter**
The application letter, in addition to asking for coverage under this Order, shall include the THP number, location of the THP by watershed, intended harvest acreages by silviculture, calculated clear cut equivalent acres, and acreages in high and low hazard areas consistent with the requirements in Section V(A)(1). The letter must be signed by the Discharger's representative.

⁹ Generally, the Regional Water Board receives approved or accepted THP documents from the lead agency, the CDF. These documents are part of the record for each THP covered by these watershed-wide WDRs. Provided the approved or accepted THP documents are received from the lead agency, the Discharger will not be required to submit a copy to the Regional Water Board when applying for coverage under these watershed-wide WDRs, unless directed by the Executive Officer.

2. Erosion Control Plan

a) Overview

The Discharger shall develop and implement an Erosion Control Plan (ECP) for each THP covered under these watershed-wide WDRs. The ECP shall be developed for the entire THP area, including roads used for THP Activities owned by or under the control of the Discharger. The ECP shall be designed to prevent and minimize the discharge or threatened discharge of sediment or other earthen material from Controllable Sediment Discharge Sources into waters of the State to the degree necessary to avoid a violation of applicable Water Quality Requirements or other Terms and Provisions of this Order.

The ECP shall be developed by a qualified professional, included in the approved THP or submitted with the application when seeking coverage under these watershed-wide WDRs, and shall incorporate Regional Water Board staff recommendations generated as part of the THP review and approval process that were designed to prevent and minimize discharge of sediment.

Controllable Sediment Discharge Sources may include, but are not limited to, failing or failed watercourse crossings, road failures, road surfaces, landslides, unstable features discharging to or near watercourses, unstable watercourse banks, soil stockpiles, instream and floodplain sediment deposits, vehicle and equipment storage and service areas, skid trails, landings, harvested areas, or any other location discharging sediment or earthen materials. The ECP shall be amended and revised, when necessary, to meet this standard.

b) Inventory of Controllable Sediment Discharge Sources

As part of the ECP, the Discharger shall prepare an inventory of Controllable Sediment Discharge Sources to identify all existing or threatened discharge sites within the THP area and develop a time schedule for implementation of prescribed management measures (i.e., cleanup efforts and corrective work). Any method or model used to develop the inventory shall be briefly described and shall be of demonstrated effectiveness and applicability for the inventoried area to attain compliance with applicable Water Quality Requirements. The Discharger shall conduct thorough site evaluations to fully assess on-the-ground conditions and to facilitate the detection of Controllable Sediment Discharge Sources during inventory preparation. Sites already satisfactorily covered by formal, existing agreements with the Regional Water Board designed to prevent and minimize discharges do not need to be addressed in the ECP, but should be briefly described in the inventory. The inventory shall include:

i) A brief description of the inventory method(s) and/or model(s) used,

- ii) A topographic map, at a scale of 1:12,000 or higher (e.g. 1:6,000) with no more than 80-foot contours, showing the THP area and the location of all inventoried Controllable Sediment Discharge Sources, and
 - iii) An estimate of the total sediment volume and an estimate of the relative potential for sediment delivery to a watercourse at each inventoried site.
 - c) Treatment and Implementation Schedule
As part of the ECP, the Discharger shall prescribe management measures and develop an implementation schedule for cleanup efforts and corrective work to be conducted on Controllable Sediment Discharge Sources listed in the inventory. Prescribed management measures shall be of demonstrated effectiveness and applicability for the inventoried sites to attain compliance with applicable Water Quality Requirements. The implementation schedule must provide for the completion of work on all inventoried sites prior to the termination of coverage for the THP under these watershed-wide WDRs. The implementation schedule must also provide for the timely application of prescribed measures on inventoried sites based on assigned priority. The treatment and implementation schedule shall include:
 - i) A narrative description of the site-specific management measure(s) prescribed for each Controllable Sediment Discharge Source in the inventory, and
 - ii) A time schedule for implementing the prescribed management measures for each Controllable Sediment Discharge Source in the inventory on a priority basis. The priority for treatment shall be based, in general, on the threat to water quality, and in particular, on the total sediment volume and the relative potential for sediment delivery at each inventoried site. The highest priorities will be assigned to sites that pose the largest threat to water quality.
 - d) ECP Inspection Plan
 - i) Overview
The Discharger shall develop and implement an ECP inspection plan to ensure that all prescribed management measures have been implemented and are functioning as designed at each Controllable Sediment Discharge Source site identified in the ECP and that no new Controllable Sediment Discharge Source sites were created during the previous year. Inspections shall occur at least once before, once during, and once after each winter period during which the THP is covered under these watershed-wide WDRs. Inspections shall include an evaluation of the adequacy and proper implementation of the corrective action undertaken at the site. Inspections shall also include a determination if additional

management measures are required to comply with the Terms and Provisions of this Order.

ii) Required Inspections

For each Controllable Sediment Discharge Source corrected under the ECP, the ECP inspection plan shall require at least three inspections to occur annually:

- Prior to October 15th of each year, an inspection shall be conducted to assess and document the adequate implementation of the prescribed management measures at the site and state of readiness for the winter period. If additional management measures are required at the site to comply with the Terms and Provisions of this Order, the Discharger shall implement such measures prior to November 15th and make appropriate revisions to the ECP. Any revisions to the ECP shall be submitted to the Regional Water Board within 14 days following implementation of the additional measures.
- Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1 of each year, as worker safety and access allows, an inspection shall be conducted to assure and assess management measure performance and to determine if new Controllable Sediment Discharge Sources have developed. If a discharge is identified, corrective action according to Section V(D) of this Order shall be conducted.
- After April 1st, but before June 30, an inspection shall be conducted to assess and document the effectiveness of the prescribed management measures at the site. If additional management measures are required at the site to comply with the Terms and Provisions of this Order, the Discharger shall implement such measures prior to October 15th, and shall make appropriate revisions to the ECP. Any revisions to the ECP shall be submitted to the Regional Water Board within 14 days following implementation of the additional measures.

iii) Required Reports

The Discharger shall submit an annual summary report on ECP implementation to the Executive Officer by June 30th for each year the THP is covered under these watershed-wide WDRs, and upon termination of coverage. Each summary report shall include, at a minimum, the date of each inspection, the inspector's name, the location of each inspection, the effectiveness of management measures employed, whether and what additional management measures were required to comply with the Terms and Provisions of this Order, and the title and name of the person submitting the summary report.

Any additional Controllable Sediment Discharge Sources identified during any of the annual ECP inspections shall be documented in the appropriate annual summary inspection report. The additional site(s) shall be amended into the ECP inventory prior to the next operating season.

SECTION VIII: TERMINATION OF COVERAGE

- A. The Discharger may terminate coverage for a THP under these watershed-wide WDRs by submitting to the Regional Water Board a Notice of Termination form (NOT). The NOT shall be signed in accordance with Section VI(O) of this Order. A THP is considered complete and eligible for termination when all of the following conditions have been met:
1. THP Activities are completed;
 2. The THP site is stabilized (i.e., there is no potential for discharges of Waste from the THP in violation of the Terms and Provisions of these watershed-wide WDRs);
 3. All elements of required technical reports have been completed; and
 4. All earthen materials and other Wastes have been disposed of properly.
- B. The Executive Officer shall review the NOT and determine its appropriateness by assessing Items VIII(A)(1)-(4) above. The review may include a field inspection to verify NOT completeness. The Executive Officer shall notify the Discharger in writing regarding approval or disapproval of the NOT within six (6) months after receiving the NOT.

SECTION IX: RESCISION AND DENIAL OF COVERAGE

- A. The Executive Officer shall rescind or deny coverage for a THP under these watershed-wide WDRs if the Executive Officer makes any of the following determinations:
1. The THP does not comply with all Terms and Provisions of these watershed-wide WDRs, including, but not limited to, the receiving water limitations;
 2. The THP is reasonably likely to result in or has resulted in a violation or exceedence of any applicable Water Quality Requirement;
 3. The THP has varied in whole or in any part from the approved THP in any way that could adversely affect water quality;
 4. When requested by another State agency, a subdivision of the State (county) or a Federal agency, and with concurrence by the Executive Officer;
 5. The THP is the subject of an unresolved water quality or procedural issue including, but not limited to, a non-concurrence filed by the Regional Water Board staff with CDF;
 6. The THP meets the Terms and Provisions of these watershed-wide WDRs, but may still result in a discharge of Waste that could adversely affect water quality; or

7. There are substantive errors or inaccuracies found in information submitted as part of the THP and enrollment application package that, if known at the time of application, would have resulted in a denial or limitation of coverage under these watershed-wide WDRs.
- B. Upon receipt of a written notice of rescission or denial of coverage for a THP under these watershed-wide WDRs, the applicability of this Order to the covered THP is immediately terminated. Upon termination, Discharger shall immediately cease all THP Activities that may result in un-permitted discharges of Waste to waters of the State, other than activities necessary to control further discharges.

SECTION X: DEFINITIONS

Terms defined below are capitalized in this Order for ease of recognition. All other terms shall have the same definitions as prescribed by the California Forest Practice Rules as of January 1, 2006, and the Porter-Cologne Water Quality Control Act, as the latter may be amended from time to time.

- A. "Erosion Control Plan" or "ECP" means a plan designed and implemented to prevent and minimize the discharge of sediment to waters of the state in violation of applicable Water Quality Requirements or other conditions of this Order. The Erosion Control Plan is developed by a qualified professional, and includes but is not limited to, a map clearly showing the location(s) of the site(s) that could discharge sediment, site specific designs and/or management measures to prevent and minimize the discharge of sediment, and a time schedule for implementation of site specific designs and/or management measures.
- B. "Controllable Sediment Discharge Sources" refers to sites or locations that meet all the following conditions:
1. Is discharging or has the potential to discharge sediment to waters of the State in violation of applicable Water Quality Requirements or other Terms and Provisions of these watershed-wide WDRs;
 2. Was caused or may be affected by human activity; and
 3. May feasibly and reasonably respond to management measures (i.e., cleanup efforts and corrective work).
- C. "Monitoring" refers to all types of monitoring undertaken in connection with determining water quality conditions and factors that may affect water quality conditions. This includes, but is not limited to, assessment monitoring, trends monitoring, water quality compliance monitoring, forensic monitoring, hillslope and instream effectiveness monitoring, and implementation monitoring.
- D. "Petroleum" means crude oil or any fraction that is liquid at a temperature of 60 degrees Fahrenheit at normal atmospheric pressure. This includes petroleum based substances comprised of a complex blend of hydrocarbons, such as

gasoline, diesel, jet fuels, residual fuel oils, lubricants, some petroleum solvents, and used oils.

- E. "Terms and Provisions" refers to waste discharge prohibitions, receiving water limitations, specific and general provisions, application and termination procedures, and grounds for rescission and denial of coverage, and all other conditions and requirements set out in this Order and the Monitoring and Reporting Program.
- F. "Timber Harvesting Plan Activities" or "THP Activities" means the cutting or removal of both timber or other solid wood forest products from timberland for commercial purposes, together with all the work incidental thereto, including but not limited to, construction, reconstruction, use and maintenance of roads, fuel breaks, firebreaks, watercourse crossings, landings, skid trails, beds for the falling of trees, fire hazard abatement, and site preparation.
- G. "Waste" includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal. Wastes specifically regulated under this Order include: earthen materials including soil, silt, sand, clay, rock; organic materials such as slash, sawdust, or bark that enter or threaten to enter into waters of the State; heat; Petroleum products; and nutrients. Not all wastes are covered by these watershed-wide WDRs. Examples of wastes not specifically regulated under these watershed-wide WDRs include: pesticides, hazardous materials, or human wastes.
- H. "Water Quality Requirements" means all applicable water quality objectives (narrative or numeric), prohibitions, TMDL implementation plans, policies, or other requirements contained in water quality control plans adopted by the Regional Water Board and approved by the State Water Resources Control Board, and all other applicable plans and policies adopted by the Regional Water Board or the State Water Resources Control Board, including, but not limited to, the State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California.
- I. "Clearcut Equivalent Acres" shall be calculated as follows: Various harvest types are converted to clear cut equivalent acres (CCE) through the use of canopy removal factors for each harvest type. The appropriate factors shall be multiplied by the acreage corresponding to the proposed silviculture. The factors are 1.0 for clear cut, right-of-way, rehabilitation, or other comparable prescription; 0.75 for shelterwood removal, shelterwood step, seed tree removal, seed tree step, salvage, or other comparable prescription; and 0.5 for selection, commercial thin, thin, and HCP3 or other comparable prescription. Harvest areas employing the variable retention silvicultural prescription shall be calculated as a combination of clearcut and selection, with the retention areas being calculated as selection.

- J. "THP," for purposes of these watershed-wide WDRs, means a Timber Harvesting Plan approved by CDF, and in compliance with CEQA.

CERTIFICATION

I, Catherine Kuhlman, Executive Officer
do hereby certify that the foregoing is a full,
true, and correct copy of an Order adopted by
the California Regional Water Quality Control Board,
North Coast Region, on May 8, 2006

Catherine Kuhlman
Executive Officer

California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2008-0100

MINOR AMENDMENT TO:

Watershed-wide Waste Discharge Requirements (WDR)
Order No. R1-2006-0039 and Order No. R1-2006-0041, and accompanying
Monitoring and Reporting Program (MRP) Order No. R1-2006-0039, MRP Order No.
R1-2006-0041, and MRP Order No. RB1-2008-0071;
Cleanup and Abatement Order No's: 98-100, R1-2004-0028,
R1-2006-0046 and R1-2006-0055;
Land Disposal Sites WDR Order No. 97-5 and Order No. R1-2001-0061, and
accompanying MRP Order No. 97-5 and MRP Order No. R1-2001-0061

FOR CHANGE OF OWNERSHIP TO
Humboldt Redwood Company, LLC

And

MINOR AMENDMENT TO:

NPDES permit No. CA0006017 (WDR Order No. R1-2006-0020) and
accompanying Cease and Desist Order No. R1-2006-0073

FOR CHANGE OF OWNERSHIP TO
Town of Scotia Company, LLC
Scotia, California

Humboldt County

The California Regional Water Quality Control Board, North Coast Region (hereinafter
Regional Water Board) finds that:

1. On January 18, 2007, the Scotia Pacific Company, Salmon Creek Corporation and Pacific Lumber Company (collectively referred to as Palco) filed for Chapter 11 bankruptcy in Corpus Christi, Texas. On July 8, 2008, the bankruptcy court issued its Judgment and Order confirming a reorganization plan proposed by Marathon Bank Structured Finance Fund L.P. (Marathon) and Mendocino Redwood Company, LLC (MRC). Among other components, this plan consolidates the Scotia sawmill and approximately 210,000 acres of commercial timberlands operations in Humboldt County to be managed by a new company, Humboldt Redwood Company, LLC, consistent with the sustainable forestry practices demonstrated by MRC in Mendocino County.
2. The MRC/Marathon Plan was endorsed by a majority of interested parties, including the Governor of the State of California, state and federal resource agencies and the Regional Water Board. The Governor and California State Agencies found that the MRC/Marathon Plan best met the five principles previously articulated to the bankruptcy court. The plan keeps working

timberlands under one owner that has a favorable track record with the state and federal regulators, and contains concrete pledges to abide by all environmental laws, existing permits and agreements. In addition, the plan meets environmental obligations under the stewardship of a viable timber company that will keep the local mill operating on a long term basis and maintain most of the local timber-related jobs and pensions in the long-term, and has strong local support.

3. On July 30, 2008, MRC/Marathon took legal possession of the timberlands and mill, and renamed the new timber company Humboldt Redwood Company, LLC (HRC). HRC is the entity that will conduct timber operations and other activities previously regulated by permits issued to Palco. The Regional Water Board issued Watershed-wide Waste Discharge Requirements (WWDRs) Order No. R1-2006-0039 and R1-2006-0041 to Palco for its timber harvesting activities in the Elk River and Freshwater Creek watersheds, respectively. In addition, the Regional Water Board issued Monitoring and Reporting Programs R1-2006-0039, R1-2006-0041, and R1-2008-0071 in conjunction with WWDRs. To facilitate a smooth transition, and maintain compliance with mitigation and other requirements of these permits, an immediate name change to the WWDRs is required to reflect the change in ownership. This is a minor amendment that does not alter any substantive provisions of the permits and orders. No other change in the permits and orders is necessary at this time, but future substantive amendments may be considered based on discussions with HRC and/or as appropriate based on total daily maximum loads (TMDLs) developed for these watersheds, or other Regional Water Board action. The MRC/Marathon Plan and bankruptcy court confirmation order satisfies the requirement for a written agreement containing the specific date for transfer of permit responsibility, coverage, and liability between the previous and new permittees under the federal regulations for minor NPDES permit modifications. (See 40 C.F.R. § 122.63(d).)
4. The Executive Officer has the authority to process ownership changes for individual previously-enrolled projects under Order Nos. R1-2006-0039 and R1-2006-0041 (Watershed-wide WDRs Elk River and Freshwater Creek watersheds), Order No. R1-2004-0030 (*General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region*) and Order No. R1-2005-0011 (*General Waste Discharge Requirements and Water Quality Certification for Discharges Related to Sand and Gravel Mining, Excavation, and Processing Activities*) in accordance with the provisions of those orders. Similarly, the Executive Officer retains delegated authority to amend water quality certifications issued pursuant to section 401 of the Clean Water Act and waste discharge requirements as necessary for the following orders: WDID No.1B05006WNHU (summer stream-crossings on the Van Duzen River located at Root Creek, Cummings Creek, 10 Mile Creek, and Strong Station); WDID

No. 1B03040WNHU (summer stream-crossings on the Eel River located at Truck Stop Bar and Dyerville); WDID No. 1B05058WNHU (seasonal percolation pond at Scotia).

5. The Regional Board has issued the following cleanup and abatement orders (CAOs) for discharges into the waters of the state caused by Palco's timber harvest-related activities: CAO Nos. 98-100 (North Fork Elk River), R1-2004-0028 (South Fork Elk River and Mainstem Elk River Watersheds), R1-2006-0046 (Freshwater Creek Watershed) and R1-2006-0055 (North Fork Elk River Watershed). These orders require amendments to reflect the new ownership by HRC. No material changes to the substantive requirements of these CAOs are contemplated or authorized by this Order.
6. The following permits and orders regulating land disposal sites require name change amendments to reflect the new ownership of HRC: (WDR Order No. 97-5 and MRP 97-5 (Hely Creek Wood Waste Disposal Site), and WDR Order No. R1-2001-0061, MRP R1-2001-0061 (Tank Gulch Solid Waste Disposal Site¹).
7. The Regional Board has identified four sites at which significant environmental remediation is necessary: 121 Main Street in Scotia (Palco Ademars Scotia Chevron/Company Garage); Carlotta (511 Highway 36), Fortuna (1440 Newburg Road) and Scotia (125 Main Street). These sites are not subject to formal clean up orders; however, the Regional Water Board expects that staff will work with the new owners to ensure that the required cleanup activities continue.
8. Under the MRC/Marathon Plan, a new company, Town of Scotia Company, LLC, will own and operate the municipal wastewater treatment facility (WWTF) and a steam electric power plant (power plant) for the town of Scotia that is subject to the requirements of National Pollution Discharge Elimination System (NPDES) permit (Order No. R1-2006-0020). A minor amendment reflecting this change in ownership is required. Also, accompanying Cease and Desist Order No. R1-2006-00 order requires an amendment to reflect the new ownership by Town of Scotia Company, LLC. These amendments do not alter any substantive provisions of the permit and no other change in the permit is necessary at this time. The MRC/Marathon Plan and bankruptcy court confirmation order satisfies the requirement for a written agreement containing the specific date for transfer of permit responsibility, coverage, and liability between the previous and new permittees under the federal regulations for minor permit modifications. (See 40 C.F.R. § 122.63(d).).

¹ A Notice of Intent and annual fee must be submitted to the State Water Resources Control Board to extend coverage to the new owner under the General Industrial Stormwater NPDES permit for this site.

9. This Order is not intended to be an exhaustive list, and there may be additional obligations and/or permits and orders that require further changes in accordance with the new ownership and management and/or other Regional Water Board action. The Regional Water Board staff will work diligently with the new companies to ensure a smooth transition that minimizes disruptions to the community and furthers compliance with water quality protection.

THEREFORE IT IS HEREBY ORDERED that:

1. Order Nos. R1-2006-0039, R1-2006-0041, and Monitoring and Reporting Programs R1-2006-0039, R1-2006-0041 and R1-2008-0071 are amended to replace the named Dischargers Scotia Pacific Company, Salmon Creek Corporation and Pacific Lumber Company, with Humboldt Redwood Company, LLC.
2. Clean Up and Abatement Order Nos. 98-100, R1-2004-0028, R1-2006-0046, and R1-2006-0055 are amended to add Humboldt Redwood Company, LLC as a responsible party.
3. Order No. 97-5 and MRP 97-5 and Order No. R1-2001-0061 and MRP R1-2001-0061 are amended to replace the named Dischargers with Humboldt Redwood Company, LLC.
4. NPDES Order No. R1-2006-0020 and Cease and Desist Order No. R1-2006-0073 are amended to replace the named Dischargers with Town of Scotia Company, LLC.

The Executive Officer shall modify the permits and orders as necessary consistent with this Order and post the amended permits and orders on the Regional Water Board's website once the changes are completed.

CERTIFICATION

I, Catherine Kuhlman, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on September 11, 2008.

Catherine Kuhlman
Executive Officer

08_0100_WWDR_HumboldtRedwoods_namechange

EXHIBIT 9

WORKING DRAFT

Report of Waste Discharge

Elk River Watershed

Humboldt County, CA

April 9, 2015

Prepared by:
Humboldt Redwood Company, LLC
Scotia, California

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1.0 Introduction

This report comprises an Application/Report of Waste Discharge for sediment discharges from timber harvesting activity conducted by Humboldt Redwood Company, LLC, in the Elk River watershed which drains to Humboldt Bay in Humboldt County.

California Water Code section 13260 requires that persons discharging or proposing to discharge waste that could affect the quality of waters of the State shall file a Report of Waste Discharge (ROWD).

Humboldt Redwood Company (HRC) is currently operating under the Watershed-wide Waste Discharge Requirements established by California Regional Water Quality Control Board North Coast Region Order no. R1-2006-0039. These watershed-wide WDRs were established in 2006 at the request of the previous landowner, the Pacific Lumber Company (PALCO). These WDRs were subsequently amended by Order No. R1-2008-0100, to reflect the 2008 change in ownership from PALCO to HRC. HRC also currently operates in this watershed under two sediment-related Cleanup and Abatement Orders (CAOs) established by the NCRWQCB. Both Order R1- 2004-0028 (South Fork Elk River) and Order R1-2006-0055 (North Fork Elk River) were also inherited from the previous landowner.

The intention of this ROWD is to provide information necessary to replace the existing WDRs (inherited from PALCO) with new WDRs that reflect current management and watershed conditions. As has been discussed with the NCRWQCB, remaining necessary requirements for erosion control from the two CAOs are proposed for incorporation in the new WDRs, allowing for termination of the CAOs as separate Board orders and more efficient management of related monitoring and reporting. As such, this ROWD provides a comprehensive sediment management strategy for the purposes of control, prevention, trends and effectiveness monitoring, and associated reporting.

An assessment of watershed response to past and more recent management activities, along with updated watershed trends, is provided in the recently completed Elk River Watershed Analysis Re-visit (HRC 2014), which is provided as a companion report to this ROWD and referenced herein where applicable. This report includes a comprehensive sediment source budget covering the years 2001 through 2011, and provides detailed discussion of watershed trends relative to mass wasting and surface erosion, water temperature, canopy cover, large wood recruitment, in-stream sediment, substrate, and wood, and pool frequency and quality. Periodic watershed assessment synthesis is a requirement of the landowner's HCP and a cornerstone of its adaptive management process as findings can trigger changes in forestry prescriptions and/or monitoring goals, hypotheses, and design.

The NCRWQCB has indicated an interest in the drafting of new Watershed-Wide Waste Discharge Requirements in coordination with completion of its Upper Elk River TMDL. The strategies for sediment prevention and control presented in this ROWD are intended to address the Total Maximum Daily Load (TMDL) targets identified by the NCRWQCB, and provide the basis for an effective TMDL implementation plan.

1.1 Site Description

1.1.1 Site Location

Elk River is located in coastal northern California, draining into Humboldt Bay just south of the town of Eureka, within Humboldt County (Map 1). Elk River's legal description at the mouth to Humboldt Bay is T04N R01W S04 and is comprised of five (5) sub-basins delineated under CalWater V2.2 planning watersheds as Lower Elk River (1110.000402), Lower North Fork Elk River (1110.000201), Upper North Fork Elk River (1110.000202), Lower South Fork Elk River (1110.000302), and Upper South Fork Elk River (1110.000301)

1.1.2 Facility Defined

The Elk River Watershed encompasses approximately 33,700 acres (52.7 mi²). The watershed contains two major forks, the North and South forks. The watershed area for North Fork and South Fork are about 14,336 acres (22.4 mi²) and 13,120 acres (20.5 mi²), respectively, with the remaining 6,244 acres (9.7 mi²) draining directly into the Elk River mainstem below the North Fork-South Fork confluence. The "Facility" covered by this WDR application includes only those lands owned and managed by HRC and rights-of-ways over roads on lands owned by others, totaling approximately 22,200 acres. HRC lands account for approximately 66% of the watershed; 98% of the North Fork Elk basin, 50% of the South Fork basin, and a small section of the mainstem region near the confluence. Other ownerships within the watershed include the Headwaters Forest Reserve managed by Bureau of Land Management, Green Diamond Resource Company, City of Eureka, and mixed private residential and agricultural ownership.

HRC's forest lands are managed consistent with zoning for growing conifer and hardwood trees for the production of saw logs, chip logs, and other renewable forest products such as bio-fuel, split products, firewood, and burls. Eight hundred and two (802) acres of HRC's ownership in the watershed are managed primarily as a Marbled Murrelet habitat reserve pursuant HRC's multi-species Habitat Conservation Plan (HCP). HRC maintains an approximate 210 mile road network throughout the 'facility'; approximately six (6) road miles per square mile.

Detailed information regarding topography, hydrology, geology, vegetation, climate, and storm history can be found in Section 2.0 of the Elk River/Salmon Creek Watershed Analysis Report (HRC 2014). A shade relief map for the site and its surrounding area is provided (Map 2).

2.0 Site Use and Regulation

HRC land use within the watershed is consistent with timber production zoning (TPZ) and is predominantly devoted to timber production.

2.1 *Regulatory Agencies and Permitting Requirements*

Agencies with regulatory oversight of timber harvest and related activities in the watershed are as follows:

- California Department of Forestry and Fire Protection
- North Coast Regional Water Quality Control Board
- California Department of Fish and Wildlife (CDFW)
- California Geological Survey
- North Coast Air Quality Management District
- County Agriculture Commissioner
- U.S. Fish and Wildlife Service
- NOAA Fisheries

Agencies that own and manage land within the watershed include:

- California Department of Fish and Wildlife (Elk River State Wildlife Area)
- Federal lands co-managed by BLM and CDFW (Headwaters Forest Reserve)
- California Department of Transportation (Hwy 101)
- City of Eureka (City of Eureka Elk River Wildlife Area)

2.1.1 CEQA Requirements

Adoption of new watershed-wide waste discharge requirements by the NCRWQCB will require compliance with the California Environmental Quality Act (CEQA).

2.1.2 Timber Harvesting Permitting

The CEQA Lead Agency for timber harvesting operations is the California Department of Forestry and Fire Protection (CAL-FIRE). The Secretary of Resources has certified that regulation of timber harvesting operations by CAL-FIRE under the Z' Berg-Nejedly Forest Practice Act is exempt from CEQA requirements to prepare an Environmental Impact Report (EIR) or Negative Declaration. A Timber Harvesting Plan (THP) that is approved by CAL-FIRE is considered a functional Equivalent of an EIR under CEQA. Multi-agency interdisciplinary review teams are established by the CAL-FIRE Director to review plans and assist in the evaluation of proposed timber operations and their effects on the environment. In addition to CAL-FIRE, the following state agencies often participate in plan review: the North Coast Regional Water Quality Control Board, California Department of Fish and Wildlife, and the Department of Conservation Division of Mines and Geology.

As noted, NCRWQCB staff review Timber Harvest Plans as a formal 'Review Team' member, participate in pre-harvest inspections, and submit comments and recommendations to CAL-FIRE to address concerns over potential adverse effects to water quality and related beneficial uses. California Water Code (CWC) section 13260 and related sections also provide Regional Water Boards with additional jurisdiction over forestry activities that could affect the quality and beneficial uses of waters of the state.

2.1.3 Stream Alteration Permits

Any activity proposed by HRC that may significantly alter the streambed or bank of any stream must first be issued a permit by the California Department of Fish and Wildlife pursuant Fish and Game Code §1600 et seq. Such activities may include new or reconstructed stream crossings, stream restoration, or water drafting. HRC has obtained a Master Agreement for Timber Operation (MATO) throughout the ownership which provides for a programmatic permitting process for certain stream crossing activities based upon a commitment of adherence to established standards (MATO No. 1600-2009-0279-R1).

2.1.4 Habitat Conservation Plan

All of HRC ownership in the Elk River watershed is covered by a multi-species state and federal Habitat Conservation Plan approved in 1999. The state and federal Incidental Take Permits (ITP) issued for aquatic species including Chinook salmon, Coho salmon, steelhead trout, southern torrent salamander, tailed-frog, red-legged frog, foothill-yellow legged frog, and the northwestern pond turtle are most relevant to protection of the Beneficial Uses of Elk River. The management measures for water quality protection of the HCP were the subject of the federal Environmental Impact Statement and state Environmental Impact Report which led to the issuance of the ITPs in conformance with the state and federal Endangered Species Acts.

A 'cornerstone' program of the HCP is Watershed Analysis, in which HRC's approximate 209,000 acre ownership is divided into eight primary watersheds for focused inventory and investigation of conditions and processes related to mass wasting, surface erosion, riparian function, stream channel, and aquatic habitat. The first Watershed Analysis conducted for the Elk River/Salmon Creek (ERSC) Watershed Analysis Unit (WAU) involved several years of study culminating in a final report released in 2005. Forest management prescriptions (Appendix A) pertaining to slope stability and riparian forest protection were developed and formally established in consultation with multiple state and federal agencies including NMFS, USFWS, CDFW, and CGS, as a result of this process. NCRWQCB staff participated intermittently in the initial watershed analysis as well.

The 2014 *Elk River/Salmon Creek Watershed Analysis Re-Visit* report (HRC 2014) analyzes the effectiveness of these forestry prescriptions to date, along with watershed trends affecting aquatic habitat conditions and of vital importance to HCP covered species. A primary purpose of this report is to assess the effectiveness of the current ERSC forestry prescriptions in meeting the HCP Aquatic Conservation Plan goal 'to maintain or achieve, over time, a properly functioning aquatic habitat condition'. As such, this report is an important supporting document to this ROWD

relevant to understanding the affects of contemporary forestry practices on beneficial uses of waters of the state.

Another important element of the HCP is its Road Auditing and Inspection Program patterned after the U.S. Forest Service Best Management Practice Evaluation Program (BMPEP). This program evaluates the effectiveness of road treatment in minimizing sediment delivery to streams. The program has been in effect since 2006 and the most recent annual technical report was produced in 2012 (Sullivan, Simpson 2012).

2.2 *Beneficial Uses*

The Water Quality Control Plan for the North Coast Region (Basin Plan) lists the existing and potential Beneficial Uses of Water quality within the Elk River drainage:

- Municipal and Domestic Supply (MUN)
- Agricultural Supply (AGR)
- Industrial Service Supply (IND)
- Industrial Process Supply (PRO, potential)
- Groundwater Recharge (GWR)
- Freshwater Replenishment (FRSH)
- Navigation (NAV)
- Power Generation (POW, potential)
- Water Contact Recreation (REC-1)
- Non-Contact Water Recreation (REC-2)
- Commercial and Sport Fishing (COMM)
- Cold Freshwater Habitat (COLD)
- Wildlife Habitat (WILD)
- Rare, Threatened and Endangered Species (RARE)
- Migration of Aquatic Organisms (MIGR)
- Spawning, Reproduction and/or Early Development (SPWN)
- Estuarine Habitat (EST, applies only to estuarine portion of the waterbody)
- Aquaculture (AQUA, potential)

The extent to which these various beneficial uses actually apply to Elk River varies. Residents throughout the basin have historically used surface water for domestic and agricultural water supplies. HRC's ownership in the upper Elk River watershed contains approximately 34 miles of fish-bearing Class I stream habitat supporting Coho and Chinook salmon, and steelhead and cutthroat trout.

Citing logging-related effects on the drinking water beneficial use, the Regional Water Board ordered PALCO, the previous landowner, to restore domestic and agricultural water use or provide alternative water systems to effected residences along North Fork Elk River (Order No. 98-100). This CAO remains in effect. HRC currently provides drinking water service to twelve residents, while seeking final resolution and termination of the CAO.

The Elk River watershed was listed in 1998 as impaired under Section 303(d) of the federal Clean Water Act on the basis of excessive sedimentation/siltation. Potential Water quality problems cited under the listing include: sedimentation, threat of sedimentation, impaired irrigation water quality, impaired domestic supply water quality, impaired spawning habitat, increased rate and depth of flooding due to sediment, and property damage.

Once listed, the United States Environmental Protection Agency (EPA) requires states to establish a Total Maximum Daily Load (TMDL). The NCRWQCB has been working on the development of the TMDL and is currently in the draft stage.

The state implements TMDL limits through permits, waivers, and orders. HRC current conducts its forestry management activities, including timber harvest, pursuant to the following orders currently in effect for its ownership in the Elk River Watershed:

NCRWQCB Order No. R1-2006-0039 (Elk River Watershed-Wide Waste Discharge Requirements)

NCRWQCB Order No. R1-2008-0071 (Elk River and Freshwater Creek WDR-related Monitoring and Reporting Program Requirements)

NCRWQCB Order No. R1- 2004-0028 (South Fork Elk River Clean Up and Abatement Order)

NCRWQCB Order No. R1-2006-0055 (North Fork Elk River Clean Up and Abatement Order)

3.0 Land Use and Site History

Major land uses in the watershed are forestry, agricultural/residential, and power line right-of-way. Rural land use primarily includes pasturing and there are residential homes along the lower reaches of the mainstem and North Fork and South Fork branches. Forest management is the primary land use on HRC lands consistent with timber production zoning (TPZ).

Timbered areas in the watershed including HRC's ownership have been actively logged since the 1860's. Characterization of early harvest history is provided in reports produced by PWA (1998), Hart Crowser (2004), and HRC (2014). An extensive road system has been developed over the last one hundred plus years. Constructed to varying standards over time, much of the logging road system on HRC's ownership has been upgraded or decommissioned to HCP storm-proofed standards over the last fifteen years.

During much of the pre-Forest Practice Rules historical period, high impact activities were conducted with little to no regard for erosion control or conservation of riparian forest function. California Forest Practice Rules have guided forest management practices to minimize impacts of activities on water quality and sedimentation since 1974. Updates to these rules during the past 40 years have continually improved protections related to road construction, wet weather use, and maintenance practices and riparian management as scientific understanding of linkage to aquatic habitat conditions and processes has increased. The HRC (formerly PALCO) HCP has further strengthened conservation measures, guided specifically by studies of environmental conditions

found on HCP covered lands. Figure 3-1 provides photographs illustrating typical logging practices during various eras.

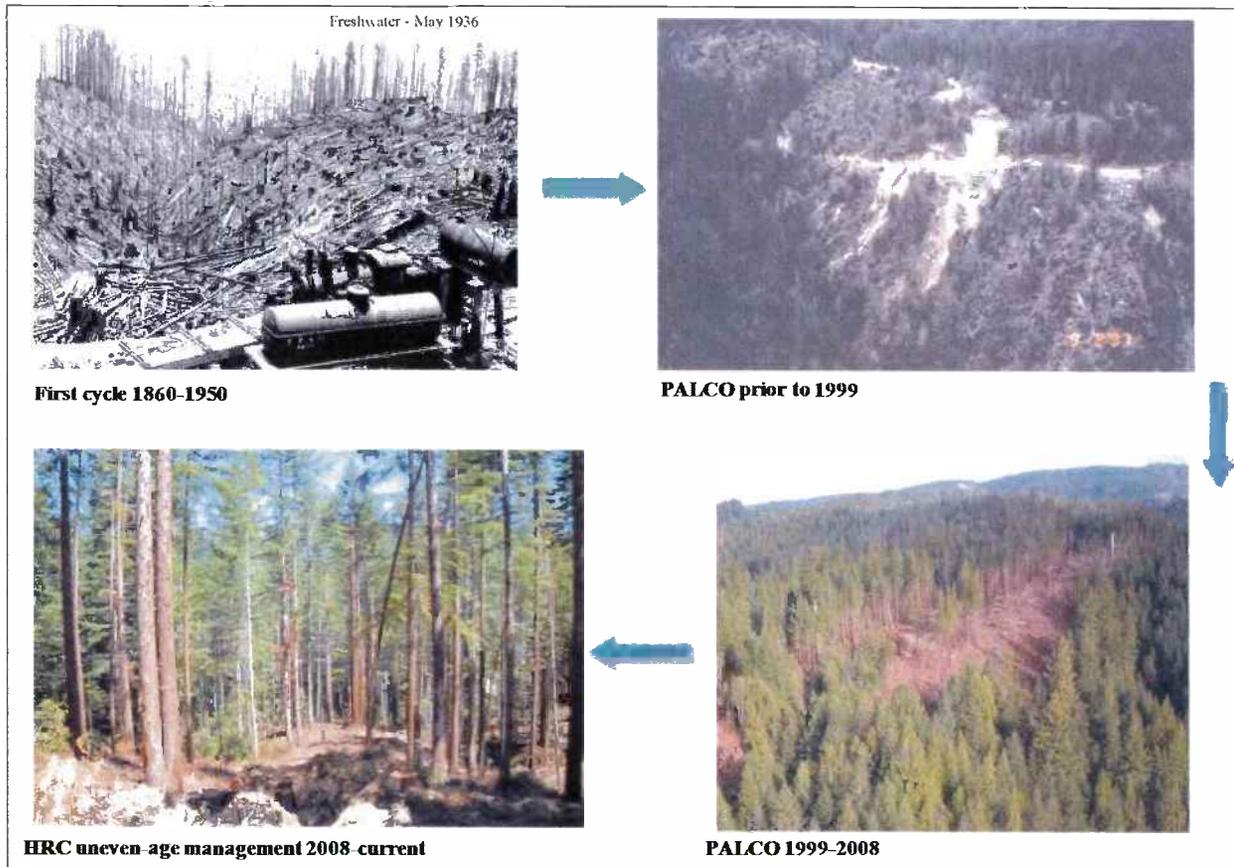


Figure 3-1. Photographs illustrating forest silvicultural practices history in Elk River and Freshwater Creek

3.1.1 Historic Land Use and Harvest History

Since the beginning of European settlement of the Humboldt Bay region in the 1850s, the condition and function of Elk River and its flood plain (including coastal marsh habitat) have been influenced by land use (farming, ranching, and timber), and urbanization and infrastructure encroachment (roads, bridges, and houses). Levees and dikes were constructed to create and maintain valley bottomlands suitable for farming and ranching, and roads and railroads built to access these enterprises, regions further to the south, and early timber operations. As a result, much of the pre-existing wetlands and coastal marsh habitat have been converted to drier farmlands.

Stabilization of the bay mouth by constructing jetties off of the north and south spits circa 1890 hardened the entrance of the bay and resulted in the eroding away of much of what is referred to as Buhne Point (now the community of King Salmon)(citation). Sediments eroded from Buhne Point subsequently deposited at the mouth of Elk River causing the channel to turn north and

lengthen prior to entering the bay. A recently completed longitudinal profile of Elk River found the river to reach sea level nearly four miles upstream of its entrance into Humboldt Bay, meaning a zero percent channel gradient exists along this final reach (citation).

Timber harvest began near the bottom of the watershed, downstream of what is now HRC's ownership, in the 1860's with animal-powered oxen log skidding, progressing upstream over time, using 'steam donkeys' and railroad logging into the 1920's. The first railroad tracks for timber access were laid in the 1880s and expanded over time into the 1930's; the construction of which required substantial hillslope alteration (excavation and fill) in order to establish low gradient railways on which log trains could run reasonably safely. Historic timber operations directly affected channel conditions and water quality in several ways including use of smaller channels as skid roads for log transport and the larger mainstem channels as the original means by which to transport logs to Humboldt Bay for milling (Figure 3-2).



Figure 3-2. Logs stacked in Elk River in 1892, waiting for a winter freshet to carry them downstream. Seth Buck Collection.

The Humboldt Times newspaper reported routine use of man-made dams throughout the 1870s to create early winter season floods by which loggers drove millions of board feet of old growth logs

down the river to the bay. *Falk's Claim*, authored by John Humboldt Gates (1983), describes the process:

At that time the only way to move logs was by oxen and mule teams, so the loggers felled only trees which were nearest the river, then cut them into shorter sections with hand saws which measured from 6 to 24 feet in length. The woodsmen usually left behind the lower 20 feet of the tree because these logs were too big to handle. All the work was done in the summer months, so that by fall the river bed was loaded with the sectioned trees. A dam was then constructed downriver of the waiting logs, and as the autumn rains descended, the water level rose until these logs floated freely. The next phase of the operation (and the one that made living downstream somewhat troublesome) was to blow the dam up with high explosives. This sent a flash flood of water and huge timbers cascading down the river. Many of the logs made it all the way down the valley and into the bay, where they were lashed together and towed to the D.R. Jones mill. Quite a few logs, however, ran aground or became tangled in snarls of debris. Jones then sent crews back up river to free the ones that were easily accessible. Those that were too deeply imbedded were not salvaged. As the rains continued to pour throughout the winter, more debris floated downstream and formed log jams around these embedded snags, which eventually blocked the river and sent it over the banks into the farmlands of the lower valley. This went on for several years before complaints from the farmers forced an end to the flash –flood method of log delivery. (P.14-15)

The first mill in the upper watershed was established along the South Fork Elk River in 1884. Early tractor and diesel powered high-lead cable logging was introduced to the watershed in the 1940's. Following a decrease in harvest activity in the 1970s through mid 1980s, harvest activity began to increase in the late 1980s and into the 1990s as second growth timber stands reached commercial age and redwood lumber prices soared. High-lead and skyline cable yarding methods, along with tractors were used to selectively harvest residual old-growth and larger second growth. Clearcut logging was also used to a lesser extent during this time period, primarily in the North Fork.

Management of the river and its lower floodplains was a common practice throughout much of the County's history and there are many anecdotal accounts by residents, ranchers, and County managers of the necessity for stream clearing for flood management purposes (PALCO 2005). In the 1970s and 1980s, reaches of the river were cleared of the abundance of large wood/log jams believed to be a limiting factor to fisheries by the California Department of Fish and Game. These log jams also contributed to channel roughness and reduced channel carrying capacity, and consequently contributed to flooding.

More recently, recognition that fish habitat benefits from fairly high loading of large wood resulted in an end to the practice of state sponsored stream cleaning. These benefits include sorting gravels, trapping sediment, creating pools, and providing for insect fall and cover. The subsequent listing of the Coho salmon (1997), Chinook salmon (1999), and steelhead (2000) as threatened

further affected the extent to which, and how, stream channel conditions and riparian vegetation is managed. The current mostly ‘hands-off’ approach to in-channel management has led to an increasing trend in woody debris loading, riparian vegetative growth, and consequently, increased channel roughness, downstream of HRC’s ownership where the stream gradient is <0.2% (HRC 2014).

3.1.2 Contemporary Land Use and Harvest History (1999-2012)

Timber harvest operations in Elk River changed significantly following implementation of the PALCO HCP in 1999, and again with the change of ownership from PALCO to HRC in August of 2008. From 2001 through July of 2008, PALCO used primarily even-age silviculture in harvesting mainly second growth redwood and Douglas fir. Clearcut unit size and environmental impacts were reduced by HCP conservation measures restricting harvest adjacent watercourses and on unstable areas. HCP wet weather road use limitations, new road construction standards, and requirements for “storm-proofing” and road system monitoring were implemented. After July 2008, with the transition in ownership from PALCO to HRC, timber harvesting was converted to primarily uneven-aged selection silviculture practices. HRC immediately ended the silvicultural application of traditional clearcutting, minimized the use of herbicides, and implemented an old growth tree retention policy.

Harvest rates in terms of acres logged annually over this period are presented in Figure 3-3.

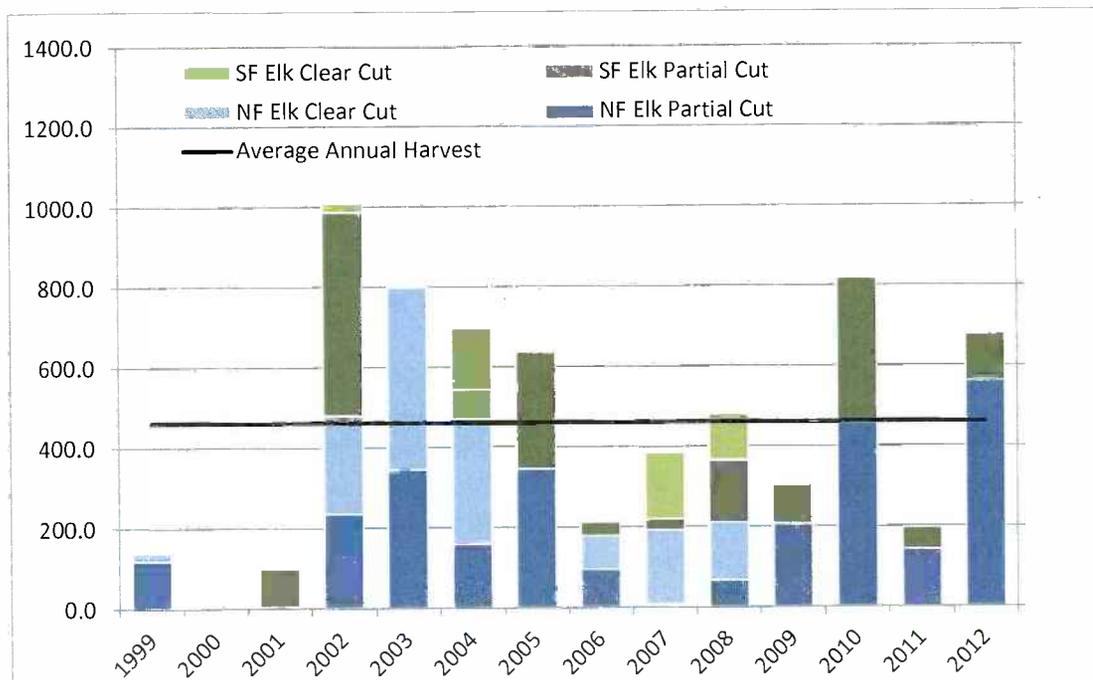


Figure 3-3. North and South Fork Elk River Harvest Rates; 1999-2012

The Elk River haul road system on HRC ownership was constructed over nearly a century long period using a variety of construction standards. A focused watershed-wide effort to control active and potential sediment delivery from the road system began in 1997, initiated with a comprehensive sediment source investigation and sediment reduction plan conducted by Pacific Watershed Associates (PWA 1998), and augmented with subsequent surveys. Implementation of road system upgrading and storm-proofing as part of HRC's HCP has resulted in the removal or prevention of delivery of an estimated 334,700 cubic yards of sediment to stream channels on HCP covered lands as of end of year 2014. Two hundred and six (206) miles of the approximate 260 mile road system has been *storm-proofed* to HCP standards including 50 miles of road decommissioning and closure (Map 3). Further discussion of road system use and management including scheduling for completing remaining storm-proofing is provided in Sections 5.0 and 6.0 of this ROWD.

4.0 Forest Management Plan

Sediment delivery from forestry activities typically originates from two primary sources – roads and harvest areas – with amount of delivery dependent upon specific management practices, road system conditions, geology and soil, proximity to watercourse, climatic events, and other environmental factors.

The **Management Plan** described herein, details silviculture and Best Management Practices (BMPs) designed to control hillslope erosion, prevent and minimize sediment delivery, and result in no significant increase in peak flows over and above those which occur naturally in response to extended or otherwise significant precipitation events.

In general these measures focus on minimizing disturbance of streamside banks and riparian areas, identification and avoidance of activities on unstable or otherwise potential landslide prone areas, and BMPs for road system management, use, and maintenance. In addition to implementation of prevention and minimization measures at the project level, cumulative effects of sediment delivery are further addressed by landscape planning that describe the extent and location of harvest (acres disturbed; effect on canopy cover) watershed-wide, over a planning horizon of 20 years, and importantly, through the remediation of pre-existing legacy conditions most commonly related to historic road and landing construction.

In addition to this ROWD, information regarding the effectiveness of these strategies can also be found in the companion Elk River Watershed Analysis Re-Visit Report (2014).

4.1 *Silviculture and Logging Methods*

Due to a combination of climate and nutrient rich soil conditions, Elk River is very productive in terms of forest cover and regeneration. Since August 2008, timber stands found on HRC's ownership in the watershed have been managed using **uneven-aged single-tree and small group selection silviculture**. Selection is anticipated to continue to be the primary harvesting silviculture method applied over the 20 year planning horizon.

Variable Retention may be used in some instances as an alternative silviculture to address certain stand conditions, such as high levels of whitewood or hardwood species, animal damage, or general poor form and vigor due to past logging history. Variable Retention may also be used to achieve specific biological objectives such as increased prey-production for the endangered Northern Spotted Owl.

Other silvicultural methods that may be applied infrequently include **Rehabilitation of Understocked Areas, Seed Tree Removal, and Sanitation Salvage**. Rehabilitation of Understocked Areas could potentially be applied in the upper North Fork drainage where tanoak is most common. In some unique instances, Seed Tree Removal may be applied to removed scattered pre-dominant trees provided a thrifty stand of trees exists surrounding these scattered older trees, however use of this silviculture is expect to seldom occur over the 20 year planning horizon. Sanitation-Salvage may be used to respond to unforeseen acts of nature (i.e. outbreak of disease, wide spread insect attack, wildfire, wind, flood, etc.) which could result in substantial loss of timber value without appropriate action.

HRC does not use even-age clearcut logging methods nor harvest large Old Growth trees.

Logging (yarding) methods will be selected based on suitability to terrain. High-lead and full suspension **cable yarding** will continue to be the most common yarding method used in the watershed, typically applied to slopes >35-40 percent. **Ground-based** tractor, rubber tired skidder, or shovel logging operations will be constrained to slopes \leq 40 percent with limited exception. Ground-based skid trails will continue to be minimized to the lowest number necessary to remove felled timber, and slashed packed per RPF instruction and/or specific THP requirement. Designated skid trails used within riparian management or equipment exclusion zones will be slash packed. Slash-packing of skid trails minimizes potential for surface erosion and sediment delivery following use prior to the re-vegetation. Figure 4-1 illustrates the practice of slash packing skid trails. **Need Photo**. Map 4 shows the location of slopes less than and greater than 40 percent, inferring where each yarding method will typically be used.

Helicopter yarding, if used at all, will be done so sparingly and only as necessary to access areas where topography and/or slope stability prevents conventional yarding access (e.g. no existing road access; new road construction not advisable) or where topography otherwise prevents use of more conventional yarding means (e.g. blind leads, poor deflection, etc.).

Minimal harvesting will occur within Class I and II **Riparian Management Zones (RMZs)**. No harvesting will occur within 50 feet of a Class I watercourse or within 30 feet of a Class II watercourse. No harvesting will occur on **unstable slopes** leading to watercourses, unless approved as a result of consultation with a professional geologist.

Timber harvest is guided by enforceable forestry prescriptions developed and monitored for effectiveness per HRC's Aquatic HCP Watershed Analysis program and all THPs must be reviewed and approved per California's Forest Practice Rules requirements.

4.2 *Landscape Planning*

The HRC landscape planning process integrates forest inventory (forest stand conditions), watershed condition (informed by watershed analysis), and fisheries and wildlife conservation objectives (established by the HCP, ESA, CESA, and landowner directive) with the planning and scheduling of long term sustainable timber harvest in order to achieve HRC's overall landscape objectives. These objectives include:

- Maintaining and restoring forest productivity
- Maintaining and restoring watershed function related to water quality and healthy aquatic habitats
- Protecting ecological structure on multiple scales
- Achieving conversion to uneven-age stand structures from the mostly even-age stand structure currently existing
- Where appropriate, returning hardwood-dominated stands to a historical conifer-dominated condition
- Sustainable, predictable, cost-effective timber production with increasing yield over time as inventory grows

Annual harvest allowance is determined by the landscape plan. Elk River is one of thirteen designated *Sustainability Units* (SU) on HRC's approximate 209,000 acre ownership. The Elk River SU is made up of *management blocks* within which timber harvesting is scheduled over a twenty year period, in five year increments. The decision as to which blocks are to be managed during any five year period is dependent upon stand conditions (i.e. stocking, age, species composition), erosion control priorities (e.g. sediment source inventory), and a desire to disperse harvest activities throughout the SU so that concentrated temporal impacts on wildlife and watershed resources is avoided. Management blocks are assigned designated harvest periods with the 20 year planning horizon such that harvest area is limited to no more than 25-30 percent of the overall SU within any five year time period, and typically much less. Within each management block, wildlife and fisheries conservation measures (e.g. critical habitat for Marbled Murrelet, Northern Spotted Owl and other species of concern; riparian forest management; slope stability) along with stand conditions and forestry objectives dictate actual harvest locations and prescriptions.

The landscape planning process facilitates predicting and communicating expected trends in harvest, growth, canopy cover, and standing inventory, and associated distribution and amount of forest wildlife habitat types across the landscape over time. This information is often forecast in designated five year planning periods.

Forest landscape planning incorporates a number of modeling tools and components, including a Geographic Information System (GIS), forest resource inventory data, forest growth and yield models, watershed-analysis based sensitivity constraints, and software that can be used to manage data and analyze various alternatives and choices. One specific such tool is the Forest and Stand Evaluation Environment (FORSEE) program, an inventory, growth, and yield model, used by HRC to

predict and analyze future forest conditions over time under specific management scenarios and environmental constraints.

Forest canopy, a particular forest parameter of interest relative to concerns over harvest effect on storm-triggered peak flows, is one of numerous forest characteristics FORSEE can model. FORSEE models watershed-wide and individual sub-basin canopy condition over time by internally growing and harvesting a 'tree list' (i.e., a list of the trees in each field inventory plot within a stand or strata together with their characteristics -species, dbh, height, live crown ratio, defect, and trees/acre represented by that tree based on the inventory sampling design). The initial characteristics of those trees are as *measured* in the field. The tree list is then modified over time as the trees are grown (dbh, height and live crown ratio increase at a modeled rate), die via harvest or natural mortality (trees/acre are reduced), and are regenerated via sprouting, seeding or planting (small trees are added to the tree list).

Tree crown canopy is estimated for each tree in the list using geometric crown shape models applied to the species, dbh, height and crown length of each tree; and then using the crown area per tree and the trees/acre represented by each tree, the crown canopy area/acre for all trees in a stand or strata is calculated. In our well-stocked redwood forests the crown canopy area can and typically does sum to a number larger than 1.0 (100%), representing the real-world situation of crowns from different trees - usually trees of different sizes overtopping one another, but sometimes of similar size with intermingled crowns - overlapping with one another, so that a point on the ground has crowns from multiple trees directly above it intercepting rainfall.

The Landscape Planning process has been used to model a 20 year sustainable, non-declining harvest scenario for the Elk River watershed. Map 5 shows management blocks along with timing and location for where harvest is currently planned to occur over the 20 year horizon. Figure 4-2 presents HRC's Elk River modeled sustainable harvest (Alt 21) in terms of acres and corresponding overlapping canopy cover at the end of each period assuming 100 percent selection/group selection harvest over the 20 year horizon. **Clearcut Equivalent Acres also shown assuming current regulatory assumption of 1.0 selective harvest acre = 0.5 CEA.** This represents the maximum acres HRC plans to harvest within each five year period over the 20 year horizon pursuant its landscape plan.

Figure 4-2

| HRC Elk River Ownership | <u>Period 1</u> | <u>Period 2</u> | <u>Period 3</u> | <u>Period 4</u> |
|---|-----------------|-----------------|-----------------|-----------------|
| Total Harvest Acres for 5 Year Period | 3,125 | 2,772 | 2,794 | 3,196 |
| Average Annual Harvest Acres | 625 (312.5) | 555 (277.5) | 560 (280) | 640 (320) |
| End of Period Watershed-Wide Overlapping Canopy Cover (%) | 1.33 | 1.32 | 1.31 | 1.32 |

(###) = CEA

Figure 4-3 breaks down shows the same plan at the individual sub-basin level for all sub-basins in which HRC has a substantial ownership.

Figure 4-3

HRC Alternative 21, Elk River Sustainability Unit

All general selection harvests cut to an average conifer basal area of 75 ft²/acre.

| SUBBASINS | Total | HRC | Proportion | Acres Harvested by 5-year Period | | | | |
|----------------|----------|----------|------------|----------------------------------|---------|---------|---------|---------|
| | Acres | Acres | HRC | 2010-14 | Per1 | Per2 | Per3 | Per4 |
| Bridge Creek | | | | | | | | |
| Elk | 1,420.9 | 1,419.8 | 0.999 | 98.2 | 65.4 | 49.1 | 274.0 | |
| Browns | 574.0 | 573.8 | 1.000 | 201.2 | | | | 267.0 |
| Clapp Gulch | 654.1 | 581.3 | 0.889 | | 20.8 | 168.5 | 17.2 | 226.2 |
| Dunlap | 423.8 | 411.4 | 0.971 | 201.2 | | | 10.7 | 147.5 |
| Lake Creek | 1,362.4 | 1,362.4 | 1.000 | 579.4 | | 81.5 | 113.1 | 463.1 |
| Lower NF | 1,578.7 | 1,309.8 | 0.830 | 141.0 | 63.4 | | 169.9 | 427.0 |
| Lower SF | 1,840.3 | 1,138.0 | 0.618 | 178.6 | 145.8 | 548.5 | | 198.1 |
| Mainstem Elk | 5,564.0 | 319.9 | 0.057 | | 241.7 | | | 56.9 |
| McCloud Creek | 1,521.0 | 209.6 | 0.138 | | 46.3 | 76.2 | | |
| McWhinney | 810.1 | 810.1 | 1.000 | 93.5 | | 125.2 | 56.8 | |
| North Branch | | | | | | | | |
| NF | 2,560.6 | 2,560.6 | 1.000 | 12.6 | 1,099.8 | 218.4 | 364.6 | |
| North Fork Elk | 2,795.1 | 2,795.1 | 1.000 | | 415.1 | 999.7 | 229.0 | |
| Railroad Gulch | 762.0 | 714.0 | 0.937 | | 133.6 | | 290.3 | |
| South Branch | | | | | | | | |
| NF | 1,224.9 | 1,224.9 | 1.000 | 120.1 | 238.1 | | 640.3 | 142.3 |
| South Fork Elk | 5,140.2 | 3,626.8 | 0.706 | 583.5 | 197.5 | 369.6 | 627.8 | 194.6 |
| Tom Gulch | 1,605.9 | 1,188.6 | 0.740 | 189.7 | 212.1 | 86.1 | | 715.6 |
| Upper NF | 1,644.2 | 1,644.2 | 1.000 | 248.5 | 245.2 | 48.8 | | 217.5 |
| | 31,482.6 | 21,890.3 | 0.695 | 2,647.5 | 3,124.7 | 2,771.6 | 2,793.6 | 3,195.9 |
| | | | | | | | | |
| | | | High | | | | | |
| | | | BA/CC | 478.8 | 458.4 | 396.3 | 395.4 | 550.0 |
| | | | General | | | | | |
| | | | Sel | 2,174.3 | 2,666.3 | 2,375.4 | 2,398.2 | 2,645.9 |

Figure 4-4 shows the average overlapping crown canopy percent for each 5 year period corresponding with the harvest acres presented in Figure 4-3.

Figure 4-4

HRC Alternative 21, Elk River Sustainability Unit

All general selection harvests cut to an average conifer basal area of 75 ft²/acre.

| Average Overlapping Crown Canopy Percent by 5-year Period | | | | | |
|---|------------|------------|------------|------------|------------|
| SUBBASINS | Begin Per1 | Begin Per2 | Begin Per3 | Begin Per4 | Begin Per5 |
| Bridge Creek | | | | | |
| Elk | 1.092 | 1.197 | 1.269 | 1.175 | 1.294 |
| Browns | 0.928 | 1.062 | 1.166 | 1.218 | 0.985 |
| Clapp Gulch | 1.359 | 1.444 | 1.298 | 1.378 | 1.128 |
| Dunlap | 0.904 | 1.042 | 1.140 | 1.168 | 1.049 |
| Lake Creek | 1.216 | 1.332 | 1.367 | 1.361 | 1.183 |
| Lower NF | 1.226 | 1.266 | 1.378 | 1.317 | 1.148 |
| Lower SF | 1.436 | 1.490 | 1.076 | 1.327 | 1.389 |
| Mainstem Elk | 1.407 | 1.056 | 1.286 | 1.437 | 1.378 |
| McCloud Creek | 1.227 | 1.233 | 0.987 | 1.224 | 1.394 |
| McWhinney | 1.160 | 1.289 | 1.238 | 1.284 | 1.403 |
| North Branch | | | | | |
| NF | 1.597 | 1.357 | 1.449 | 1.433 | 1.586 |
| North Fork Elk | 1.483 | 1.484 | 1.218 | 1.301 | 1.450 |
| Railroad Gulch | 1.304 | 1.306 | 1.420 | 1.116 | 1.263 |
| South Branch | | | | | |
| NF | 1.524 | 1.530 | 1.674 | 1.213 | 1.266 |
| South Fork Elk | 1.189 | 1.277 | 1.278 | 1.228 | 1.328 |
| Tom Gulch | 1.389 | 1.371 | 1.413 | 1.521 | 1.075 |
| Upper NF | 1.316 | 1.234 | 1.347 | 1.387 | 1.386 |
| Watershed- Wide | 1.322 | 1.330 | 1.322 | 1.309 | 1.320 |

4.3 Hydrologic Effect of Forest Management

Peak flow is the maximum discharge of stream flow (volume/rate) following a measureable precipitation causing a change in stream flow. Changes in instantaneous stream peak flows resulting from timber operations have been studied for more than 50 years in the Pacific Northwest (Cafferata and Reid, 2012). Significantly elevated peak flows can increase the frequency and magnitude of downstream overbank flooding, increase channel scouring, bank erosion, and sediment transport, and trigger changes in channel morphology.

Research conducted at Caspar Creek (Jackson State Demonstration Forest) investigated the effect of timber harvesting on peakflows in a north coast California watershed where like Elk River, hydrologic input is primarily rainfall (fall through spring), rain on snow events are rare, and where redwood and Douglas fir forest canopy play an important role in moderating hillslope infiltration.

Several key findings regarding the influence of logging on peak flows at Caspar Creek include:

- The largest percentage increases for peak flows after timber harvest are seen for small storms in the fall, when logged and unlogged watersheds are expected to show the greatest difference in soil moisture levels (Ziemer 1981, Ziemer 1998b, Lewis et al. 2001)
- In winter, when differences in soil moisture levels between logged and unlogged areas are minimal, peak flows increase after clearcutting due primarily to reduced interception loss after logging, and secondarily due to reduced winter transpiration (Reid and Lewis 2007, Reid 2012)
- Peak flow responses in clearcut sub-watersheds neared pre-treatment levels about 10 years after logging (Keppeler 2008)
- Increases in peak flow are related to antecedent wetness, proportion of basin logged (canopy removal), storm size, and time after logging (Lewis et al. 2001, Rice et al. 2001)

While storm driven channel scouring events (2 year and greater return interval) are a natural process, necessary in the development and maintenance of functional aquatic habitat, there is concern in the Elk River watershed that any significant increase in these peak flows resulting from timber harvest activities may contribute to suspended sediment loads, channel filling, and flooding downstream, adversely affecting landowners living on the flood plains adjacent Elk River, including domestic water supplies, property damage, and safe ingress and egress to these properties during flood events.

To minimize potential for significant logging related increases in both discharge and sediment yield, the California Department of Forestry and Fire Protection set an interim annual watershed-wide harvest rate of 600 clearcut equivalent acres (CEA) per year for the then PALCO ownership using a regression equation to predict peak flow changes. This equation was developed from data obtained in the North Fork of Caspar Creek (Munn 2002). Using this CEA approach, a clearcut acre is worth 1.0 acre, while selection harvesting with its lesser effect on evapotranspiration, is valued at every acre harvested equaling 0.5 CEAs.

In 2006 as part of current WWDRs, the NCRWQCB adopted a separate upper limit on harvesting in the North Fork Elk River watershed of 264 CEA in order to prevent peak flow increases of greater than 7 percent, as measured at the bottom of this basin, using Reid's Empirical Peak Flow reduction

model (cite). As significantly less of the South Fork Elk River watershed was owned and managed as industrial timberlands (by PALCO at the time), the NCRWQCB found that expected increase in peak flow from harvest activity would not exceed 5 percent, and therefore no peak flow related harvest limit was established for the South Fork and Elk River main-stem tributaries (NCRWQCB, 2006) (Confirm).

These limitations were established primarily in light of evidence from Caspar Creek studies indicating that extensive canopy removal across a watershed or sub-basin, over a short time period (≤ 5 -10 years), must occur to generate logging related adverse peak flow effects. This is why it is important to model HRC's 20 year landscape timber harvest forest management plan relative to current and future canopy cover conditions, both watershed-wide and at an individual sub-basin scale. The results of modeling the upper limit of the HRC 20 year harvest plan using FORESEE indicate substantial canopy cover, as can be found in the watershed today, will be maintained over this 20 year horizon (Figures 4-2 and 4-4).

Addressed within the FORESEE model is the potential for increase in peak flow resulting from young, relatively open stands (less than 15 year old) originating from even-aged management that occurred on the ownership prior to 2009. Figure 4-5 derived from current forest inventory and harvest history, shows the percentage of ownership occupied by regenerating stands of timber less than 15 years of age. As can be seen in this figure, the most recent peak in forest hydrologic immaturity occurred in 2005-06 and forest hydrologic immaturity has been steadily declining since as these stands age and increase in canopy height and closure, and clearcutting is ended on the ownership. Likewise, Figure 4-6 shows a forest with maturing age classes in the absence of clearcut silviculture. Development of forest canopy in these younger stands, as well as in-growth of canopy in more recently and future selectively harvested stands, combined with the sustainable yield landscape planned harvest acre projections (Figure 4-7), minimizes potential for significant peak flow increases based on our current understanding of forestry-related hydrologic effect.

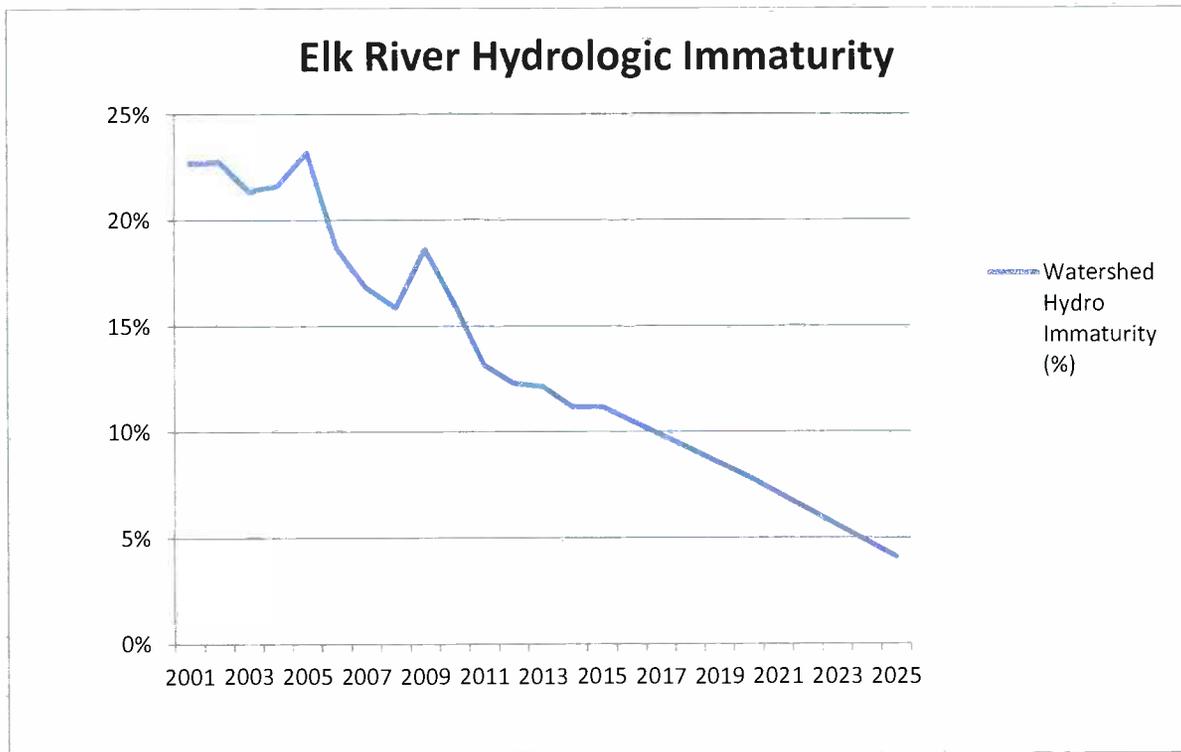


Fig 4-5

Fig 4-6

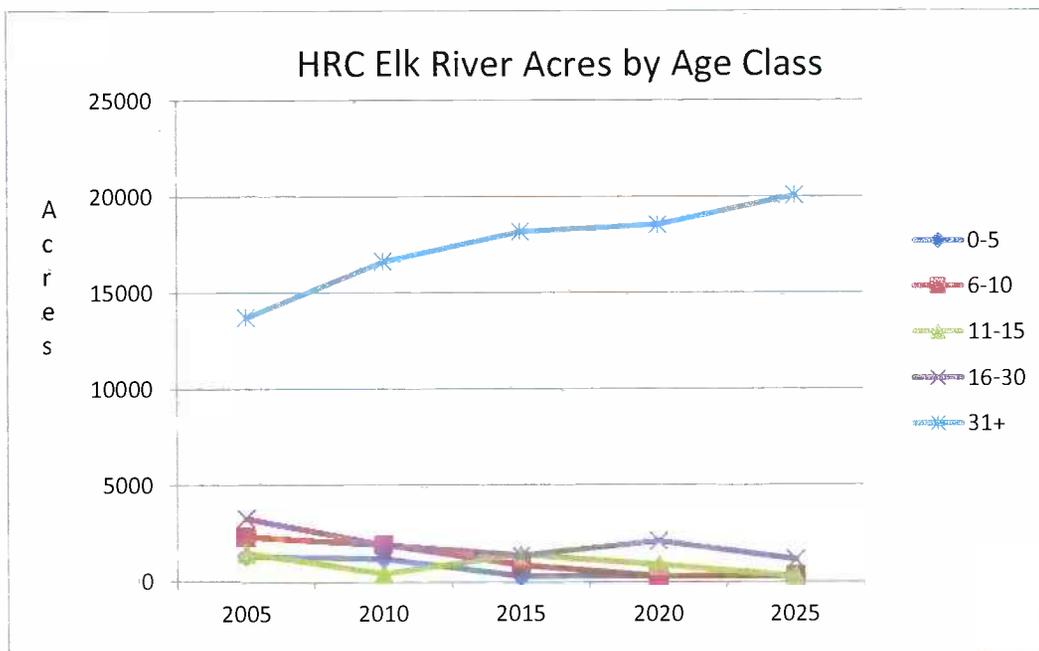
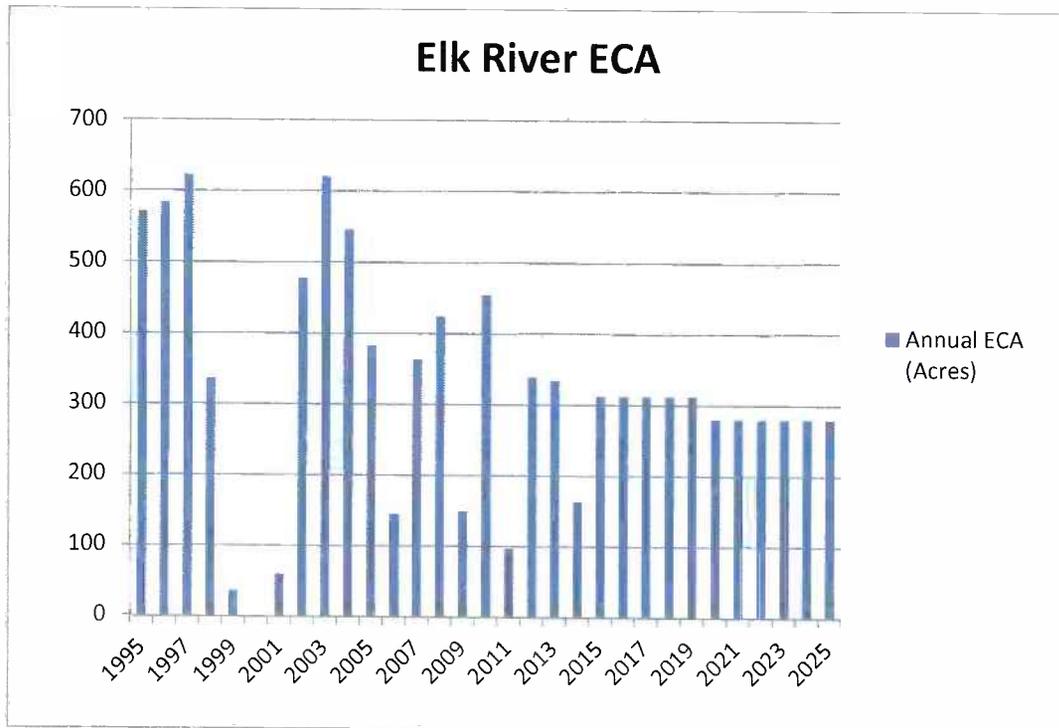


Fig 4-7



Peak Flow calculations based on Appendix A of Cafferata and Reid (2012) have also been used on several occasions to assess *individual* THP effects at the smaller, local sub-basin scale (THP 1-11-054HUM; THP 1-12-110HUM; and THP 1-14-039HUM). The purpose of these analyses was to assess potential for significant increases in peak flow in lower order stream channels relative to stream channel erosion processes.

In all cases evaluated, increases to peak flow during 2-yr Return Interval events have been less than 7 percent of what would otherwise occur with no project, when antecedent soil moisture is moderate to wet. In most cases the predicted increase from timber harvest ranged from <1 to <5 percent. This modeling takes in to account the cumulative effect of prior harvest (canopy removal) within the drainage area being analyzed. This overall minimal hydrologic effect on peak flow is a result of both landscape constraints on harvest since year 2000, recovery of hydrologic maturity occurring over time (figures 4-6 and 4-7) and the use of uneven-age selection silviculture since 2008 which conserves and promotes canopy cover, including overlapping cover.

An example of selective harvest and the in-growth of forest canopy conditions following harvest is illustrated in Figures 4-8, 4-9, and 4-10, which show canopy conditions pre and post harvest of an actual Elk River THP (THP 06-202; Unit 9). These ortho-photographs were taken prior to harvest, eight months post harvest, and again 2.8 years post harvest.

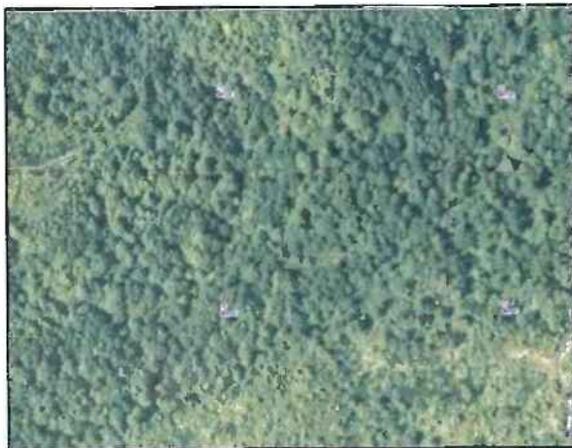


Figure 4-8 (left). Bridgehead THP Unit 9 2007 Ortho-photograph; Prior to 2009 harvest.

Figure 4-9. (lower left corner) Bridgehead THP Unit 9 2010 Ortho-photograph; 8 months post harvest

Figure 4-10. (below) Bridgehead THP Unit 9 2012 ortho-photograph; 2.8 years post harvest.



Also important in minimizing concentration of storm runoff and associated potential peak flow effect are the following THP measures:

- Appropriate logging methods minimizing ground disturbance and compaction
- Retention of all in- and near stream large woody debris
- HCP Riparian Management and Equipment Exclusion Zones conservation measures
- Hydrologic disconnection of road system (HCP road storm-proofing)

These measures are presented in greater detail in Section 5.0.

5.0 Sediment Delivery Prevention and Minimization

5.1 HCP Watershed Analysis Prescriptions (ERSC 2005)

All timber operations in the Elk River watershed are subject to the Elk River and Salmon Creek (ERSC 2005) Watershed Analysis Prescriptions. Current ERSC prescriptions relative to hillslope and riparian management are provided in Appendix A.

These enforceable forestry prescriptions were established as part of the HCP Watershed Analysis process (HCP 6.3.2) in collaboration with state and federal HCP signatory wildlife agencies including CDF&G, NOAA Fisheries, and USFWS. The prescriptions prevent or minimize sediment delivery to streams and maintain and restore riparian forests for the benefit of shade canopy and large woody debris recruitment through restrictions and/or specific requirements for timber harvest and road construction/re-construction activities in riparian areas, steep streamside slopes, and unstable areas.

Some key elements of the prescriptions include:

1. **50' no-harvest zones adjacent Class I and 30' no harvest adjacent to class II watercourses, with licensed geologic review and additional harvest restrictions applicable up to 400 feet slope distance from the watercourse, dependent upon watercourse classification and slope condition (e.g. >50% slope) [*sediment; temperature; LWD recruitment*];**
2. **Licensed geologic assessment required for proposed harvest on inner gorges, headwall swales, high hazard features or earthworks [*sediment, LWD recruitment*]; THP Geologic Review;**
3. **No timber harvest or road construction/re-construction on unstable areas (e.g. inner gorge, headwall swale, earthflow, debris slide slope) and/or slopes >60% without on-site licensed geologic assessment including due consideration of risk to downslope aquatic habitat [*sediment*];**

4. **Ground-based equipment exclusion zones (EEZ) and prohibition on removal of pre-existing large down wood adjacent to watercourses [*sediment, LWD recruitment*]:**
 - a. Class I watercourses – minimum 150 feet
 - b. Class II watercourses – minimum 75 feet
 - c. Class III watercourses – minimum 50 feet or hydrologic divide

5.2 Additional Measures to Minimize Surface Erosion in Riparian Areas

In addition to the enforceable Riparian Management Zone (RMZ) prescriptions detailed in Appendix B, *HCP section 6.3.3.8* describes specific environmental conditions relative to exposed soils in riparian areas that *require* application of effective erosion control measures and the timing within which application must occur.

5.3 Additional Measures to Minimize Streamside Landslide and Bank Erosion

As noted above, harvest limitations relative to minimizing streamside landslides and bank erosion include the establishment of no cut buffers along Class I and II watercourses and equipment exclusion zones (EEZs) for Class I, II, and III watercourses.

HRC's uneven-age selective harvest silvicultural policies minimize harvest disturbance adjacent Class III watercourses and HCP prescriptions prevent harvest of Class III channel trees and harvest on unstable slopes immediately adjacent the channel. As a result, moderate to high canopy retention typically occurs within the EEZ of Class III watercourses.

No salvage or harvest of down wood is permitted from within stream channels or RMZs and EEZs, further ensuring minimum disturbance along stream banks and adjacent streamside slopes in association with harvest activities.

The combined effectiveness of these measures to minimize streamside landslide and bank erosion is discussed in Section 6.1.1.

5.4 SENSITIVE BEDROCK TERRAIN

Elk River/ Little Salmon River WAU watershed analysis identified the Hookton Formation as being the geologic unit with the highest landslide frequency (0.041 SLS/acre/~50 years). Slopes underlain by Quaternary terrace and the Hookton deposits were also found to have a higher *shallow road-related landslide* rate compared to the other rock types found in the watershed. Consequently, because of the weak nature of this material Hookton deposits are referred to in the watershed revisit report as "soft" and can be susceptible to a variety of geologic hazards.

Hookton sediments are described by Kilbourne (1985) as “well-to-poorly sorted, gently folded, un-indurated marine to non-marine sand, gravel, and silt.” These sandy mid to Late Pleistocene deposits are generally limited to the following WAU sub-basins:

- Clapp,
- Lower South Fork,
- McCloud,
- Tom Gulch, and
- Railroad Gulch

The initial analysis stated that the largest sediment volumes originated from those basins in which Hookton deposits were the dominate bedrock type. Although the Elk River/ Little Salmon River WAU revisit reported that the landslide annual delivery rates are down (2001-2011) the geologic hazards associated with Hookton sediment still exists.

Due to the sensitivity of the Hookton Formation sediments it was deemed prudent to establish specific protective measures for slopes within the 5 sub-basins that are underlain by Hookton Formation sediments. The intent of the mitigation proposed below is to reduce the influence timber operation can have on the stability of slopes/ soils in these areas and the subsequent delivery of sediment to down slope watercourses.

- Slopes with gradients equal to or greater than 50% and within 300 feet of a Class I or II watercourses shall be field reviewed by a state license professional geologist.
- Retention of a minimum of 150 square feet of basal area (of any commercial species) per acre shall be required on headwall swales that envelope Class III watercourse source areas as identified in THP geologic reports.
 - Headwall swales are steep (50% plus) areas of convergent topography that intercept, without interruption, a watercourse. These commonly concave, spoon-shaped landforms range from 30 to 200 feet in width and terminate at defined watercourse channels, either at the point of channel initiation or at a stream bank edge. Most headwall swales will be perpendicular to the underlying hillside and retain steep side slopes (40% plus) of variable height. These drainage features should not be confused with other hill slopes concavity such as small zero order draws, bodies of large landslides, tree throw depression, or low-gradient hollows.
- Maintain a minimum of 100 square feet of conifer basal area on unstable slopes identified in THP geologic reports as potential point of sediment delivery.
- No timber will be marked for harvest within 10 feet of a Class III watercourse unless associated with a stump clump. Removal of timber associated with road construction, re-construction, or decommissioning may be harvested.
- All new road construction alignments shall be reviewed by a state licensed geologist. Findings will be documented in a CGS Note 45 compliant report.
- Road surfaces sloped at 10% or greater that contour across Hookton deposits will be storm proofed in accordance with a high or extreme erosion hazard rating. Ratings will be determined by the project forester in conjunction with project geologist.

- Haul road water bar outlets within 150 feet of a downslope Class I or II watercourse will be slash packed with sound woody debris.
- All temporary road surfaces within Class I, II and IIIs RMZ shall be slash packed at the completion of operations with sound woody debris or equivalent type material. A walking or quad trail may be kept open on the inside (upslope) edge of the road facilitating safe access if desired.
- All skid trail surfaces within 50 feet of a watercourse shall be slash packed with sound woody debris or equivalent type material.

5.5 Roads

The road system on HRC's ownership in the upper Elk River watershed is necessary to facilitate commercial operations consistent with timber production zoning including activities such as log hauling, forestry, watershed and wildlife surveys, and reforestation. Road surfaces, stream crossings, inboard ditches, cutbanks, and fillslopes are all recognized as potential sediment sources. HRC forest management and the HRC HCP focus significant effort in the prevention and minimization of sediment delivery from roads including construction and reconstruction of roads and stream crossings to storm-proofed standards, limitations on use during the wet weather season, a standardized inspection routine, and timely attention to maintenance needs. Legacy abandoned, often streamside, logging roads no longer required for harvesting (e.g. due to transition from tractor to cable yarding) or other forestry purposes (e.g. wildlife surveys, monitoring, etc.) are decommissioned or abandoned.

Implementation of road system upgrading and storm-proofing as part of HRC's HCP has resulted in the removal or prevention of delivery of an estimated 334,700 cubic yards of sediment to stream channels on HCP covered lands as of end of year 2014. Two hundred and six (206) miles of the approximate 260 mile road system has been *storm-proofed* to HCP standards including 50 miles of road decommissioning and closure (Map 3). Storm-proofed roads (HCP 6.3.3.9) are designed, constructed, monitored, and maintained, to minimize the delivery of fine sediment from roads and drainage facilities to streams, particularly during larger magnitude, infrequent storms and floods.

The existing road system provides access to HRC's managed forest and new road construction will continue to be limited to short spur roads necessary to facilitate logging operations. Details regarding specific road construction are provided and available for review through the THP process and annual work plans. Systematic HCP measures in place to prevent and minimize sediment delivery from the road system can be found in HCP section 6.3.3 and are summarized as follows:

5.5.1 Control of Sediment from Roads

Section 6.3.3 of the HRC HCP establishes measures for control of sediment from roads and other sources. A brief synopsis of each relevant HCP section is provided in this section with full HCP sediment control measures provided in Appendix C. Additional details regarding road maintenance and road inspection activities can be found in Section 6.2.

5.5.1.1 Road Construction, Reconstruction, and Upgrades

HCP section 6.3.3.3 describes standards and guidelines for road construction, reconstruction, and upgrades. These measures are intended to prevent and minimize sediment delivery during and subsequent these activities.

5.5.1.2 Road Maintenance

HCP section 6.3.3.4 describes measures to be taken to prevent or minimize sediment delivery related with road maintenance activities.

5.5.1.3 Road Inspections

HCP section 6.3.3.5 outlines road inspection requirements to be conducted to insure roads maintenance needs are identified on an annual basis and in response to large storm events.

5.5.1.4 Wet Weather Road Use Restrictions

HCP section 6.3.3.6 describes conditions under which various types of road use – from log hauling to light vehicle use - is permitted during the wet weather period (October 15 – May 1). Roads are required to meet and be maintained to a specific ‘permanent’ standard designed to minimize sediment delivery if log hauling is to occur during dry periods of the wet weather period.

5.6 Geologic Review (Landslide Hazard Evaluation)

HRC uses a multivariate approach for evaluating landslide hazards relative to proposed land use activities within the Elk River watershed. Data generated from both qualitative and quantitative approaches are assessed.

As part of THP planning, a review of watershed analysis and other available pertinent technical data including landslide inventories, regional geomorphic maps, and stereoscopic aerial photographs are conducted to denote potential high risk slopes. The *ERSC Hillslope Management Check List* is used to identify regions susceptible to landslide processes based on the Elk River Salmon Creek Watershed Analysis (PALCO 2005). A shallow landslide potential map developed using the process-driven landslide model SHALSTAB (Montgomery and Dietrick, 1994) is also evaluated.

SHALSTAB theory is based on the observation that shallow landslides tend to occur on steep, convergent slopes where surface/subsurface flow is concentrated and soil pore pressures are increased. This model assumes that although site-specific properties control the size and the moment when shallow landslides are triggered, the main controlling factor defining slide location is topography. This is a relatively simplistic approach and provides a snapshot of spacial prediction of landslide susceptibility applicable to the Elk River watershed. SHALSTAB has a tendency to over-predict landslide potential; therefore field verification is often necessary.

Following the evaluation of this technical data, a ground based investigation may be conducted, as warranted, to further examine mapped landforms and features previously unobserved as well as to determine the relation of mass wasting events (if present) to past land use activities. This

investigation also includes the collection of general landslide attributes for use in the comprehensive watershed-wide landslide inventory.

A report containing pertinent data, conclusions, and remedial treatment recommendations is developed when site conditions, land use activities, and watershed analysis prescriptions warrant. This report is signed by a state licensed professional geologist (P.G.) and prepared in general conformance with California Geologic Survey (CGS) Note 45 guidelines. Hazard reduction measures prescribed in the report are developed in association with a state license professional forester (RPF) and follow procedures detailed in the ERSC Watershed Analysis.

5.7 California Forest Practice Rules and Dept. of Fish and Wildlife Code 1600

The following California Forest Practice Rule (FPR) requirements and restrictions on timber operations are designed to prevent and/or minimize adverse effects to watershed and water quality values including those potentially resulting from sediment delivery and removal of streamside riparian canopy. These rules are enforced by CAL-FIRE.

| Reference | Description | Citation |
|------------------|----------------------------------|-----------------|
| FPR | Erosion Hazard Rating | 912.5 |
| FPR | Cumulative Impact Assessment | 912.9 |
| FPR | Post Harvest Stocking | 913 |
| FPR | Tractor Ops Limitations | 914.2 (f) |
| FPR | Site Preparation Addendum | 915 |
| FPR | Servicing of Logging Equipment | 914.5 |
| FPR | Waterbreaks | 914.6 |
| FPR | Winter Ops | 914.7 |
| FPR | Tractor Crossings | 914.8 |
| FPR | Watercourse and Lake Protection | 916 |
| FPR | Domestic Water Supply Protection | 916.10 |
| FPR | Logging Practices | 921.5 |
| FPR | Logging Roads and Landings | 923 et. Seq. |
| FPR | Road Maintenance Period | 923.4 |
| FPR | LTO Requirements | 1022.1 |

A timber harvesting plan prepared by a registered professional forester must be approved by California Department of Forestry prior to conducting timber operations. The plan is subject to multi-disciplinary state and federal review as well as review by the public prior to approval. Site specific recommendations for the protection of water quality and related beneficial uses may be made and incorporated into the THP during this review process.

In addition, pursuant DFW Code 1600, formal agreements must be reviewed and approved by the California Department of Fish and Wildlife prior to lake or streambed alteration which includes the construction and/or removal of stream crossings where such activities may substantially alter the bed, bank or channel of a watercourse. Site-specific DFW recommendations for the benefit of water quality and related beneficial uses may be made and incorporated into these agreements.

5.8 Effectiveness of Sedimentation Prevention and Minimization Strategies

In addition to routine inspection of active operations by licensed foresters, and required monitoring and reporting associated with existing WDRs, CAOs, FPRs, and HCP, numerous studies have been undertaken to evaluate the effectiveness of the various sediment prevention and minimization measures described in Section 5.0. These studies are summarized in the Elk River Watershed Analysis Revisit Report (HRC 2014), and have been previously provided to the NCRWQCB.

Mass Wasting-related Sediment Delivery

SHN Consulting Engineers and Geologists, 2013. Streamside Landslide and Bank Erosion Survey, Summer 2012, Elk River, Humboldt County, California

Oswald, J. 2012. Landslide Inventories for the 2003, and 2006, 2010 Storm Seasons, Elk River, Humboldt Co.

Road-related Sediment Delivery

Sullivan, K., N. Simpson, 2012. Effectiveness of Forest Road Construction Practices in Preventing Sediment Delivery. Technical Report, Humboldt Redwood Company, Scotia, CA. 99 pp.

Sullivan, K., A.S. Dhakal, M.J. Kunz, M. Medlin, A. Griffith, R. Rossen, and K. Williams. 2011. Sediment Production from Forest Roads on Humboldt Redwood Company Lands: Study of erosion rates and potential delivery to streams. Technical Report, Humboldt Redwood Company, Scotia, CA. 108 pp.

Sediment-related Water Quality

Klein, R.D., J. Lewis, M.S. Buffleben. 2012. Logging and turbidity in the coastal watersheds of Northern California. *Geomorphology* 139-140: 136-144

Sullivan, K., Manthorne, D., Rossen, R., Bohrmann, T., Griffith, A. 2012. Trends in Sediment-Related Water Quality after a Decade of Forest Management Implementing an Aquatic Habitat Conservation Plan. Technical Report, Humboldt Redwood Company, Scotia, CA. 140 pp.

Fisheries Stream Habitat

Humboldt Redwood Company. 2012. *2011 Aquatic Trends Monitoring Report*, Scotia, CA.

6.0 Managing Sediment Source Inventories

6.1 Methods for Maintaining Complete and Current Inventory of Landslide-related Sediment Sources

HRC maintains a complete and current inventory of landslide-related sediment sources through several means including periodic aerial photograph assessment, helicopter fly-overs, and on-ground field inspection and reporting. The purpose of these assessments is to locate and characterize new or re-activated landslides which deliver sediment to streams, and if management related, determine if sediment delivery mitigation options exist (i.e. bio-remediation, drainage alteration, armoring, excavation, etc.). Some of these landslide surveys are conducted periodically as an HCP requirement including WA re-visitation air photo and streamside landslide/bank erosion assessments, storm and earthquake-triggered forensic landslide investigation, annual and/or storm-triggered road inspection program (ARIP). Others are currently required by the NCRWQCB as part of existing WWDR requirements including an annual 'Tier 2' helicopter fly-over of the watershed in April of each year, and THP Erosion Control Plan (ECP) inspections. Geologic investigations conducted during THP development are also another source for maintaining a thorough and current landslide inventory.

The most recent ***watershed-wide comprehensive air photo landslide inventory*** was ***conducted by a Certified Engineering Geologist*** in 2012 (Oswald 2012). This inventory used 2003, 2006 and 2010 air photo interpretation to identify and characterize new and/or active landslides in the Elk River watershed. Methods used during this landslide inventory are described in the report and the Elk River Watershed Analysis Revisit. Future inventories of this nature will be conducted using similar methodologies consistent with guidelines presented in California Geological Survey Note 52, Guidelines for Preparing Geologic Reports for Regional-Scale Environmental and Resource Management Planning (2001); and will occur at 10 year intervals in conjunction with the next HCP required watershed analysis re-visitation.

Streamside landslides are periodically inventoried ***using field survey methods conducted under licensed geologist supervision***. These sources are important elements in the development of refined sediment budgets, as these smaller features are typically not apparent on aerial photography because of the generally dense riparian canopy cover and smaller size. Twenty-six (26) miles of combined Class I, II, and III watercourses were field surveyed for evidence of streamside landslides and significant bank erosion in 2012. A description, along with results, of this investigative study can be found in the HRC Watershed Analysis Re-visit Report, including a 2012

report prepared by SHN Consulting Engineers and Geologists who supervised this effort. A similar streamside landslide inventory will be conducted again in 8-10 years in conjunction with the next HCP required watershed analysis re-visitation. The effect of forest management on the processes of small streamside landsliding and bank erosion is of significant interest to NCRWQCB and HRC staff, and is therefore also a key area of study in an ongoing THP scale effectiveness monitoring projects discussed in section 8.0 of this ROWD.

Focused watershed-wide reconnaissance level investigations for mass wasting events utilizing established protocols (WOP-08) ***following triggering events*** in or near the Elk River watershed, defined as (1) greater than 3 inches of rainfall within 24 hours; **(as currently measured at Scotia, but propose to use a rain gauge centrally located in Elk River)** (2) a significant earthquake.

Determining if an earthquake is a “triggering event” is based upon earthquake magnitude and distance of epicenter from the watershed referencing Figure 2, Graph A of Keefer (1984). Depending upon magnitude of event and other planning considerations HRC may opt for helicopter reconnaissance in conducting these investigations in addition to ground based surveys.

New active or potential sediment sources, including from landslides, are identified through implementation of an ***Annual Road Inspection Program (ARIP)*** (HCP 6.3.3.5.1). This program requires that all accessible roads be inspected following a triggering event, or at least once annually between April 1 **(pending result of HCP minor mod request; currently May 1)** and October 15, to ensure that drainage structures and facilities are intact and fully functional, and to identify any active or imminent road-related failures of the road prism, cutbanks, or fills which may have occurred during the previous winter and are active or potential sediment delivery sources.

Current Elk River WWDRs require an annual helicopter fly-over to assess whether any landslides have occurred in ‘Tier 2’ harvest units post harvest. In addition, THPs enrolled in the current WWDR program must include individual Erosion Control Plans (ECPs) which includes a specified inspection regime for THP units and appurtenant roads. *This ROWD proposes supplanting these two current requirements with those detailed above, and in addition, the following Active THP Watershed Wide Waste Discharge Requirements (replacing the individual ECP requirements):*

- **Active THP Watershed Wide Waste Discharge Requirements** – HRC will conduct and document the following annual inspection requirements of the THP project area including appurtenant roads and harvest units where timber operations are or have been active.
 - a. **Prior to October 16th** – to ensure erosion control measures are in place
 - b. **Storm-triggered Inspection(s) October 16th through April 1st** – Storm-triggered inspections >3 inches/24 hours as measured at a centrally located rain gauge in the upper Elk River watershed) to provide opportunity for emergency prevention and response in imminent failure situations
 - c. **Post April 1st** – THP Project Area Inspection including all appurtenant roads to document any discharges resulting from the preceding winter period and to schedule any required road maintenance or other mitigation. No post April 1st inspection is required if a storm-triggered inspection has been conducted January-March, and no

significant rainfall event (>2.5"/24 hours) or greater than 10 inches of total rainfall has subsequently occurred.

In all instances, significant discharges in potential violation of the Basin Plan will continue to be reported to the NCRWQCB upon discovery within 48 hours.

Information regarding discovered new or reactivated landslides is recorded in a centralized database.

Collectively, these measures, in addition to routine on-ground reporting consisting of HRC staff (i.e. forestry, physical sciences, wildlife) contacting the HRC Geology Department in the event a new or recently active landslide is observed during the course of daily duties (i.e. THP and road inspections, wildlife surveys, aquatics monitoring, THP layout and logging supervision), provide for the maintenance of a complete and current landslide inventory.

6.1.1 Current Inventory, Source Remediation, and Discussion

The current landslide inventory is provided as Appendix D (**Shane Beach**). Landslide remediation is addressed in notification of discharges sent to NCRWQCB staff. Potential erosion control measures may include, but are not limited to: re-vegetation (e.g. tree planting, seeding, willow waddles), excavation, drainage modification, and buttressing or armoring of unstable areas. In many instances landslides are not easily remediated and treatment is infeasible, therefore avoidance and prevention relative to management activities is essential.

Results from the most recent air photo interpreted watershed-wide landslide inventory of HRC's Elk River ownership can be found in a 2012 report prepared by Oswald Geologic. The results of this inventory are discussed in Oswald's report and in further detail in the Elk River WA Re-Visit Report (HRC 2014, Section 4.1.2). Landslide activity was investigated, mapped, and described throughout the Elk River drainage, including specifically for 2003, 2006 and 2010 storm seasons. Aerial photographs were utilized to make estimates of sediment production and delivery to watercourses for each storm season, and landslide attributes were analyzed to quantify associations with geomorphic and management criteria. The 2003 and 2006 storm seasons were significant when compared with historical precipitation data, set several records for seasonal and monthly totals, and are considered landslide-triggering events because of the widespread landsliding experienced across Humboldt County and the north coast region during these winters. The 2010 storm season was the third most significant water year recorded in the decade of study, with an annual precipitation total above the ten year average.

In brief, Oswald mapped 126 landslides that occurred from 2001 to 2010. Approximately 60% (75) of these landslides delivered to a watercourse with an average 12.5% of measured displaced sediment volume delivery. This accounts for 23,131 cubic yards of delivered sediment with an estimated decade rate of 85.9 tons per square mile per year. In comparison, estimate of sediment

delivery from landslides for the years 1988-2001 was significantly higher at 460 tons per square mile per year (HartCrowser 2004).

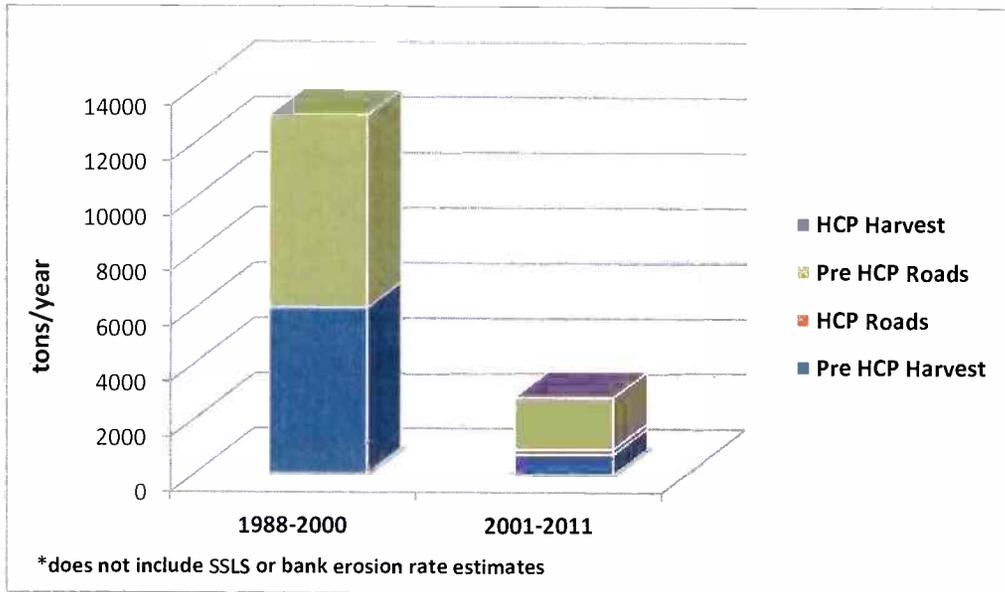


Figure 6-1. Elk River HRC HCP area estimated hillslope landslide sediment delivery from management-associated sources 1988-2000 vs. 2001-2011

The total sediment delivered from landslides during the 2003 and 2006 storm seasons alone made up about 97% of the estimated decade total. Over half of the delivery to Class I watercourses from 2001 to 2010 came from one very large reactivated landslide in the lower South Fork Elk River sub-basin. This landslide (LS 716) delivered an estimated 7,911 yds³ of sediment, which accounted for about 95% of the total LS delivered sediment to Class I watercourses for the entire 2006 storm season.

Including LS 716, approximately 61% (N=30) of landslide volume was associated with non-stormproofed active and abandoned roads, whereas five to six percent (N=9-13) of the total sediment delivery was associated with storm-proofed roads. Oswald identified two landslides possibly associated with post HCP timber harvest activities. Both units were harvested in 2003 utilizing clearcut silviculture, and the landslides were identified on the 2003 aerial photo series. One unit was logged via helicopter and the other by cable. LS263, delivering an air photo estimated two (2) yd³ of sediment, was located within an area of the THP excluded from harvest operations (i.e. no harvest) as a result of pre-harvest THP geologic review. The second HCP harvest-associated landslide (LS167) is estimated to have delivered seven (7) yd³ and originated from a harvested area. Combined these two landslides delivered an estimated nine (9) yd³ (0.004 % of total volume from hillslope landslides).

'Background' mass wasting, defined as landsliding in areas with no harvest activity over the last 15-30 years was limited to 12 landslides delivering an estimated 2,057 yds³. With most of the HRC's ownership in the watershed having experienced some type of harvest over the last 25 years, this approximate nine percent of the total landslide delivery is roughly proportionate to area of harvest versus non-harvest.

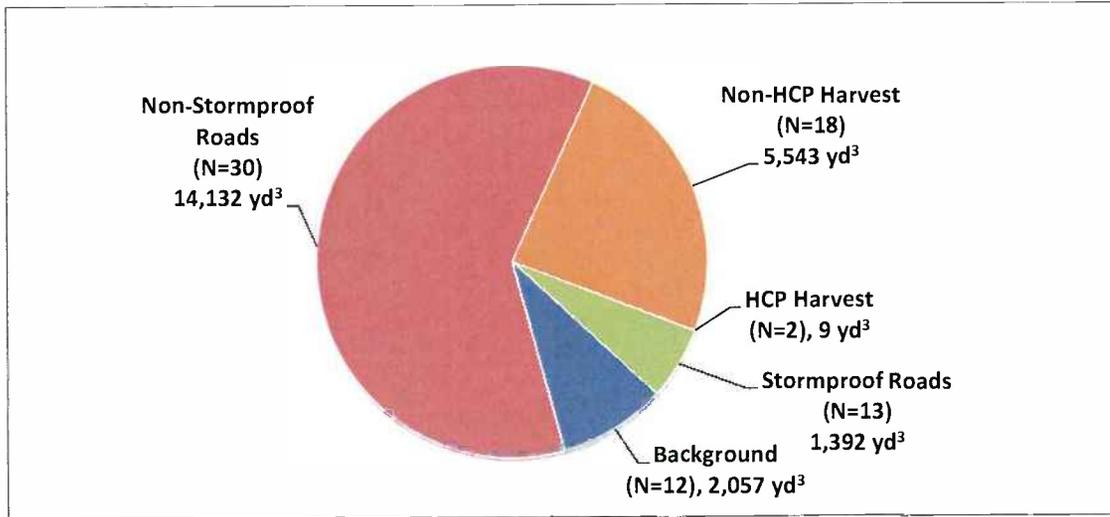
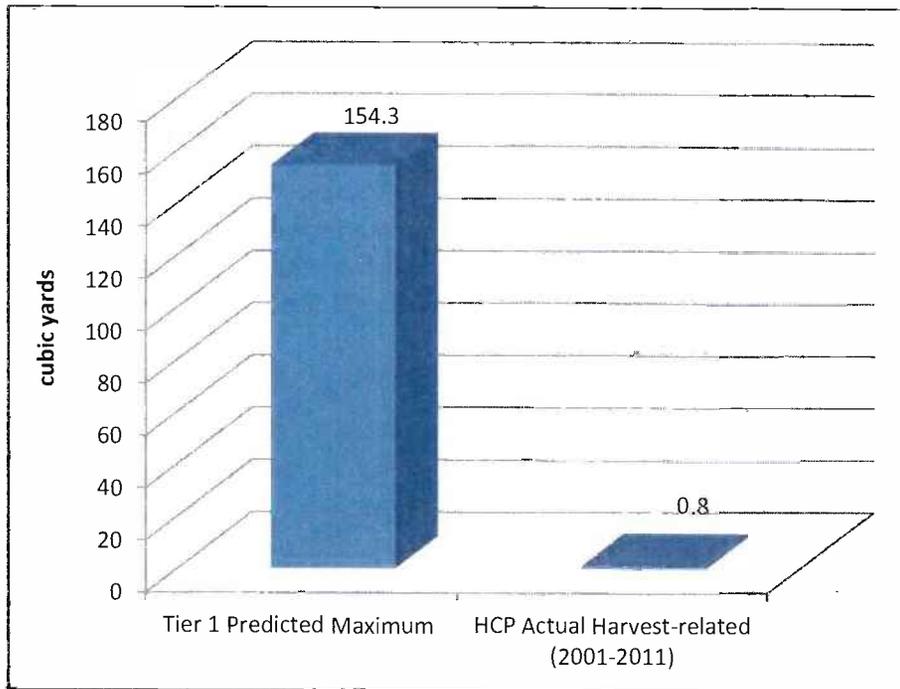


Figure 6-2. Elk River HRC HCP area watershed landslide inventory sediment source volume delivered; 2001 - 2011

In addition to periodic air photo analysis, monitoring and reporting requirements required by WDR Order No. R1-2006-0039 relies upon annual field and helicopter fly-over inspections of harvested areas and road systems to evaluate the effectiveness of HRC's forest practices. Results from these efforts confirm negligible open-slope (non-road related) landslide activity associated with HCP harvest operations.

These findings indicate a high degree of success in achieving harvest related landslide control objectives established by the current Elk River WDR (Order No. R1-2006-0039). This WDR relied upon an empirical model to set harvest acre limitations based on predicted annual sediment delivery from harvest related landsliding. Based on assumptions used in the model, it was predicted that a maximum annual harvest rate of 378 non-high hazard acres (tier 1) would result in 154.4 cubic yards per year of sediment delivery to watercourses from new harvest related landslides. *The actual total delivery of sediment since 2001 from HCP harvest related landslides was an air photo estimated approximate 9 cubic yards (0.81 cuy/year); less than one percent (0.52%) of what was predicted by NCRWQCB when establishing Order No. R1-2006-0039 (Figure 6-3).*

Figure 6-3. Annual Sediment Delivery from Landslides (HRC HCP Covered Elk River lands) compared to NCRWQCB Projected Sediment Delivery from New Harvest-Related Landslides



Twenty-six (26) miles of combined Class I, II, and III watercourses were field surveyed in 2012 for evidence of streamside landslides and significant bank erosion (SHN 2012). These sources are important elements in the development of refined sediment budgets, as these smaller features are typically not apparent on aerial photography because of the generally dense riparian canopy cover and smaller size. A description, along with results, of this investigative study can be found in the ERSC WA Revisit Report along with the 2012 report prepared by SHN Consulting Engineers and Geologists.

Survey results indicate low rates of streamside mass wasting relative to other studied watersheds within the HRC ownership (Upper Eel 2007, Bear River 2008, Mattole 2012). Field surveys identified approximately 6,500 cubic yards of sediment delivery from nearly 26 miles of stream length. Because Elk River is a coastal watershed with moderate topographic relief, stream valleys tend to have broad cross-sections with wide valley bottoms. As such, stream impingement on valley sidewalls is infrequent and undercutting is rare. This condition is in contrast to steeper, more deeply incised stream valleys found elsewhere on the property (e.g. Bear River, Mattole, Eel River tributaries).

Causal mechanisms related to recent management were virtually non-existent as no apparent interaction between streamside slopes and upslope management was observed during any survey.

In every stream segment surveyed, a broad, intact riparian zone was present to buffer the stream from adjacent management areas. Surveys found streamside landsliding and bank erosion to be occurring independently of recent management with primary causal mechanisms most frequently related to unstable geology and natural flow deflection. Remnants from historic operations including in-channel cut old growth logs, root wads attached to stumps, and instabilities associated with historic skid trails were observed and reported as additional causal mechanisms responsible for approximately 25% of the observed streamside delivery.

6.2 Methods for Maintaining Complete and Current Inventory of Controllable Road-Related Sediment Sources

HRC maintains a complete and current road-related sediment source inventory for roads under its control. In the Elk River watershed, this inventory was initiated with a base-line 1998 Pacific Watershed Associates (PWA) watershed-wide inventory of roads controlled by the previous landowner (PALCO).

New active or potential sediment sources are identified through implementation of an **Annual Road Inspection Program (ARIP)** (HCP 6.3.3.5.1). This program requires that all accessible roads be inspected for maintenance needs at least once annually between April 1 (**pending HCP minor mod approval; currently May 1**) and October 15 to ensure that drainage structures and facilities are intact and fully functional, and to identify any active or imminent road-related failures of the road prism, cutbanks, or fills which may have occurred during the previous winter and are active or potential sediment delivery sources. Maintenance needs addressing new or potential sources are then required to be performed prior to October 15 the year of discovery (HCP 6.3.3.4.1).

Road inspections conducted throughout the year, in coordination with or addition to the ARIP, include:

- **Storm-triggered Road Inspections** (HCP 6.3.3.5.2) - All accessible roads are inspected as soon as conditions permit following any storm event that generates 3 inches or more of precipitation in a 24-hour period, as measured at the Scotia rain gauge. HRC proposes to establish a centrally located rain gauge within its Elk River ownership and use this as the WWDR inspection trigger requirement (3"/24 hours). Road maintenance sites that are discovered are either addressed immediately, when feasible and significant delivery is active or imminent, or added to the database and scheduled for repair.
- **Timber Harvest Plan - Roads** appurtenant to planned timber harvest operations are reviewed during individual Timber Harvest Plan (THP) development to determine if roadwork is required to achieve or maintain an 'upgraded' or 'storm-proofed' standard (HCP 6.3.3.9). The appurtenant road system and logging roads within harvest units are then subsequently monitored throughout the active life of the plan.
- **Best Management Practices Effectiveness Program (BMPEP)** – HRC forestry staff inspects all completed stream crossing related roadwork to ensure HCP stormproofing and DFW MATO standards are correctly implemented and that each work site has been properly treated for

erosion control in advance of the wet weather season. In coordination with ARIP and Storm-Triggered Inspections, these newly treated sites are specifically inspected for sediment prevention and minimization performance following the first winter. Accessible sites then continue to be monitored over time per the ARIP and Storm-Trigger Inspection requirements.

- **Active THP Watershed Wide Waste Discharge Requirements** – HRC will conduct and document the following annual inspection requirements of the THP project area including appurtenant roads and harvest units where timber operations are or have been active.
 - **Prior to October 16th** – to ensure erosion control measures are in place
 - **Storm-triggered Inspection(s) October 16th through April 1st** – Storm-triggered inspections >3 inches/24 hours as measured at a centrally located rain gauge in the upper Elk River watershed) to provide opportunity for emergency prevention and response in imminent failure situations
 - **Post April 1st** – THP Project Area Inspection including all appurtenant roads to document any discharges resulting from the preceding winter period and to schedule any required road maintenance or other mitigation. No post April 1st inspection is required if a storm-triggered inspection has been conducted January-March, and no significant rainfall event (>2.5"/24 hours) or greater than 10 inches of total rainfall has subsequently occurred.

Significant discharges in potential violation of the Basin Plan will continue to be reported to the NCRWQCB upon discovery within 48 hours.

Information regarding discovered maintenance sites, including new or developing sediment sources, is recorded in a centralized Roads Database. These records are maintained for the purpose of describing necessary maintenance work to be performed, scheduling of work, inspection monitoring, and maintenance history. The database is updated with completion dates as individual sites are treated.

The HRC Roads Department is contacted immediately in instances where significant active delivery or preventive imminent failure is discovered so that control measures can be enacted as soon as environmental conditions permit.

Controllable sediment discharge sources identified by ARIP, Storm-Triggered Inspections, and Active THP inspections are typically scheduled and treated within one year of discovery during the drier months of the year (May – November). Additional non-scheduled routine minor maintenance (i.e. shaping of road surface, cleaning of inboard ditches and culvert inlets, maintenance of energy dissipation/downspouts, and roadside brush maintenance) may occur as needed in response to road inspection results and management directive.

Collectively, these measures provide routine inspection and maintenance of the road system and a current road-related sediment source database from which to prioritize, schedule, implement, and monitor road-related sediment source remediation.

6.2.1 Current Road Inventory, Prioritization Strategy, and Source Remediation

Implementation of road system upgrading and storm-proofing as part of HRC's HCP has resulted in the removal or prevention of delivery of an estimated 334,700 cubic yards of sediment to stream channels on HCP covered lands as of end of year 2014. Two hundred and six (206) miles of the approximate 260 mile road system has been *storm-proofed* to HCP standards including 50 miles of road decommissioning and closure (Map 3). Storm-proofed roads (HCP 6.3.3.9) are designed, constructed, and maintained, to minimize the delivery of fine sediment from roads and drainage facilities to streams, particularly during larger magnitude, infrequent storms and floods.

Per HCP requirements (§6.3.3.2), and formal order from the NCRWQCB (Cleanup and Abatement Orders R1- 2004-0028 and R1-2006-0055), HRC (as had its predecessor, PALCO) prioritized remediation of the worst sites first, i.e., those most likely to fail or deliver the greatest volume of sediment to waters, and specifically to fish-bearing streams.

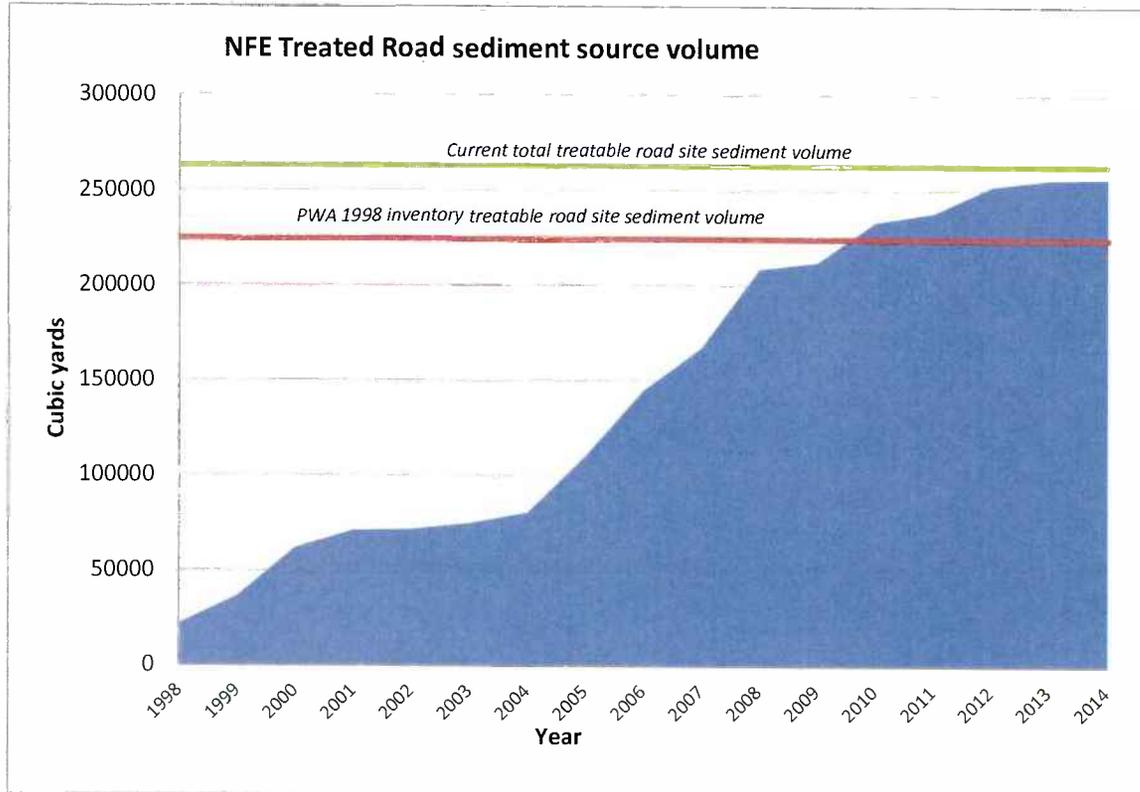
Master treatment schedules for both the North Fork and South Fork/Main Stem Elk River addressing this sediment source inventory were submitted to the NCRWQCB in 2007 as required pursuant Clean Up and Abatement Orders R1-2006-0055 and R1-2004-0028. These schedules set a treatment goal of 80% of the top 100 sites with the greatest potential for sediment related adverse environmental impact by 2011.

This requirement to treat the top 80 sites by 2011 was met and a revised master treatment schedule for each CAO was subsequently submitted in 2012 as required to schedule treatment of the remaining sediment sources in the watershed. This Master Treatment Schedule is updated and currently submitted annually as an appendix to these CAO Annual Work Plans.

Moving forward with the adoption of a new WWDR, these Master Treatment Schedules will be combined as one schedule for all of HRC's Elk River ownership, and updated and reported annually as part of the WWDR Annual Road Work Plan. The current Master Treatment Schedule is provided in Appendix E (Mark Colosio).

Figure 6-4 and Figure 6-5 present the progress of sediment source remediation in the NF Elk and SF Elk watersheds from 1997 through 2014. The volumes presented in these figures are for completed road sites and do not include off-road sources or road sites designated for "no treatment." A "No treatment" designation is provided for sites where environmental disturbance related to accessing and treating the site is likely to have a greater adverse impact on watershed values (e.g. sediment, temperature, habitat) than the potential benefits gained by treatment.

Figure 6-4. North Fork Elk River HRC HCP area road-related sediment delivery volume controlled 1998-2012



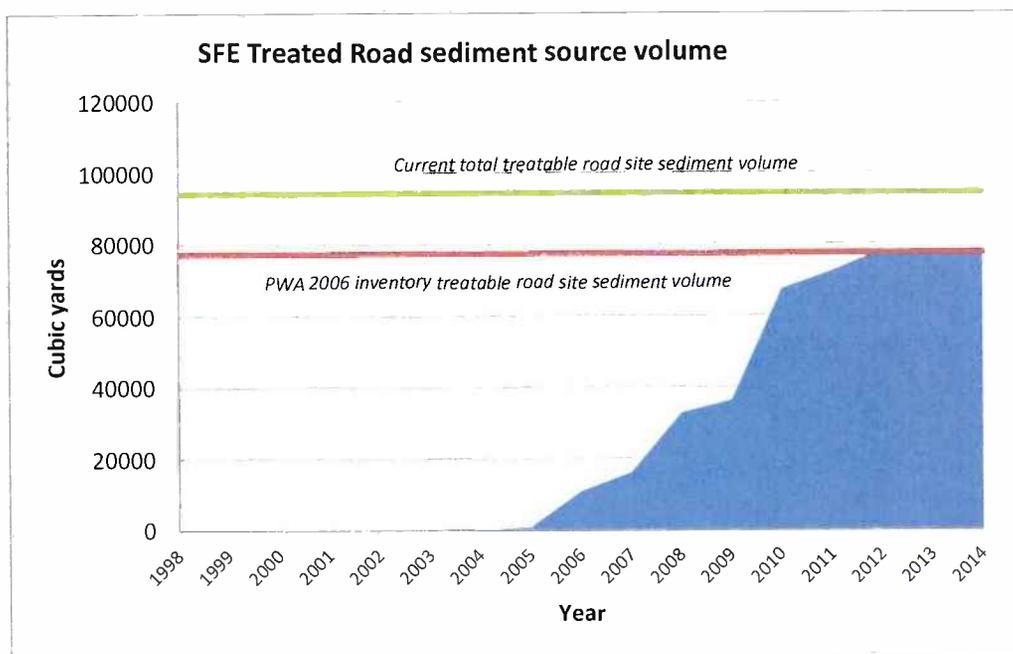


Figure 6-5. South Fork Elk River HRC HCP area road-related sediment delivery volume controlled 1998-2012

There are currently 112 potential treat sites remaining in the inventory (Appendix E) (Mark Colosio) with an estimated potential delivery of 22,086 cubic yards scheduled for treatment (pending final on-site field evaluation) by end of year 2017 (confirm). These sites have received priority ranking based upon level of erosion activity, volume of potential delivery, and receiving watercourse classification. With some exception, the prioritization for treatment/control of individual sediment sources is based on a 'cluster' approach evaluation, in which active or potential sediment sources on individual roads are looked at cumulatively in order to prioritize treatment. Road segments with the greatest potential sediment delivery over the shortest period of time (highest cumulative ranking) are prioritized for treatment over road segments with less potential future sediment delivery. The exception to this strategy is in the event where individual sites pose a significant threat to human safety or water quality resources, in which instance these sites are moved up in priority regardless of the rest of the road condition in that vicinity.

Moving forward with the adoption of a new WWDR, the Master Treatment Schedule will be updated and reported annually a distinct component of the WWDR Annual Road Work Plan.

New controllable sediment discharge sources identified by ARIP, Storm-triggered, or THP inspections are typically scheduled and treated within one year of discovery during the drier months of the year (May – November) pursuant to HCP requirements (HCP Section 6.3.3.4.1).

Additional non-scheduled routine minor maintenance (i.e. shaping of road surface, cleaning of inboard ditches and culvert inlets, maintenance of energy dissipation/downspouts, and

roadside brush maintenance) may occur as needed in response to road inspection results and management needs.

6.3 Skid Trails and other off-Road (non-landslide) Logging Related Sediment Sources

Contemporary sediment delivery from surface erosion caused by logging-related ground disturbance (i.e. skid roads, cable-yarding corridors, and site preparation activities including broadcast burning) is minimal due to HCP and FPR mitigation measures. Ground-based skid trails will continue to be minimized to the lowest number necessary to remove felled timber. The practice of slash-packing tractor skid trails within riparian management and equipment exclusion zones, and as otherwise directed by the project supervising RPF or required in the THP further minimizes potential for surface erosion and sediment delivery following use prior to re-vegetation.

However, historical 19th and 20th century logging operations in Elk River, as in other coastal watersheds, did cause significant alteration of stream channel conditions. First with animals, primarily oxen teams, and then with steam and subsequently diesel powered equipment, it was common to yard logs in stream channels. Many channels were partially or completely filled with soil and debris during this pre-Forest Practice Rules period, either through the in-channel yarding, or through the construction of non-culverted skid trail crossings (PWA 1999).

PWA (1997) concluded that mechanically filled stream channels represent a limited but persistent source of post-harvest erosion in areas tractor yarded between 1954 and 1997. More recently tractor-yarded areas (1980's through the 1990's) had discrete tractor-constructed stream crossings, but did not show evidence of in-channel yarding, as was visible in the earlier photos.

6.3.1 Maintaining a Current Inventory of Controllable Skid Trails and other off-Road (non-landslide) Logging Related Sediment Sources

Initial compliance with Cleanup and Abatement Orders (CAOs) No. R1- 2004-0028 (South Fork Elk River), and R1-2006-0055 (North Fork Elk River) required off-road surveys of large tracks of land known to have experienced significant ground based logging operations, in addition to inventories conducted during individual THP development. This was deemed necessary by NCRWQCB staff to expedite an understanding of the cumulative significance of this sediment source as well as control of discovered controllable sources. As a result, over 12,300 acres of HRC's Elk River ownership has been surveyed since 2007 and 143 potentially controllable off-road surface erosion sites identified (Map 6). Through end of year 2014 sixty-nine (69) of these sites have been treated for a sediment savings of an estimated 5,788 yds³. Seventy-four sites (16,367 yds³ potential delivery) remain as potential treat sites pending further evaluation. The inventory is consulted as part of each THP development so that known sites in the area, along with any additional discoveries, can be evaluated, and if deemed controllable, treated as part of THP active operations. Current Inventory is provided as Appendix F. (Mark C.)

However, in consultation with NCRWQCB staff, it has been found that the vast majority of sites encountered during these focused surveys (>85%) are non-controllable, with greater potential environmental damage resulting from disturbance caused by treating, outweighing the potential benefit of treatment. Recognizing the limited feasibility in treating many of these historic skid trail and other historic logging related sources which have often re-vegetated and to varying extent, stabilized, HRC and the NCRWQCB have transitioned to the following strategy:

Surveys for pre-existing, legacy sources are conducted annually in coordination with the planning of other projects. These projects include THP layout, in which areas within and surrounding future harvest units will be surveyed; and road decommissioning projects, in which areas surrounding planned road decommissioning will be surveyed to avoid orphaning controllable sediment sources by removing potential access roads. Watershed Operating Protocol (WOP) 56 is used to search for all sediment sources, including skid trail associated sources such as stream crossings, mechanically filled channels and landings.

Surveys associated with THP will continue to have results documented within the ECP of each THP including the following information for each identified site:

- A treatment identification (ID) number and location on a scaled map
- The volume of sediment to be treated
- Treatment immediacy
- A detailed description of the selected treatment plan, including all erosion control measures to be implemented
- A detailed time schedule for treatment activities

This information along with the current status of these sources will also be maintained centrally in HRC's sediment source database.

Determination as to whether a site can be controlled or not will adhere to the decision tree process described in WOP 56. This decision tree evaluates variables including current and potential delivery relative to access and disturbance involved with treatment to determine feasibility and appropriateness of control (Figure 6-6). As this is ultimately a judgment call, inspectors must have experience and training in assessing the significance of sediment sources and in the range and effectiveness of available treatment options (hand work, bio-remediation, and heavy equipment) including heavy equipment capabilities and limitations.

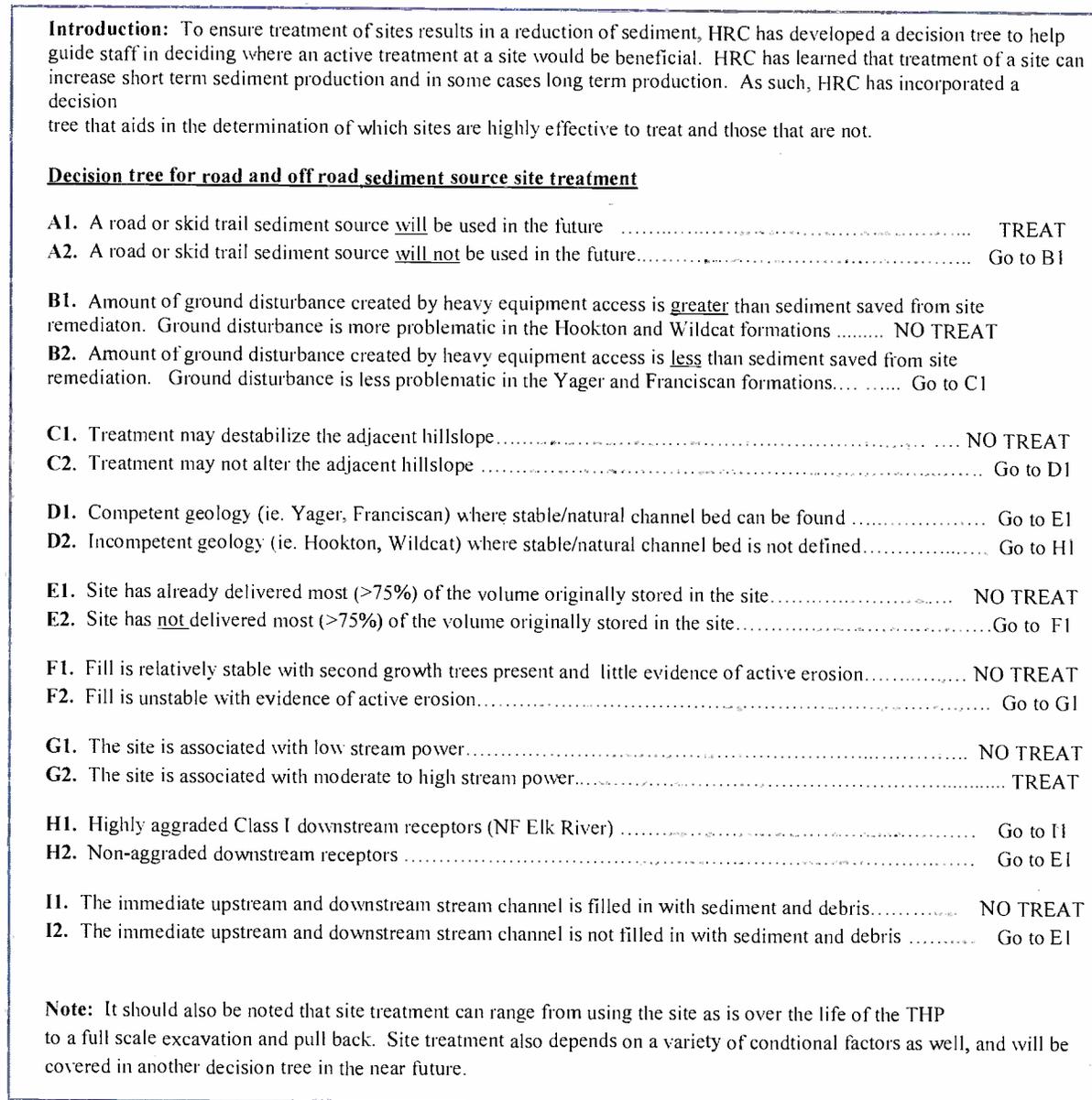


Figure 6-6. HRC Sediment Site Decision Tree

7.0 Forestry Operations Monitoring and Reporting

An effective and efficient form of monitoring and reporting necessary to demonstrate compliance with watershed-wide waste discharge requirements is proposed as follows. Planned timber operations will be identified in an **Annual Timber Management Plan** submitted prior to the start of the year. The Annual Timber Management Plan will be amended throughout the year as necessary to reflect changes in planning.

Timber harvest activities (i.e. felling, yarding, hauling) conducted in accordance with all watershed-wide waste discharge requirements, may commence after five days from date of receipt of the Annual Timber Management Plan (ATMP), or ATMP amendment, by the NCRWQCB Executive Officer (EO). Timber harvest activities not reported in the ATMP shall not commence until the ATMP is amended. Individual THPs will incorporate all required measures of the WWDR, HCP, and Forest Practice Rules and will as a matter of state law be subject to the Forest Practice Rules THP review process including multi-agency review.

An **Annual Road Work Plan** will be provided in the spring of each year identifying the planned location and description of new road construction, reconstruction, and road-related erosion control activities including upgrading, storm-proofing, and decommissioning. This planning activity is conducted for all HCP-covered lands property-wide the first quarter of each year and information specific to Elk River will be provided to the NCRWQCB by April 15th of each year. The Annual Road Work Plan provides the best available forecast and scheduling of road work to be completed for the subject year; however variation in actual roadwork conducted may occur due to various factors. An accurate accounting of work completed and explanation for any significant deviation will be provided in the Annual Forest Management Summary Report.

Additional non-scheduled routine minor maintenance (i.e. shaping of road surface, cleaning of inboard ditches and culvert inlets, maintenance of energy dissipation/downspouts, and roadside brush maintenance) may occur as needed in response to road inspection results and management directive, and is not subject to annual road work plan reporting requirements.

An **Annual Forest Management Summary Report** will be provided at the end of the year detailing the activities conducted during the past year, including timber and road system management, any off-road erosion control, and any riparian or in-stream restoration activities.

Discharges in potential violation of the Basin Plan will be reported to the NCRWQCB within 48 hours of the time of discovery.

7.1 Annual Reporting

7.1.1 Annual Timber Management Plan

- List of THPs, units, and acres scheduled for management (harvest) in the subject year

7.1.2 Annual Road Work Plan

- Location and description of planned new road construction or re-construction
- Locations and description of planned road-related erosion control activities (upgrading, storm-proofing, and decommissioning)

7.1.3 Annual Forest Management Summary Report

- List of THPs, units, and acres harvested in the year prior (subject year of the report)
- Location and description of new road construction or re-construction activities implemented in the past year
- Location and description of road-related erosion control activities including upgrading, storm-proofing, and decommissioning. Any significant deviation from the Annual Road Work Plan will be noted and explained.
- Results from required WWDR THP road and harvest unit inspections including summary of any Notice of Discharges reported to the NCRWQCB from the previous year
- Location and description of any off-road erosion control activities conducted during the past year (e.g. skid trail and/or landslide remediation)
- Description of any riparian or in-stream restoration activities conducted during the past year

8.0 Watershed Trends and Effectiveness Monitoring and Reporting

HRC monitors a number of water quality and aquatic habitat parameters in the upper Elk River in order to understand trends and potential linkage to management activities. In addition, HRC also currently has three effectiveness monitoring projects ongoing in Elk River evaluating Best Management Practice (BMP) sediment prevention and minimization measures. Nearly all of these monitoring and study activities were developed or refined in consultation with HCP wildlife agencies and/or the NCRWQCB and are implemented to meet current HCP and NCRWQCB requirements.

Unlike *effectiveness* monitoring, *trend* monitoring is not specifically intended to evaluate specific management practices. Trend monitoring results may, over time, corroborate the findings of effectiveness monitoring, but are also strongly influenced and constrained by inherent watershed conditions and processes, apart from management, including drainage area, geology and geomorphology, topography, vegetation, and climate. Due to improvements in timber harvest practices required by the California Forest practice Rules and Humboldt Redwood Company's (HRC) HCP, recovery of aquatic habitat, where currently impaired, is expected to occur over time to the extent provided for by inherent watershed conditions. HRC's ATM program is designed to test this hypothesis, as well as inform the scientific community as to the likely range of inherent conditions, as it tracks watershed trends over time.

A brief introduction to this monitoring program is provided here, recognizing additional discussion will likely be had during the development of any WWDR Monitoring and Reporting Plan. A location map of ATM and Hydrology Monitoring stations is provided (Map 6).

8.1 Aquatic Trends Habitat Monitoring

Long-term monitoring of fish-bearing (Class I) streams was initiated with adoption of the Habitat Conservation Plan (HCP) in 1999 with the goal to collect data to determine if salmonid habitat conditions across the property meet, or are trending towards Aquatic Properly Functioning Condition (APFC). The Pacific Lumber Company had an ongoing stream monitoring program when the HCP was adopted in 1999, and many of the existing sites were included in the newly created Aquatic Trends Monitoring (ATM) program. Representative stream reaches included in the ATM program were chosen for a variety of factors that included access, distribution, gradient, percentage of HCP coverage in the watershed, and watershed interest. Over the years, some sites have been added, some removed, and some moved from their initial location to a nearby location in a specific sub-watershed to better meet sampling objectives. The basic design of this monitoring program is to repeatedly measure habitat characteristics of stream reaches within the portion of watersheds most utilized by anadromous salmon ($\leq 4\%$ gradient).

Class I ATM stations (stream reaches) have been monitored on various schedules in Elk River over the last decade ranging from habitat measurements taken every year to every third year. Habitat values assessed include streambed substrate, pools, large woody debris, forest canopy over and adjacent to the stream, and water temperature. Cross-section stream channel area is also measured. Each ATM site is a stream reach that is at least 30 channel widths long. Summer time stream temperature (Maximum Weekly Average Temperature) is measured at each site annually. Snorkel surveys for determining fish presence and relative abundance are also conducted at each ATM location. Information from the ATM program is summarized and presented in several report formats including the Annual Class I ATM Report, Watershed Analysis Reports produced approximately every ten years, and other periodic reports (*Stream Temperature Trends and Current Canopy Measurement, 2001-2012; 2012 Fisheries Monitoring*).

An overview of the current HCP ATM Program approved by the HCP Wildlife Agencies, including elements specific to Elk River, are provided as Appendix G. ATM sites are monitored at three year intervals with the exception of temperature and biological which occur annually. Additional information regarding program design and protocols can be found in the Annual Class I ATM Report.

8.2 Hydrology Trends and Effectiveness Monitoring

Stage-discharge, turbidity, and suspended sediment data has been collected at a total of 16 different locations in Elk River since 2003 with 12 of these stations having a monitoring record of six years or more (HRC 2014, Section 6.4). This has provided a robust dataset for analysis of turbidity and suspended sediment throughout the watershed (Sullivan 2012). There are currently 10 stations being monitored annually in Elk River throughout the wet weather season including eight trend monitoring stations, and two additional stations involved with an HCP effectiveness

study discussed in Section 7.3. Hydrology Monitoring Reports are currently provided the NCRWQCB on an annual basis (Cite).

HRC believes several adjustments are needed to improve the current hydrology trends monitoring program including the restarting of monitoring at station 522 (Corrigan Creek), the relocation of hydrology station 534 (Little South Fork Elk River), and suspending monitoring at stations 509 (off-property, mainstem Elk River) and 533 (Tom's Gulch).

Station 522 (Corrigan Creek) monitors water quality from 100% HCP covered lands with active operations, and is one of three sub-basins extensively studied by the NCRWQCB over the last decade. Station 509 is located off-property on the Elk River mainstem and is situated on a physically deteriorating and increasingly unsafe bridge, has nearby HRC monitored stations located above it on both the North and South Fork Elk, has been repeatedly vandalized, and has water quality reflective of ownerships and land uses other than HRCs. The current location of station 534 in the BLM managed Headwaters Forest is difficult to access and manage for both data collection and quality assurance, and the small contributing drainage area to the station significantly limits the natural variation of inherent watershed conditions and processes reflected in the recorded water quality data. Moving station 534 downstream closer to the confluence with the South Fork Elk River will roughly triple the contributing drainage area, increase natural variability in contributing landscape terrain, and importantly provide greater ease of access for both maintenance/quality control and data collection. Maintaining a monitoring station in the Little South Fork Elk River sub-basin, where forest management is minimal under BLM control and old-growth forest conditions exist, is considered important as one point of water quality base-line reference. Similarly, station 533 (Tom Gulch) is difficult to access and the channel is subject to significant change throughout the winter making relationships highly variable and causing sensors to be occasionally buried. The long periods of record available for all stations monitored over the last ten plus years has provided sufficient stage-discharge, turbidity, and SSC characterization of these sub-basins to shed light on existing variability, conditions, and trends.

Figure 9-1 presents active and inactive monitoring locations in the watershed.

Table 8-1. HRC Recommended Hydrology Monitoring Stations for HY 2015-2024.

| Location | Station ID | Basin Area (km ²) | Basin Area (mi ²) | Monitoring Record | Proposed Status (next 10-year period) |
|-----------------------------------|------------|-------------------------------|-------------------------------|-------------------|---------------------------------------|
| Mainstem Elk River (metal Bridge) | 509 | 111.53 | 43.06 | 2003-2014 | Inactive |
| S. Fork Elk River | 510 | 50.25 | 19.40 | 2003-2014 | Active |
| N. Fork Elk River | 511 | 56.82 | 21.94 | 2003-2014 | Active |
| N. Fork Elk River | 532 | 35.03 | 13.53 | 2005-2014 | Active |
| Clapp Gulch | 543 | 2.28 | 0.88 | 2013 | Inactive |
| Railroad Gulch | 514 | 3.01 | 1.16 | 2013.00 | Inactive |
| Bridge Creek | 517 | 5.71 | 2.20 | 2003-2014 | Active |
| S. Branch N. Fork Elk River | 519 | 4.90 | 1.89 | 2004-2012 | Inactive |
| Corrigan Creek | 522 | 4.33 | 1.67 | 2003-2012 | Active |
| S. Fork Elk Mainstem (below 520) | 183 | 19.49 | 7.53 | 2003-2011 | Inactive |
| S. Fork Elk Mainstem (above 520) | 188 | 16.12 | 6.23 | 2003-2014 | Active |
| Tom's Gulch | 533 | 6.45 | 2.49 | 2006-2014 | Inactive |
| Little S. Fork Elk (headwaters) | 534 | 3.03 | 1.17 | 2004-2014 | Active ¹ |
| Doe Creek tributary | 550 | 0.14 | 0.05 | 2006-2012 | Inactive |
| Railroad Gulch - East Branch | 683 | 1.46 | 0.56 | 2014 | Active ² |
| Railroad Gulch - West Branch | 684 | 1.28 | 0.49 | 2014 | Active ² |

¹ Propose moving station 534 downstream and establishing new station number

² Active through completion of McCloud Shaw THP Effectiveness Monitoring Project (2014-2019)

8.3 Sediment Prevention and Minimization Effectiveness Studies

There are currently three ongoing assessments on HRC's ownership in Elk River meeting the general qualifications of effectiveness monitoring studies. These include slope stability monitoring of harvested areas, implementation and effectiveness evaluation of water quality related road construction practices, a focused THP scale paired watershed study.

8.3.1 Slope Stability Monitoring of Harvested Areas

HRC routinely monitors its managed forest in Elk River for evidence of new or re-activated landslide occurrence. Current Elk River WDRs require an annual investigation of harvested hillslopes following the winter season. This is regularly accomplished by placing a licensed geologist in a helicopter and flying over the watershed at a low elevation. Information from this fly-over relative to managed areas, and in particular WDR 'Tier 2' harvested areas, is communicated to the

NCRWQCB on an annual basis. Periodic orthographic aerial photographs are also taken by a contractor every three to five years and subsequently interpreted under the supervision of a licensed geologist to determine hillslope response to forest management activities. The results of these air photo interpretations are analyzed as part of watershed analysis to evaluate the effectiveness of the HRC's slope stability conservation and mass wasting avoidance strategy as presented in individual enforceable WA-based forestry prescriptions.

8.3.2 Effectiveness of Road Construction Practices in Preventing Sediment Delivery

The general standard on HRC HCP covered lands for new construction, reconstruction, or closing roads, is to "stormproof" them to weather all storms including large magnitude, infrequent events (defined as the 100-year storm) without damage to water crossings and with minimum sediment delivery. Many characteristics of a road determine its potential to deliver sediment to streams. Roads built before adoption of the HCP often fail to have some or all of these qualities. Since 1999, PALCO and HRC have constructed, reconstructed or closed roads according to the stormproofing specifications.

Road inspections and maintenance ensure that roads remain at this high standard. HRC has implemented a road auditing and inspection program to track performance and evaluate effectiveness of road projects in meeting low impact goals. HRC's road monitoring program is patterned after the U.S. Forest Service Best Management Practice Evaluation Program (BMPEP) as required by HCP §6.3.5.1.3. This monitoring program has also been developed in cooperation with the North Coast Regional Water Quality Control Board for confirming that sediment sources are controlled in the Elk River and Freshwater Creek watersheds. A similar approach was used by the California Department of Forestry in evaluating the effectiveness of the Forest Practice Regulations (Cafferata and Munn, 2002; Board of Forestry 2006).

8.3.3 Railroad Gulch Best Management Practices Evaluation Study

This study is designed to evaluate the effectiveness of HRC's Habitat Conservation Plan (HCP), the California Forest Practice Rules, and Elk River Watershed Analysis-derived prescriptions in minimizing sediment delivery to watercourses in response to timber harvest activities, through the integration of compliance and effectiveness monitoring. HRC's HCP requires monitoring to evaluate the effectiveness of timber harvest prescriptions in preventing the delivery of management-related sediment to watercourses. Monitoring requirements include implementation of a Best Management Practices Evaluation Program (BMPEP) (HCP §6.3.5.1.3) and In-stream Effectiveness Program (HCP §6.3.5.2). This study is being conducted at the scale of a single Timber Harvesting Plan (THP), 1-12-110HUM (McCloud Shaw).

The objective of this project is to collect and evaluate specific sediment production, storage, and delivery data to test the effectiveness of HCP prescriptions in limiting sediment production and delivery from potential sources (roads, landslides, bank erosion, upslope stream channel head-cutting, and harvest unit surface erosion) as it relates to land management. The study presents eight (8) hypotheses that are intended to test whether THP-related HCP and Watershed Analysis harvest prescriptions are effective at minimizing the impact that land management has on the

delivery rate of fine sediment to Railroad Gulch. Hypothesis subjects include overall THP effectiveness relating to mass wasting, stream channel erosion, and road-related sediment delivery.

The project plan was prepared by HRC geologists and hydrologists and reviewed by HRC foresters. Independent third party review was conducted by Dr. Lee MacDonald (Colorado State University). The Project Manager is Dr. Andrew Stubblefield (Humboldt State University).

9.0 Riparian and Stream Channel Research and Restoration

HRC is partnering with the NCRWQCB, other agencies, non-profits, and individuals in the assessing and addressing watershed conditions potentially adversely affecting beneficial uses. Examples of this include its trends and effectiveness monitoring program, road storm proofing and decommissioning, the Elk River Recovery Assessment, the Stewardship Project, riparian reforestation projects, and COHO Help Act projects. These various projects are intended to improve fish habitat, prevent and minimize sediment delivery, reduce nuisance flooding without adverse effect on endangered salmonids, and address downstream health and safety concerns.

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11.0 Maps

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Map 1 - General Location

Map 2 – Shade Relief

Map 3 – Road Conditions

Map 4 – Topographic Slope Class (LIDAR)

Map 5 – Landscape Plan (20 Year Horizon)

Map 6 – Watershed Monitoring Overview

12.0 List of Appendices

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| Appendix A | Elk River Salmon Creek Watershed Analysis Prescriptions |
| Appendix B | HCP Section 6.8.8.3 |
| Appendix C | HCP Section 6.3.3 |
| Appendix D | Landslide Inventory |
| Appendix E | Road Inventory and Master Treatment Schedule |
| Appendix F | Off Road Surface Erosion Inventory |
| Appendix G | Aquatic Trends Monitoring Program |

EXHIBIT 10



**Humboldt
Redwood™**

N C H W Q C B

April 28th, 2013

Mr. Matthias St. John
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd, Suite A
Santa Rosa, CA 95403

F A T C H R

Subject: Enrollment of portions of THP 1-12-110 HUM in the General WDR,

Dear Mr St. John:

HRC is requesting enrollment under General Waste Discharge Requirement (GWDR) Order No. R1-2004-030 for portions of THP 1-12-110HUM. The Plan is mainly on land owned by HRC in the south fork and mainstem Elk River Watersheds. Also, road construction and upgrading is proposed on three additional land owners. Because there is overlap between watersheds and owners, HRC consulted with Water Board staff and received the following guidance in an email from Fred Blatt on 11/13/2012

After consultation the Regional Water Board, Humboldt Redwood Company (HRC) will seek Regional Board permitting coverage for the McCloud Shaw THP under the General WDR for timber (Order R1-2004-0030). In addition to complying with the terms and conditions of Order R1-2004-0030, as a condition of enrollment of the McCloud Shaw THP under R1-2004-0030, HRC will also comply with all the general terms and conditions of Order R1-2006-0039 (as amended by R1-2008-0100), and specifically the terms, conditions, and limits for the South Fork Elk River. Regional Water Board staff will determine THP permitting eligibility following plan approval and review of the application for permit coverage.

The 2013 enrollment is comprised of 1.0 acres of right of way, Total acres currently enrolled or proposed for enrollment under Order No. R1-2006-0041 Tier II is shown in the Attached Pre-Harvest Planning Report. The Erosion Control Plan (ECP), Form 200 and an annual waste discharge enrollment fee are included in this enrollment. No changes to the ECP have been documented since the Pre-harvest inspection was conducted.

Landslide risks associated with this plan were evaluated in compliance with the Freshwater Creek and Elk River WWDR Permit Acreage Enrollment and Compliance Monitoring Program Quality Assurance Project Plan (Version 2.0, September 1, 2006) approved by the Executive Officer of the North Coast Regional Water Quality Control Board, as part of THP preparation. The Licensed Geologist performed this analysis in the Geology report included in the plan. This approach uses commonly accepted standards for geologic practices in forest management (Sidle et al. 1985, Soeters and Van Western 1996, and Sidle and Ochiai 2006) to assess factors known to contribute to landslides, such as steepness of slope, slope convergence, hydrology, geologic features, and visibly unstable areas. Overlapping and complementary scientific techniques combining state-of-the-art digital elevation model (DEM) slope stability models, field investigation, and terrain analysis were used in this assessment.

The plan occupies multiple aspect slopes in and adjacent to the Shaw Gulch and Railroad Gulch basins, as well as a portion of the southern valley wall of the South Fork Elk River upstream of Tom Gulch. These drainages are characterized by incised, moderate to steep sided, v-shaped draws/valleys that contain well-developed dendritic drainage systems. A majority of the slopes within the plan area have roughly planar/ concave profiles with surface gradients of 5% to 50%. Steeper pitches (65% +) are also present, but are generally confined to areas that flank Class I and II watercourses. In most instances, these steeper areas are encompassed by riparian management zones (RMZ) and CLG limited harvest areas.

Regional geologic maps indicate that the plan occupies slopes underlain by Quaternary to Tertiary aged Undifferentiated Wildcat Group sediments and materials associated with the Quaternary aged Hookton Formation. Previous regional geomorphic mapping exercises (HartCrowser, 2000; Marshall and Mendes, 2005) identified a large number of landslides/ landslide-related landforms on slopes currently within the operational limits of this THP. Close examination of these pre-identified features reveal an abundance of active to dormant-young landslides and landslide-related landforms.

Those failures within the operational limits of the THP and outside the RMZs, that could feasibly discharge sediment into down slope watercourses were surrounded/buffered by CLG limited harvest areas with specific retention standards. Landslides that have not directly delivered sediment to a watercourse by means of landslide processes, nor are likely to do so in the future, will undergo group selection. In essence, restricted partial cut activities have been applied to slopes within or above those areas of instability that could have an adverse impact on water quality, while areas of concern that are not actively contributing sediment to local watercourses and are not likely to do so in the near future will be subject to standard uneven aged practices.

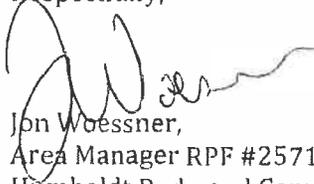
The services of a California State licensed Professional Geologist were retained during the layout of this THP. A letter report titled 'Reviewed Geologic Information and Disclosure of Known Unstable Areas' that documents the Project Geologist observations and conclusions is attached to Section 5 of the THP. The THP was also reviewed by California Geologic Survey (CGS) staff, which is documented in a Pre-Harvest Investigation (PHI) report found on the CALFIRE web site. Based on the level of review provided in the letter report, CGS PHI report, consulting licensed professional geologist and the HRC GeoScience Departments recent evaluation, it is our opinion that McClound Shaw THP meets the requirements for Tier II enrollment.

The THP proposes an uneven-age silviculture retaining 75 sqft of basal area and construction of roads (ROW). Sub-merchantable trees and those with specific wildlife value characteristics (e.g., cavities, large limbs, broken tops, snags, etc.) will be retained within the harvest area to the extent feasible. Cable and ground based yarding is approved for the unit. Post-harvest no site preparation will occur.

Greater detail regarding this landslide hazard assessment is provided in the attached *THP Unit Review for Tier 2 Enrollment*. The licensed geologist involved with the Tier 2 landslide risk evaluation has concluded the proposed harvest operation, if implemented as planned and approved, will result in a negligible increase in potential for post-harvest landsliding; and thereby meets the applicable Zero Delivery of landslide related sediment performance standards of NCRWQCB Orders R1-2006-0041 and R1-2008-0071. Water Board staff reviewed the THP prior to submittal and fully participated in the review process. There were no non-concurrences from Water Board Staff.

Please do not hesitate to contact me should you have any questions or comments regarding this application for enrollment into GWDR.

Respectfully,



Jon Woessner,
Area Manager RPF #2571
Humboldt Redwood Company, LLC

Attachments:

Professional Certification of Design
THP Unit Review for Tier II enrollment
Pre-harvest Planning Report
Maps

Humboldt Redwood Company, LLC
6500 Durable Mill Rd. P.O. Box 390
Calpella, CA 95418

4521 North Coast Regional Water

4/26/13

| INVOICE NO. | INVOICE DATE | DESCRIPTION | GROSS AMOUNT | DISCOUNT | NET AMOUNT |
|-------------|--------------|-------------|--------------|----------|------------|
| 042213 112 | 4/22/13 | 1-12-110 | \$ 760.50 | \$ 0.00 | \$ 760.50 |
| CHECK NO. | 48865 | TOTALS | \$ 760.50 | \$ 0.00 | \$ 760.50 |

NCRWQCB

APR 26 2013
NCRWQCB
[Signature]



State of California
Regional Water Quality Control Board
APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



A. Facility: I. FACILITY INFORMATION

| | | | |
|--------------------------------------|---------|--------------------------------|-----------|
| Name: THP 1-12-110- HUM McCloud Shaw | | | |
| Address: | | | |
| City: | County: | State: | Zip Code: |
| Contact Person: Jon Woessner | | Telephone Number: 707-764-4376 | |

B1. Facility Owner: (timber owner)

| | | | |
|------------------------------------|------------|---|--|
| Name: Humboldt Redwood Company LLC | | Owner Type (Check One): | |
| Address: P.O. Box 712 | | 1. <input type="checkbox"/> Individual | 2. <input checked="" type="checkbox"/> Corporation |
| City: Scotia | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership |
| | Zip: 95565 | 5. <input type="checkbox"/> Other | |
| Contact Person: Jon Woessner | | Telephone Number: 707-764-4376 | Federal Tax ID: |

B2. Facility Owner: (timber owner)

| | | | |
|-------------------------------------|------------|---|--|
| Name: Andrew and Sandralin Westfall | | Owner Type (Check One): | |
| Address: P.O. Box 1440 | | 1. <input type="checkbox"/> Individual | 2. <input checked="" type="checkbox"/> Corporation |
| City: Ferndale | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership |
| | Zip: 95536 | 5. <input type="checkbox"/> Other | |
| Contact Person: Jon Woessner | | Telephone Number: 707-764-4376 | Federal Tax ID: |

C. Facility Operator (The agency or business, not the person): (plan submitter)

| | | | |
|------------------------------------|------------|---|--|
| Name: Humboldt Redwood Company LLC | | Owner Type (Check One): | |
| Address: P.O. Box 712 | | 1. <input type="checkbox"/> Individual | 2. <input checked="" type="checkbox"/> Corporation |
| City: Scotia | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership |
| | Zip: 95565 | 5. <input type="checkbox"/> Other | |
| Contact Person: Jon Woessner | | Telephone Number: 707-764-4376 | Federal Tax ID: |

D1. Owner of the Land:

| | | | |
|------------------------------------|--------------|---|--|
| Name: Humboldt Redwood Company LLC | | Owner Type (Check One): | |
| Address: P.O. Box 712 | | 1. <input type="checkbox"/> Individual | 2. <input checked="" type="checkbox"/> Corporation |
| City: Scotia | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership |
| | City: Scotia | State: CA | |
| Contact Person: Andrew Westfall | | Telephone Number: 707-786-4659 | Federal Tax ID: |

D2. Owner of the Land:

| | | | |
|-------------------------------------|----------------|---|---|
| Name: Andrew and Sandralin Westfall | | Owner Type (Check One): | |
| Address: P.O. Box 1440 | | 1. <input checked="" type="checkbox"/> Individual | 2. <input type="checkbox"/> Corporation |
| City: Ferndale | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership |
| | City: Ferndale | State: CA | |

**CALIFORNIA ENVIRONMENTAL
PROTECTION AGENCY**

| | | |
|------------------------------|-----------------------------------|-----------------|
| Contact Person: Jon Woessner | Telephone Number: 707-764-4376 | Federal tax ID: |
|------------------------------|-----------------------------------|-----------------|

D2. Owner of the Land:

| | | | |
|-------------------------------------|-----------------------------------|---|--|
| Name: Andrew and Sandralin Westfall | | Owner Type (Check One): | |
| Address: P.O. Box 1440 | | 1. <input checked="" type="checkbox"/> Individual | 2. <input type="checkbox"/> Corporation |
| City: Ferndale | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership Agency |
| City: Ferndale | State: CA | State: CA | |
| Contact Person: Andrew Westfall | Telephone Number: 707-786-4659 | Federal tax ID: | |

D3. Owner of the Land:

| | | | |
|--------------------------------------|-----------------------------------|---|--|
| Name: Green Diamond Resource Company | | Owner Type (Check One): | |
| Address: P.O. Box 68 | | 1. <input type="checkbox"/> Individual | 2. <input checked="" type="checkbox"/> Corporation |
| City: Korbelt | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership Agency |
| City: Korbelt | State: CA | State: CA | |
| Contact Person: Nick Deseau | Telephone Number: 707-668-4400 | Federal tax ID: | |

D4. Owner of the Land:

| | | | |
|--------------------------------|-------------------------------|---|--|
| Name: Kristi Wrigley | | Owner Type (Check One): | |
| Address: 2550 Wrigley Road | | 1. <input checked="" type="checkbox"/> Individual | 2. <input type="checkbox"/> Corporation |
| City: Eureka | State: CA | 3. <input type="checkbox"/> Governmental Agency | 4. <input type="checkbox"/> Partnership Agency |
| City: Eureka | State: CA | State: CA | |
| Contact Person: Kristi Wrigley | Telephone Number: 443-1496 | Federal tax ID: | |

E. Address Where Legal Notice May Be Served:

| | | |
|---------------------------|--------------------------------|------------|
| Address: 125 Main Street | | |
| City: Scotia | State: CA | Zip: 95565 |
| Contact Person: Mike Jani | Telephone Number: 707-764-4403 | |

F. Billing Address:

| | | |
|------------------------------|--------------------------------|------------|
| Address: P.O. Box 712 | | |
| City: Scotia | State: CA | Zip: 95565 |
| Contact Person: Jon Woessner | Telephone Number: 707-764-4376 | |



State of California
Regional Water Quality Control Board
APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

- A. WASTE DISCHARGE TO LAND
- B. WASTE DISCHARGE TO SURFACE WATER

Check all that apply:

| | | |
|---|--|---|
| <input type="checkbox"/> Domestic/Municipal Wastewater Treatment and Disposal | <input type="checkbox"/> Animal Waste Solids | <input type="checkbox"/> Animal or Aquacultural Wastewater |
| <input type="checkbox"/> Cooling Water | <input type="checkbox"/> Land Treatment Unit | <input type="checkbox"/> Biosolids/Residual |
| <input type="checkbox"/> Mining | <input type="checkbox"/> Dredge Material Disposal | <input type="checkbox"/> Hazardous Waste (see instructions) |
| <input type="checkbox"/> Waste Pile | <input type="checkbox"/> Surface Impoundment | <input type="checkbox"/> Landfill (see instructions) |
| <input type="checkbox"/> Wastewater Reclamation | <input type="checkbox"/> Industrial Process Wastewater | <input type="checkbox"/> Storm Water |
| <input checked="" type="checkbox"/> Other, please describe: Timber harvest activities | | |

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s)
Facility:
Discharge Point:

2. Latitude
Facility:
Discharge Point:

3. Longitude
Facility:
Discharge Point:

IV. REASON FOR FILING

| | |
|---|---|
| <input checked="" type="checkbox"/> New Discharge or Facility | <input type="checkbox"/> Changes in Ownership/Operator (see instructions) |
| <input type="checkbox"/> Change in Design or Operation | <input type="checkbox"/> Waste Discharge Requirements Update or NPDES Permit Reissuance |
| <input type="checkbox"/> Change in Quantity/Type of Discharge | <input type="checkbox"/> Other: |

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: California Department of Forestry and Fire Protection

Has a public agency determined that the proposed project is exempt from CEQA? Yes No

If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.

Basis for Exemption/Agency:

Has a "Notice of Determination" been filed under CEQA? Yes No

If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.

Expected CEQA Documents:
 EIR Negative Declaration

Expected CEQA Completion Date:



State of California
Regional Water Quality Control Board
**APPLICATION/REPORT OF WASTE DISCHARGE
GENERAL INFORMATION FORM FOR
WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT**



VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

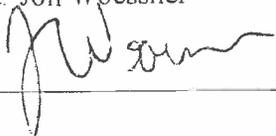
VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: Jon Woessner
Signature: 
Title: Northern Area Manager
Date: 4/22/13

| FOR OFFICE USE ONLY | | | |
|-----------------------------------|----------------------------|-----------------------------------|--------------------|
| Date Form 200 Received: 5/2/13 | Letter to Discharger: - | Fee Amount Received: \$ 300.25 | Check #: 245865 |

McCloud Shaw

N Silviculture Map

T3N R1E Sec. 1, 2, 3 1B64K
 T4N R1E Sec. 26, 27, 28, 34, 35, 36 1B64H

USGS Quad (s): FIELDS LANDING, KENNELCREEK

- Property Line
- Harvest Boundary
- Permanent Road
- Seasonal Road
- Proposed Seasonal Road

- Class I Watercourse
- Class II Watercourse
- Class III Watercourse
- Class II Waters

- Power Line
- NSO 6fta
- 600' NSO Buffer
- 1000' NSO Buffer
- HRA

- Group Selection
- Selection
- No Harvest

Special Treatment Area

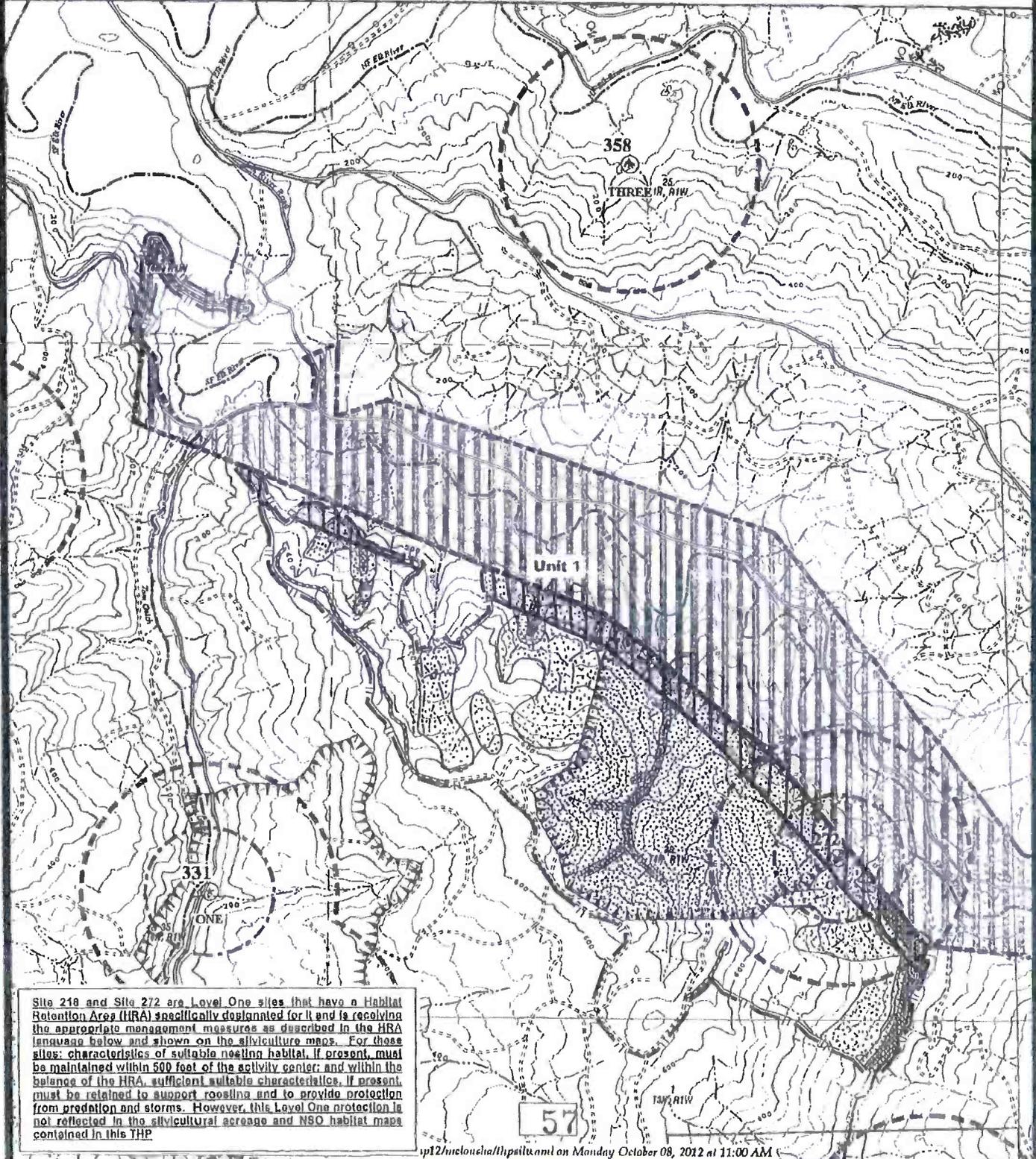


Federal, State and County Parks

Map Scale: 1 inch = 1000 feet

Contour Interval: 40 feet

2013 Enclosed Area



Site 218 and Site 272 are Level One sites that have a Habitat Retention Area (HRA) specifically designated for it and is receiving the appropriate management measures as described in the HRA language below and shown on the silviculture maps. For these sites, characteristics of suitable nesting habitat, if present, must be maintained within 500 feet of the activity center; and within the balance of the HRA, sufficient suitable characteristics, if present, must be retained to support roosting and to provide protection from predation and storms. However, this Level One protection is not reflected in the silvicultural acreage and NSO habitat maps contained in this THP.

57

Table 1. Proposed 2013 Harvest in South Fork Elk River.

| THP Name | THP Number | Unit Number | CC | Silviculture | | SEL | CC Equivalent | | Hazard ¹ |
|-------------|------------|-------------|----|--------------|---------|-------|---------------|-------|---------------------|
| | | | | ROW | Disp.VR | | SHR | CC | |
| McLeod Shaw | 11-139 | ROW | | 1 | | 114 | 1.0 | 104.2 | 1 |
| hole | | tier 2 | | 4 | | 158.9 | 83.5 | 162.9 | |
| | | | | | | | | | 141.5 |

¹Hazard Acres are reported here to conform to the requirements of the Pre-Harvest Planning Report. The Staff Landslide Model in South Fork Elk River allows up to 1.4 Acres, irrespective of Hazard Class

²Does not include 18 acre no-harvest area

Highlight indicates a THP and Specific Unit to be enrolled prior to establishing an enforceable Zero Discharge Monitoring Plan. Weighted Acreage Totals are listed below to demonstrate compliance with the Staff Landslide Model limit of 1.4 acres in South Fork Elk River. Other THP Units will be enrolled after approval of the aforementioned Monitoring Plan

No Highlight indicates a THP and Specific Unit to be enrolled after establishment of an enforceable Zero Discharge Monitoring Plan (Tier II)

Total Clear-Cut Equivalent Acres enrolled or submitted for enrollment 141.5

Table 3. Summary of THP's by Yarding System and Site Preparation for South Fork Elk River

| THP Name | THP Number | Unit Number | Yarding System | | Site Preparation | |
|-------------|------------|-------------|----------------|--------|------------------|----------------------|
| | | | Ground Based | Yarder | Helicopter | Mechanical Broadcast |
| McLeod Shaw | 11-139 | ROW | 1 | | | |
| hole | | tier 2 | 182.9 | | | |

Professional Certification of Design

I SHANE M. BEACH, No. 7396, 4/2/13
Name License # Date



Signature

hereby certify, in accordance with North Coast Regional Water Quality Control Board (NCRWQCB) Order Nos. R1-2006-0039 and R1-2006-0041, that the attached application and the description of THP modifications, and the materials submitted along with:

THP No. 1-12-110 HUM (McCloud Shaw) Unit # 1, 2, and 3

- a. are in accordance with accepted practices, and recognized professional standards;
- b. comply with the requirements of the Monitoring and Reporting Program No. R1-2008-0071, approved by the Executive Officer of the North Coast Regional Water Quality Control Board; and
- c. provided that the THP is properly implemented, operated, and maintained, are adequate for the THP to meet the applicable Zero Net Delivery performance standards of NCRWQCB Orders R1-2006-0039, R1-2006-0041, and R1-2008-0100, insofar as such performance can reasonably be predicted by accepted engineering geologic practices.

The opinions presented in the subject THP have been developed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable engineering geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report.

**McCloud Shaw
THP 1-12-110 HUM
Units 1 through 3**

| Tools Used in This Assessment | Figure Number |
|--|---------------|
| Elevation Map with 10 ft Contours (Humboldt Redwood Company [HRC] LiDAR*) | 1 |
| SHALSTAB / Slope Class / Hillshade Maps (Montgomery and Dietrich, 1994; Palco, 2006) | 2 |
| California Geologic Survey (CGS) Geology and Geomorphic Features (Marshall and Mendes, 2005) | 3 |
| Mass Wasting Potential Map (HRC, 1999) | 4 |
| Aerial Photo Map (HRC, 2007) | 5 |
| HRC Elk River and Salmon Creek WA deep-seated LS inventory Map (HRC, 2004) | 6 |
| Road Condition Map | 7 |

* Refer to back of enrollment package for referenced maps

Summary of Changes to THP Prescriptions Based on Tier II Analysis:

| Geologic Review Units 1 through 3 | Forestry Silviculture/Site Prep Plan Units 1 through 3 | Operational Design Plan Units 1 through 3 |
|--|--|---|
| <ul style="list-style-type: none"> ➤ Oswald Geologic (2012) ➤ CGS (2012) ➤ HRC (2012) | <ul style="list-style-type: none"> ➤ Silviculture practices/ site preparation activities identified in the approved THP have been not modified. ➤ Group selection and single tree selection are the approved silvicultural practices. ➤ Site preparation is not proposed within the approved THP. | <ul style="list-style-type: none"> ➤ Yarding methods in the approved THP have not been adjusted or modified. ➤ Ground-based and cable yarding techniques are the approved methods for timber removal. |

Executive Summary

The plan is located in the Elk River watershed and occupies multiple aspect slopes in and adjacent to Shaw Gulch, Railroad Gulch, and the South Fork Elk River in addition to several of their unnamed tributaries. These drainages are characterized by incised, moderate to steep sided, v-shaped draws/valleys that contain well-developed dendritic drainage systems. The upland portions of these drainages consist of broad, well-rounded ridges, and moderate- to steep-gradient (40% to 60%) midslopes. Shallow colluvial hollows of variable width are present in the steeper areas of the plan. Typically, the upland slopes retain convex to semi-planar profiles and in some instances have developed into low-gradient (10% to 40%) topographic benches. Many of the lower-gradient slopes have rolling profiles composed of localized topographic bulges and depressions.

Regional geologic maps indicate that the plan occupies slopes underlain by Quaternary to Tertiary aged Undifferentiated Wildcat Group sediments and materials associated with the Quaternary aged Hookton Formation. No active faults are mapped passing through the project area, and no part of the plan lies within and/or adjacent to an Alquist-Priolo Earthquake Fault Zone. The nearest fault zoned by the State of California as active is the Little Salmon fault (Hart and Bryant, 1997).

A geologic evaluation was conducted for the THP using guidelines established under Note 50 (CGS, 1997), Note 45 (CGS, 1999), and Tier 2 enrollment. To evaluate slope stability in the plan area the project geologist used high-resolution, 10-foot LIDAR contour map, SHALSTAB model results, historical aerial photographs, Mass Wasting Potential (MWP) maps, the Geologic and Geomorphic Features Related to Landsliding, Elk River Creek Map (Marshall and Mendes, 2005), onsite investigations, and THP Operational maps with unit boundaries, creeks, and roads. A discussion of the findings, conclusions, and recommendations associated with this assessment is contained in a geologic report that is attached to Section 5 of the THP titled 'Engineering Geologic Evaluation of the McCloud-Shaw THP, Humboldt Co., California'. This is a public document and can be found at http://thp.fire.ca.gov/THPLibrary/North_Coast_Region/THPs2012/1-12-110HUM/.

A large number of unstable areas were identified within the operational portions of each proposed harvest unit. A set of 1:750 scale maps (Figure 3a through 3c) are attached to the geologic report that show the position of the identified unstable area as they relate to roads, watercourses, and timber harvest boundaries. Detailed characterizations of the slide areas and justification for operations on and around them are provided in the reference geologic report.

The THP pre-harvest investigation (PHI) was attended by staff from several state agencies. PHI reports found the THP was compliant with the California Forest Practice Rules and HCP prescriptions (HRC, 2005) with respect to disclosure of all known unstable areas. These PHI reports are also available for review at the above listed website.

The following sections were taken directly from the geologic report attached to Section 5 and contain site-specific discussions relating to Tier 2 attributes for each of the three proposed harvest units.

For permit enrollment purposes, the harvest units have each been reviewed as one polygon. We validate this decision based on the slope morphology, consistent slope inclination with respect elevation, and slope performance in response to the previous harvest entry.

SUMMARY OF OBSERVATIONS AND MITIGATIONS FOR EACH PROPOSED HARVEST UNIT:

THP Unit: # 1

A) General Observations

General: Unit 1 is about 197 acres in size and is laid out on a northwest trending ridgeline on slopes facing predominantly northeast (Figure 3a). The Class I South Fork Elk River defines the lower extent of the harvest unit and three Class II/III tributaries extend upslope into the unit. Slopes within the harvest unit average about 35-50% with steep, incised, 60%+ slopes adjacent to the incised watercourses in the northern portion of Unit 1 and adjacent to the deeply incised central Class II watercourse. The Class III watercourses extend upslope into moderately inclined broadly convergent slopes that do not appear to meet HCP headwall swale slope criteria.

Management History: Unit 1 was recently harvested in the late 1980's using predominantly ground-based overstory removal. No harvest operations were observed between the harvest entry observed in the 1987 aerial photography and the oldest photo set reviewed, the 1940 aerial photographs. The harvest history map indicated the initial harvest occurred in the 1860-1870 decade using railroad, livestock, and stem donkey harvest operations. The unit appears to have performed adequately in response to the previous harvest entries with some exceptions on skid trails noted below and possibly exacerbating natural unstable areas or landslides that initiated following the first harvest entry.

Previous Mapping: Geomorphic mapping by CGS (2005) maps: 1) four dormant deep-seated rockslides and earthflows, 2) one large dormant debris slide, 3) one small landslides observed in the 1984 aerial photography, and 4) debris slide amphitheater slopes within operational portions of the plan area (Figure 2b). The mapping by CGS (2005) does not accurately match the locations of the unstable areas within the proposed harvest units. Mapping by CGS was conducted using standard USGS topographic products with a 10- to 30-meter resolution. However, while the locations are slightly off, mapping by CGS (2005) is consistent with mapping for this investigation and is modified on the approximately 3-meter resolution LiDAR topography available for the landowner's property holdings.

Shallow Landslide Modeling: Areas predicted as less stable by the SHALSTAB model (Value 1 and 2) are concentrated adjacent to the steep slopes in the northern corner of the THP, along steep streamside slopes of the Class II/III watercourses that extend upslope in to the harvest unit, and in the eastern portion of the unit adjacent the poorly incised Class III watercourses incised into steep to moderately inclined slopes (Figure 4a). Areas predicted as less stable by SHALSTAB modeling are roughly coincident with LS 1-1, 1-2, 1-3, and 1-4 and help delineate steeply inclined swales that

A) General Observations

appear susceptible to shallow landsliding.

Mass Wasting Potential (MWP) modeled for the unit shows moderate to high MWP adjacent to steep streamside slopes of Class II/III watercourses that extend upslope in to the harvest unit (Figure 4b).

Debris slide slopes mapped for this investigation (Figure 3a) are evaluated based on SHALSTAB modeling, previous mapping, and the site investigation. These areas are interpreted as potential source areas since few historically active debris slides were identified during THP layout within the area mapped as debris slide slopes. The areas mapped as debris slide slopes are generally steep and convergent.

B) Harvest Related Impacts and Hillslope Sensitivity

Site Investigation: Six large earthflow and translational rockslide complexes are mapped initiating from the ridgeline in the central portion of Unit 1 (Figure 3a). LS 1-5, 1-6, 1-7a-c, 1-8, 1-9 and 1-10 have relatively fresh appearing vertical scarps that show a few feet of historic offset. Old growth stumps within the margins of the landslides are deformed. Second growth timber within the slides are either slightly deformed or undeformed. The majority of the historically active unstable areas have predominantly hardwoods and brush with few merchantable trees. The proposed harvest within those stand types is limited and is often an effective no harvest because of the existing stand density and species distribution coupled with the CLG Limited Harvest recommendations and retention standards of selection silviculture.

Nine landslides interpreted to be management related were mapped in Unit 1 (1-1, 1-2, 1-3, 1-4, 1-8b, 1-9, 1-10, 1-11, 1-15)(Figure 3a). LS 1-2, 1-3, 1-4, 1-11, and 1-15 probably occurred following the 1987 harvest entry and are shallow debris slides that are generally related to skid trail construction and ground-based yarding. The larger translational failures, LS 1-8b, 1-9, and 1-10 were likely caused by yarding disturbance during the initial harvest entry in the 1860's. The remaining landslides are interpreted as existing unstable areas that were probably exacerbated by the initial two harvest entries that occurred in in the 1860's and 1980's.

Three recent landslides interpreted to be management related were observed in aerial photography taken after the 2002-2003 and 2005-2006 storm season (LS 1-2, 1-3, 1-4). They occurred on a steep bluff or steep streamside slopes. The last harvest entry prior to their observation was in the 1987 photographs, about 25 years ago. LS 1-2 is located in an area proposed for CLG Limited Harvest. LS 1-3 and 1-4 are located within the RMZ selection band and are considered adequately mitigated by the HCP prescribed reduced harvest levels, HCP retention requirements, and HRC land management objectives.

The remaining Six management related landslides mapped for the site investigation are related to skid trail construction and large-diameter log skidding on steep slopes (1-1, 1-8b, 1-9, 1-10, 1-11, and 1-15). LS 1-15 does not deliver to a watercourse and does not have a significant potential to deliver to a watercourse based on the distance to the nearest watercourse and the low gradient intervening slopes.

B) Harvest Related Impacts and Hillslope Sensitivity

Five of the remaining six landslides (1-1, 1-8b, 1-9, 1-10, and 1-11) are within areas proposed for CLG Limited Harvest. LS 15 is not placed within an area proposed for harvest restriction because it does not pose a threat of sediment delivery to a watercourse.

LS 1-5, 1-6, 1-7a-c, 1-8a-b, 1-12, 1-13, 1-14a-c are dormant-historic and dormant-young rockslide and earthflow complexes that initiate from the central ridgeline around the three more deeply dissected Class II/III watercourses. They are interpreted to be natural unstable areas that have been exacerbated by previous harvest entries. The larger landslide complexes appear more active in the northern portions of Unit 1 and five of the landslide complexes are placed within areas proposed for CLG Limited Harvest (LS 1-5, 1-6, 1-7a-c, 1-8a-b, and 1-12). The remaining four translational rockslide complexes appear more subdued in morphologic expression with no geomorphic indicators of historical landslide movement. The dormant landslides 1-13 and 1-14 were not placed in an area proposed for CLG Limited Harvest because the proposed harvest is not expected to adversely affect the stability of the landslide.

Harvest Limitations: All recent landslides initiated from within or adjacent to areas mapped as debris slide slopes by this investigation, and also predicted as less stable by SHALSTAB modeling. These areas are largely within the RMZ selective entry bands for the Class I and Class II watercourses. An arcuate area predicted as less stable by SHALSTAB modeling is located upslope of the Class III watercourse in the northeastern portion of the proposed harvest unit. All mapped unstable areas and debris slide slopes except 1-14a-c, 1-15, and debris slide slopes adjacent to 1-15 are placed within areas of CLG limited harvest (Figure 5).

C) Forestry / Silviculture Plan

The geologic investigation recommends an area of no group selection of unstable areas mapped for the unit (Figure 5).

D) Operational Design Plan

THP proposed yarding method considered appropriate.

THP Unit: # 2

A) General Observations

General:

Unit 2 is about 149.5 acres in size and is laid out within the southern tributary of Railroad Gulch (Figure 3b). A Class I/II watercourse runs through the center of the harvest unit and has short linear Class II/III tributaries extending upslope into the left bank of the main creek, and longer, more curving Class II/III tributaries extending upslope into the right bank of the main creek. Slopes within the harvest unit average about 35-50% with steep, streamside, 60%+ slopes adjacent to the left bank of the main channel in the western portion of Unit 2, in the upper headwaters of the watershed, and in the upper elevation slopes that form landslide source areas along the eastern portions of the harvest unit. The Class II/III watercourses extend upslope into moderately inclined broadly convergent slopes or steep bluffs that do not appear to meet HCP headwall swale slope criteria.

A) General Observations

Management History: Unit 2 was recently harvested in the late 1980's to early 1990's using predominantly ground-based overstory removal. Prior to the harvest entry observed in the 1987 aerial photography no operations were observed following the 1940 aerial photographs. The harvest history map indicated the initial harvest occurred in the 1860-1870 decade using railroad and steam donkey harvest operations. Portions of the unit have performed adequately in response to the previous harvest entries with some exceptions on skid trails noted below and large, natural unstable areas that appear to have been exacerbated following the initial harvest entries in the late 1800's.

Previous Mapping: Geomorphic mapping by CGS (2005) maps: 1) two dormant deep-seated rockslides, 2) six large, dormant debris slides, 3) one historically active debris flow, and 4) four small landslides observed in the 1984 aerial photography. Debris slide amphitheater slopes are mapped on steep streamside slopes on the left bank of the main channel within the central portions of the plan area (Figure 2b). The mapping by CGS (2005) does not accurately match the locations of the unstable areas within the proposed harvest units. Mapping by CGS was conducted using standard USGS topographic products with a 10- to 30-meter resolution. However, while the locations are slightly off, mapping by CGS (2005) is consistent with mapping for this investigation and is modified on the approximately 3-meter resolution LiDAR topography available for the landowner's property holdings.

The landslide inventory for the Elk River Watershed Analysis is shown in Figure 3d. The mapping is similar to CGS mapping and shows four deep-seated landslides and ten small landslides in the proposed harvest unit. The small landslides initiate from steep streamside slopes in the western half of the proposed unit and on steep, convergent slopes in the upper elevations of the eastern portions of the proposed unit.

Shallow Landslide Modeling: Areas modeled as less stable by SHALSTAB (Value 1 and 2) are concentrated on steep, streamside slopes adjacent to the left bank of the main channel, in the upper headwaters of the watershed, and in the upper elevation slopes of the eastern portions of the harvest unit (Figure 4a). Areas predicted as less stable by SHALSTAB modeling are roughly coincident with mapped unstable areas 2-5, 2-6, 2-7a, 2-8, 2-11, 2-13, 2-14, 2-15, 2-16, and 2-19. An area predicted as moderately less stable by the SHALSTAB model runs along almost the entire western half of the proposed harvest unit and corresponds to steep streamside slopes along the left bank of Railroad Gulch.

Mass Wasting Potential (MWP) modeled for the unit shows high MWP adjacent to the steep left bank of the central Class I watercourse (Figure 4b). There is no very high or extreme mass wasting potential mapped.

Debris slide slopes mapped for this investigation (Figure 3b) are evaluated based on SHALSTAB, previous mapping, and the site investigation. These areas are interpreted as potential source areas since only a few historically active debris slides were identified during THP layout within the area mapped as debris slide slopes. The areas mapped as debris slide slopes are, in general, steep and convergent.

B) Harvest Related Impacts and Hillslope Sensitivity

Site Investigation: Six large, historically active earthflow complexes and one large, historically active rockslide are mapped within proposed harvest Unit 2, LS 2-1a, 2-2, 2-4, 2-20a-b, 2-21 2-22, and rockslide 2-6 (Figure 3b). The earthflows have relatively fresh appearing vertical

B) Harvest Related Impacts and Hillslope Sensitivity

scarps that show a few feet up to about 15-feet of historic offset. Old growth stumps within the margins of the landslides are deformed. The timber stand composition within the historically active earthflows is noticeably different than the stand composition on adjacent slopes outside of the unstable area and generally has a less dense conifer stand. Second growth timber within the active earthflows is commonly undeformed or slightly deformed. Rockslide 2-6 is persistently active in the aerial photographic review and a 30-foot tall, un-vegetated bluff forms the main scarp of the failure. A mass of tilted redwood clumps, downed timber, and landslide debris is located at the base of the bluff. The majority of the historically active unstable areas have predominantly hardwoods and brush with few merchantable trees. The proposed harvest within those stand types is limited and is often an effective no harvest because of the existing stand density and species distribution coupled with the CLG Limited Harvest recommendations and retention standards of selection silviculture.

17 of the 23 landslides mapped in the proposed unit are interpreted to be management related (2-1a-b, 2-5, 2-7a-b, 2-8, 2-9, 2-10, 2-11, 2-12, 2-14a-b, 2-15, 2-16, 2-17, 2-19, 2-23)(Figure 3a). Unstable areas: 2-1a-b, 2-5, 2-7a-b, 2-8, 2-10, 2-11, 2-12, 2-14, 2-15, 2-16, 2-17, 2-19, and 2-23 occurred following the 1980's harvest entry and are mostly shallow debris slides that are generally related to skid trail construction and ground-based yarding.

Unstable Area 2-14b is a management related landing failure that was observed in aerial photography taken after the 2002-2003-storm season. The outboard edge of a landing on the secondary haul road failed and delivered to a low gradient bench downslope of the road. There was no sediment delivery to a watercourse observed. 2-14b does not have a significant potential to deliver to a watercourse based on the distance to the nearest watercourse and the low gradient intervening slopes and is not included in an area of CLG Limited Harvest.

The remaining management related landslides mapped for the site investigation are related to skid trail construction and large-diameter log skidding on steep slopes and are within areas proposed for CLG Limited Harvest.

Two large rockslides (2-6 and 2-21) are interpreted as existing unstable areas that were reactivated following the initial two harvest entries that occurred in the 1860's and 1980's.

Unstable areas 2-1a, 2-2, 2-4, 2-20a-c, 2-21, and 2-22 are recently active earthflow complexes that initiate from convergent topography near the ridge line on slopes south of Railroad Gulch. They are interpreted to be natural unstable areas that have been exacerbated by previous harvest entries. The landslide complexes occur as coherent translational-rotational failures in the upper extents of the earthflow and become more hummocky and disrupted downslope. Much of the second growth timber appears relatively undeformed in the upper portions of the complexes, even though there is a fresh looking, un-vegetated, 3-6 foot tall scarp upslope of the timber. The landslide complexes are placed within areas proposed for CLG Limited Harvest (2-1a, 2-2, 2-4, 2-20a-c, 2-21, and 2-22).

Harvest Limitations: All recently active shallow landslides initiated from within or adjacent to areas mapped as debris slide slopes by this investigation, and modeled with SHALSTAB stability class values 1 through 3. These areas are largely within the RMZ selective entry bands for the Class I and Class II watercourses. Areas of elevated SHALSTAB stability class values are located in the upper elevations of the eastern portions of the

B) Harvest Related Impacts and Hillslope Sensitivity
 unit. All mapped unstable areas and debris slide slopes except 1-14b are placed within areas of CLG limited harvest (Figure 5).

C) Forestry / Silviculture Plan
 The geologic investigation recommends an area of no group selection of unstable areas mapped for the unit (Figure 5).

D) Operational Design Plan
 THP proposed yarding method is considered appropriate.

THP Unit: # 3

A) General Observations

General:
 Unit 3 is about 245.5 acres in size and is laid out on a northwest trending interfluvial ridge on slopes facing predominantly northwest and southeast. The Class II tributaries to the mainstem Elk River extends upslope into northern and central portions of the proposed harvest unit. Slopes within the harvest unit average about 25-40% with a steep, incised slopes 60%+ slopes adjacent to the deeply incised Class II watercourses in the northern and central portions of the proposed harvest unit. The Class III watercourses extend upslope into moderately inclined broadly convergent slopes that do not appear to meet HCP headwall swale slope criteria.

Management History:
 Unit 3 was recently harvested in the late 1980's using predominantly ground-based overstory removal. Prior to the harvest entry observed in the 1987 aerial photography no operations were observed following the 1940 aerial photographs. The harvest history map indicated the initial harvest occurred in the 1860-1870 decade using railroad and stem donkey harvest operations. The unit appears to have performed adequately in response to the previous harvest entries with some exceptions on skid trails noted below and operations on steep streamside slopes. Landslides mapped within the propose harvest unit are all located on steep streamside slopes and predominantly initiate from the skid trail and road network.

Shallow Landslide Modeling: Areas predicted as less stable by SHALSTAB modeling (Value 1 and 2) are concentrated adjacent the steep streamside slopes in the northern and central portions of the THP (Figure 4a). All of the unstable areas mapped for this investigation are roughly coincident with areas predicted as more unstable by SHALSTAB. Debris slide slopes mapped for this investigation were evaluated using SHALSTAB modeling, previous mapping, and the site investigation (Figure 3a).

Mass Wasting Potential (MWP) modeled for the unit (Figure 4b) shows moderate to high MWP on steep streamside slopes in the northern and central portions of the unit. Areas of high MWP are roughly coincident with mapped areas of elevated SHALSTAB values. MWP modeling was conducted using standard USGS topographic products with a likely maximum 10- to 30-meter resolution and is considered less accurate than the SHALSTAB modeling run with high resolution LiDAR topography.

B) Harvest Related Impacts and Hillslope Sensitivity

Site Investigation:

All mapped landslides in the proposed harvest unit are interpreted to be management related (Figure 3a). Many probably occurred following the 1980's harvest entry and are generally related to skid trail construction and ground-based yarding of large diameter timber on steep slopes. The larger translational failures, 3-16 and 3-17 were likely caused by yarding disturbance during the initial harvest entry in the 1860's, as are likely many of the steep streamside failures in the north-central portion of the proposed harvest unit. The majority of the historically active unstable areas have predominantly hardwoods and brush with few merchantable trees. The proposed harvest within those stand types is limited and is often an effective no harvest because of the existing stand density and species distribution coupled with the CLG Limited Harvest recommendations and retention standards of selection silviculture.

Landslide 3-1 is a 1997 landing failure that continued to ravel in the 2003, 2006, and 2010 storm season. They landing failure extends downslope to the Class II watercourse. The last harvest entry prior to its observation was the ground-based harvest that occurred in the late 1980's. 3-1 is outside of the proposed harvest boundary.

All mapped unstable areas are within HCP stream buffers or are placed within areas proposed for CLG Limited Harvest.

Three road related landslides (LS 3-20, 3-21, and 3-22) is on a road that is outside of the proposed harvest boundaries and maintained by HRC under HCP requirements and is considered mitigated through regulated road management activities conducted on HRC HCP properties.

The three mapped landslides initiated from within or adjacent to areas mapped as debris slide slopes by this investigation, and modeled with class I to 3 SHALSTAB stability class values. These areas are largely within the RMZ selective entry bands for the Class II watercourses.

C) Forestry / Silviculture Plan

The geologic investigation recommends an area of no group selection of unstable areas mapped for the unit (Figure 5).

D) Operational Design Plan

THP proposed yarding method is considered appropriate.

Brief descriptions of the models used in this evaluation:

SHALSTAB was first described in Dietrich and Montgomery (1994). SHALSTAB is a simple, physically-based model based on the Mohr-Coulomb failure law that can be used to map shallow landslide potential. The model calculates the potential for failure using gridded digital elevation data. The simplicity of the model lies in the formulation of slope stability parameters that allow the model to be run parameter-free using default values suggested by the authors or determined by local measurement. Because the model uses no field measurements of critical characteristics that determine slope stability, the evaluation of potential instability is only an approximation. In applying SHALSTAB for Tier 2 enrollment, HRC has run the model on a 10-m spatial grid using LiDAR elevation data and applied the parameters as suggested by the model authors. HRC's application of the method and parameters is described in HRC (2008).

Mass Wasting Potential (MWP) modeling is a cursory regional assessment that numerically values soil, slope inclination, geology type, and geomorphology with respect to past mass wasting (HRC, 1999). The sums of the values specific to an area are measured against a set ranking system that extends from very low to extreme. The models intent is to highlight areas of high potential for instability at the planning level. The model's use at the site specific level is limited in that pedogenic soil types are used, not textures, the geologic formations utilized provide one value for all of the incorporated facies, and the model is heavily biased if past mass wasting has occurred or has been mapped as occurring in the area.

References:

- California Geologic Survey (CGS), 2005, *Geologic and Geomorphic Features Related to Landsliding, Elk River Watershed, Humboldt County, California*. Department of Conservation, now California Geological Survey Watershed Mapping Series, Map set 4, Plate 1. Available via the web at http://ftp.consrv.ca.gov/pub/dmg/tlp/maps/elk_color.pdf
- , 2012, *Engineering Geologic Review of Timber Harvesting Plan 1-12-110 HUM (McCloud Shaw)*, unpublished memorandum to William Snyder, Deputy Director, Resource Management California Department of Forestry and Fire Protection. NR:NR.
- . (1997). *Note 50: Factors Affecting Landslides In Forested Terrain*. Sacramento: CDMG.
- . (September 1999). *Note 45, Guidelines for Engineering Geologic Reports for Timber Harvesting Plans*. Sacramento: CDMG.
- Montgomery, D.R. and W.E. Dietrich, 1994. *A physically based model for the topographic control on shallow landsliding*. *Wat. Resour. Res.* 30: 1153-1171. For specific details regarding the model used in this evaluation, please see Palco, 2006. Additional information from the model authors is available at the following website: <http://socrates.berkeley.edu/~geomorph/shalstab>
- Oswald Geologic (OG), 2012. *Engineering Geologic Evaluation of the McCloud Shaw THP, Humboldt Co., California*. Unpublished Consultants Report Prepared for HRC. 48 pgs.,
- Humboldt Redwood Company (HRC), 1999, The Pacific Lumber Company's Habitat Conservation Plan, Vol. 2 Part D, Landscape Assessment of Geomorphic Sensitivity. Public Review Draft.
- , 2004, Elk River / Salmon Creek Watershed Analysis, Scotia, California, prepared for Pacific Lumber Company (PALCO), and acquired by Humboldt Redwood Company, LLC in 2008.



- HRC. 2005, (Policy Acquired from The Pacific Lumber Company (PALCO)) Prescriptions Based on Watershed Analysis for Freshwater Creek, California, August 15, 2002.
- HRC. 2007, Ortho-photo rectified aerial photographs flown by 3Di West, Eugene Oregon,
- HRC. 2008, Freshwater Creek and Elk River WDR Permit Acreage Enrollment and Compliant Monitoring Program, NCRWQCB R1-2006—0039 and R1-2006-0041, Quality Assurance Project Plan, Version 3.0. Policy document submitted to NCRWQCB dated June 7, 2006.

Humboldt Redwood Company LLC

Erosion Control Plan (ECP) for The "McCloud Shaw" THP

After consultation the Regional Water Board, Humboldt Redwood Company (HRC) will seek Regional Board permitting coverage for the McCloud Shaw THP under the General WDR for timber (Order R1-2004-0030). In addition to complying with the terms and conditions of Order R1-2004-0030, as a condition of enrollment of the McCloud Shaw THP under R1-2004-0030, HRC will also comply with all the general terms and conditions of Order R1-2006-0039 (as amended by R1-2008-0100), and specifically the terms, conditions, and limits for the South Fork Elk River. Regional Water Board staff will determine THP permitting eligibility following plan approval and review of the application for permit coverage.

This plan is being included in the THP to partially meet the requirements of the North Coast Regional Water Quality Control Board Watershed-wide Discharge Requirements. (WWDRs)

All operational portions of this ECP that are to be enforced through the Forest Practice Rules have been included in Section II of the THP.

Version 20080819

Humboldt Redwood Company LLC Erosion Control Plan (ECP)

This document addresses the requirements of the California Regional Water Quality Control Board, North Coast Region Order No. R1-2006-0039 (Elk River) for an Erosion Control Plan (ECP) related to timber harvest activities on Non-Federal lands in the North Coast Region (Sec. III D2 and D3). The responsible party for this ECP is Humboldt Redwood Company LLC, P.O. Box 712 Scotia, CA 95565 (707) 764-2330.

This ECP is submitted for: THP Name: McCloud Shaw THP
Contact Person: Jon Woessner Phone: (707) 764-4376

The landowner is committed to a wide variety of measures to prevent and minimize the discharge or threatened discharge of sediment from controllable sediment discharge sources as part of this project into the waters of the state in violation of applicable water quality requirements. Prevention and Minimization of Controllable Sediment Discharge Sources associated with this project are identified in the *Controllable Sediment Sources* table. The specific conditions of sediment discharge sources and a summary of prevention and minimization measures (Section I) are identified in the table. General prevention and minimization measures for the project (Section II) are incorporated in the ECP by reference.

The RPF and/or the RPF Designee have conducted an inventory of potential "controllable sediment discharge sources" within the project area. As defined in California Regional Water Quality Control Board Order No. R1-2006-0039 (Elk River).

"Controllable sediment discharge source" means sites or locations, both existing and those created by proposed timber harvest activities, within the Project area that meet all the following conditions:

1. is discharging or has the potential to discharge sediment to waters of the state in violation of applicable water quality requirements or other provisions of these WWDRs,
2. was caused or affected by human activity, and
3. may feasibly and reasonably respond to prevention."

Upon guidance of the North Coast Regional Water Quality Control Board (NCRWQCB) staff, discharge from the source must be likely to occur during the life of the Timber Harvesting Plan (THP) and WWDR. (Holly Lundborg, personal communication)

The inventory method consisted of an appurtenant road survey, aerial photos and ground assessments of the harvest units, and a complete ground assessment of all watercourses and associated stream protection zones.

The schedule for implementing the prevention and minimization management measures for the controllable sediment sources will be consistent with the duration of the THP. These measures will be implemented in accordance with the priority level assigned to each site. High priority sites will be addressed first with low priority sites to follow. Work at all sites will be accomplished prior to THP expiration. The general prevention and minimization measures will be implemented concurrent with operations.

I. Inventory and Treatment of Controllable Sediment Sources

All controllable sediment sources are listed in the attached "Erosion Control Plan" table. These sources have been assigned a treatment priority of low, medium or high based on: 1) potential for significant sediment delivery to a Class I, II or III channel; 2) treatment immediacy (a subjective combination of event probability and sediment delivery); and 3) treatment cost-effectiveness.

The Prioritization for implementing prevention and minimization measures for road-related and non road-related controllable sediment sources is based upon guidance provided in Order No. R1-2006-0039 (Elk River). Highest priority is assigned to the largest sediment discharge sources that discharge to waters that support domestic water supplies or fish. The landowner's prioritization method considers this guidance, and combines it with consideration for accessibility and level of imminent risk of significant sediment discharge. Sources that receive a high priority rating will be treated by a date certain as noted in the Controllable Sediment Sources table. Sources that receive a low or medium rating are determined to have a low to moderate risk of imminent discharge and will be treated prior to completion of the THP, or as otherwise indicated.

Non-road related controllable sediment sources can include skid road crossings, yarding furrow, skid road in watercourse, perched skid road fill, skid road rutting, landslide, layouts, railroad grade, incline, etc.

Information specific to Controllable Sediment Discharge Sources is listed in the Controllable Sediment Sources Table, below. An explanation of information provided in that table is provided below.

II. General Prevention and Minimization Measures for Controllable Sediment Discharge

In addition to the site specific measures detailed above, the general measures proposed in this project, either as required by another State or Federal regulating agency, or as a matter of Humboldt Redwood Company policy, will prevent or minimize future sediment delivery. These measures include, but are not limited to measures incorporated in the THP Section Items as follows:

THP Section II:

- Item 14 – Describes silvicultural prescriptions
 - (l) Site Preparation – Disclosure of selected site preparation treatments and mitigation measures
- Item 16 – Harvesting Practices – Describes yarding systems, equipment utilized, equipment limitations, and drainage facility installation timing
 - Inclusive through (m) – equipment use limitations and mitigation
- Item 18 – Soil Stabilization – waterbreak requirements, mitigation to minimize soil disturbance and sediment transport
- Item 20 – Ground Based Equipment Use Location
- Item 21 – Ground Based Equipment Use in Sensitive Areas – locations, descriptions of operations, limitations and mitigation measures
- Item 22 – Alternative Practices to Harvesting and Erosion Control
- Item 23 – Winter Operations – Provides descriptions of limitations and mitigation measures required during winter period operations and Winter Operating Plan
- Item 24 – Roads and Landings – Describes road and landing construction and re-construction operations, limitations, drainage relief structure installation, mitigation measures, road maintenance, inspections and wet weather road use restrictions
- Item 25 – Site Specific Measures to Reduce Adverse Impacts and Special Instructions to the LTO
- Item 26 – Watercourse and Lake Protection (WLPZ)
- Item 27 – "In Lieu" WLPZ Practice(s)
- Item 28 – Downstream Water Users Notification and Domestic Water Supply Protection
- Item 29 – Sensitive Watershed – Identifies whether the plan is located in a designated sensitive watershed and mitigation measures
- Item 29 – 1 Hillslope Management (HCP 6.3.3.7) – Describes HCP hillslope management measures required as per watershed analysis

THP Section V:

- Sediment Reduction from Roads and THP Sediment Production--Including Table 1 – "Sediment Delivery for Units and Roads for this THP," references, letter regarding Road related sediment assessment for this THP with the calculations of deliverable net cubic yards of sediment, calculations and PWA information related to the THP project area when available

Maps attached:

- Appurtenant Road Map
- ECP Site Locator Map

McCloud Shaw
Appurtenant Road Map

T3N R1W Sec. 1, 2, 3
 T4N R1W Sec. 26, 27, 28, 34, 35, 36

USGS Quad (s): FIELDS LANDING, MCWHINNEY CREEK

Appurtenant
 (Private Road)
 Property Line

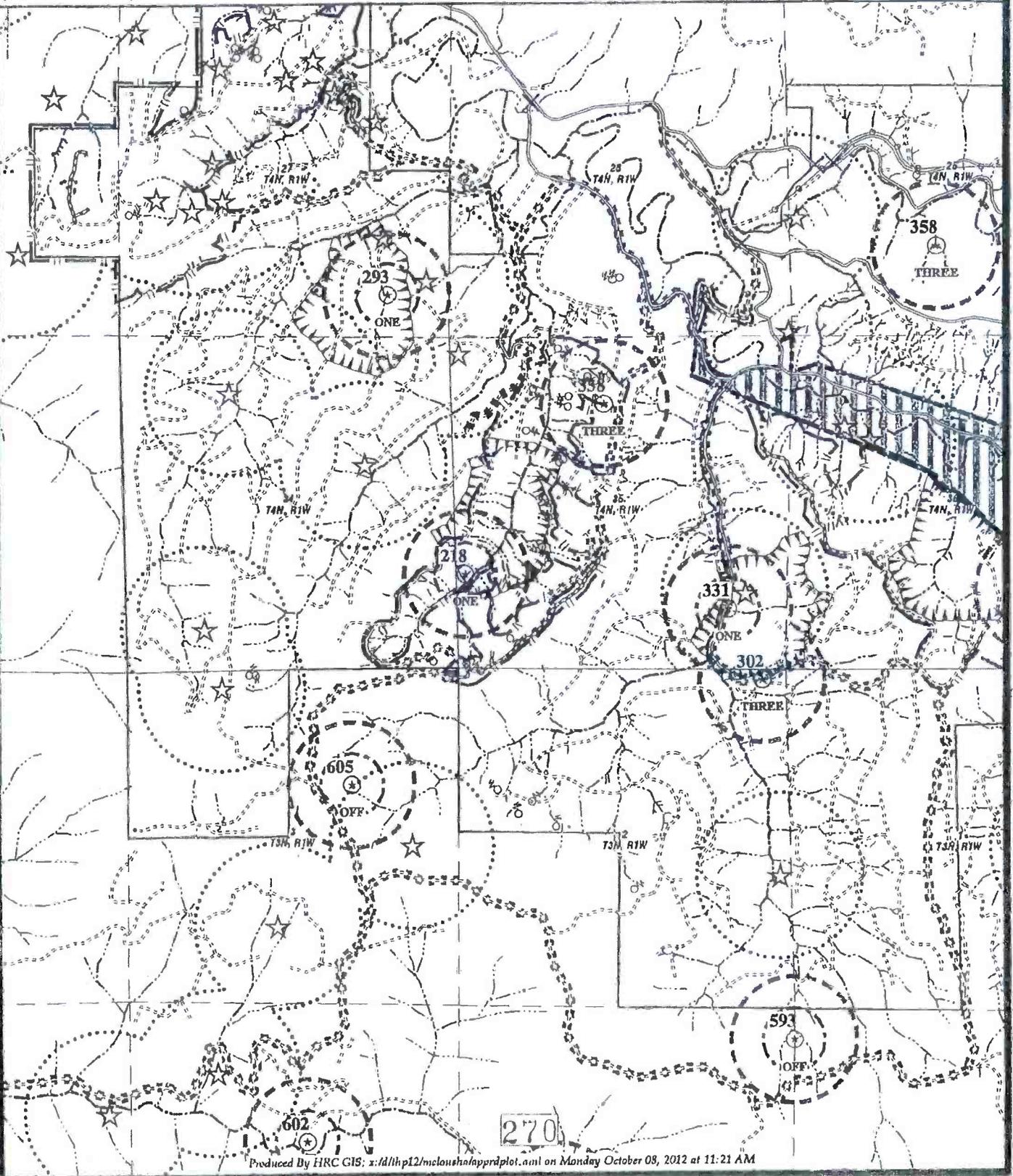
Permanent Road
 Seasonal Road
 Proposed
 Seasonal Road

Power Line
 NSO Site
 500' NSO Buffer
 1000' NSO Buffer
 HRA
 Osprey Site
 Gate

Quarter Mile Osprey Buffer

Federal, State and County Parks

Map Scale: 1 inch = 2000 feet



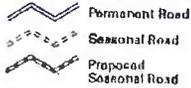
N McCloud Shaw
Appurtenant Road Map

T3N R1W Sec. 1, 2, 3 HRA#4
 T4N R1W Sec. 26, 27, 28, 34, 35, 36 HRA#4

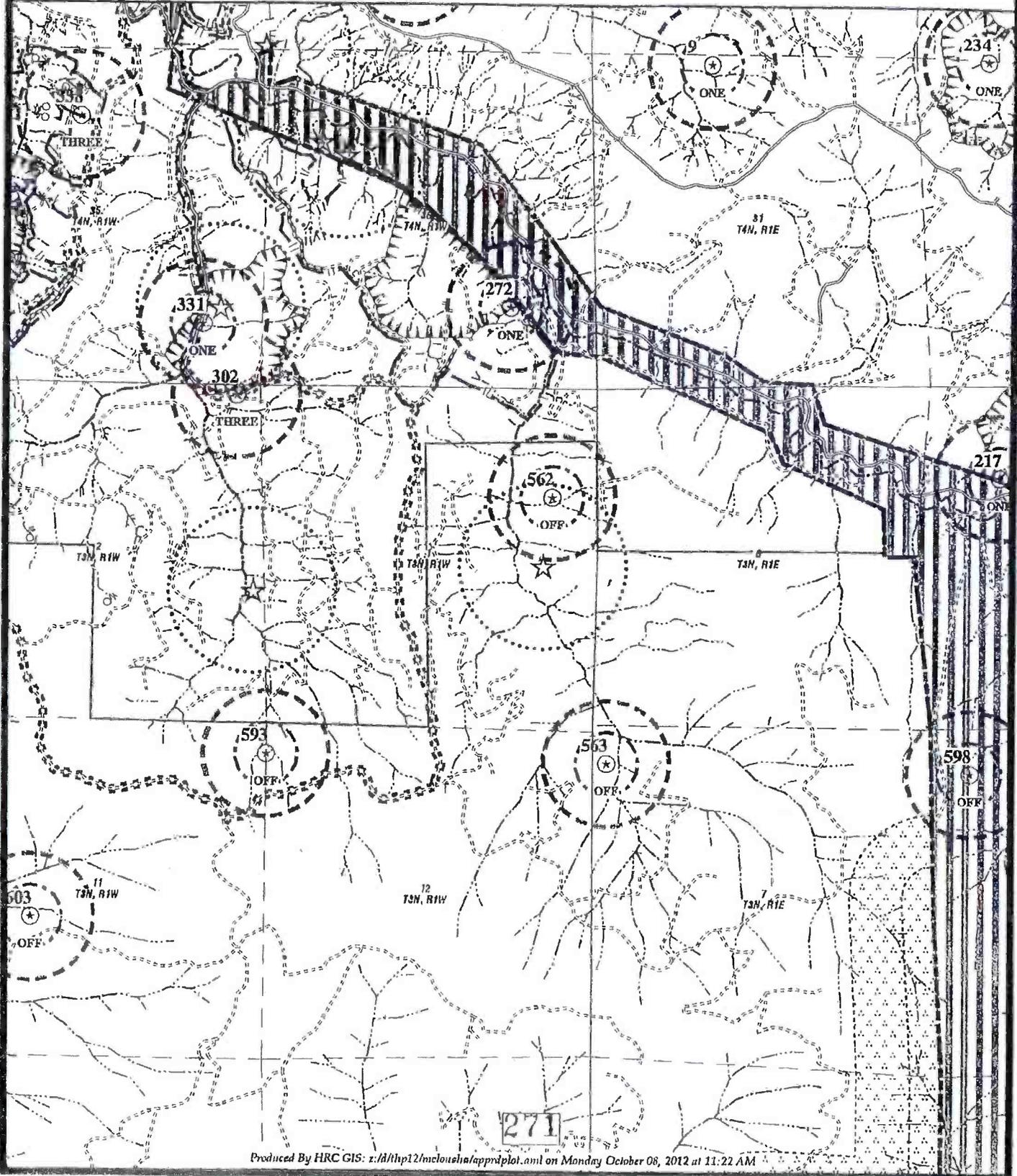
USGS Quad (a) : FIELDS LANDING, SCHINNEY CREEK



Federal, State and County Parks



Map Scale: 1 inch = 2000 feet



McCloud Shaw

N Road Construction Location Map

23N 24E 24C. 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
 23N 24E 24C. 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36

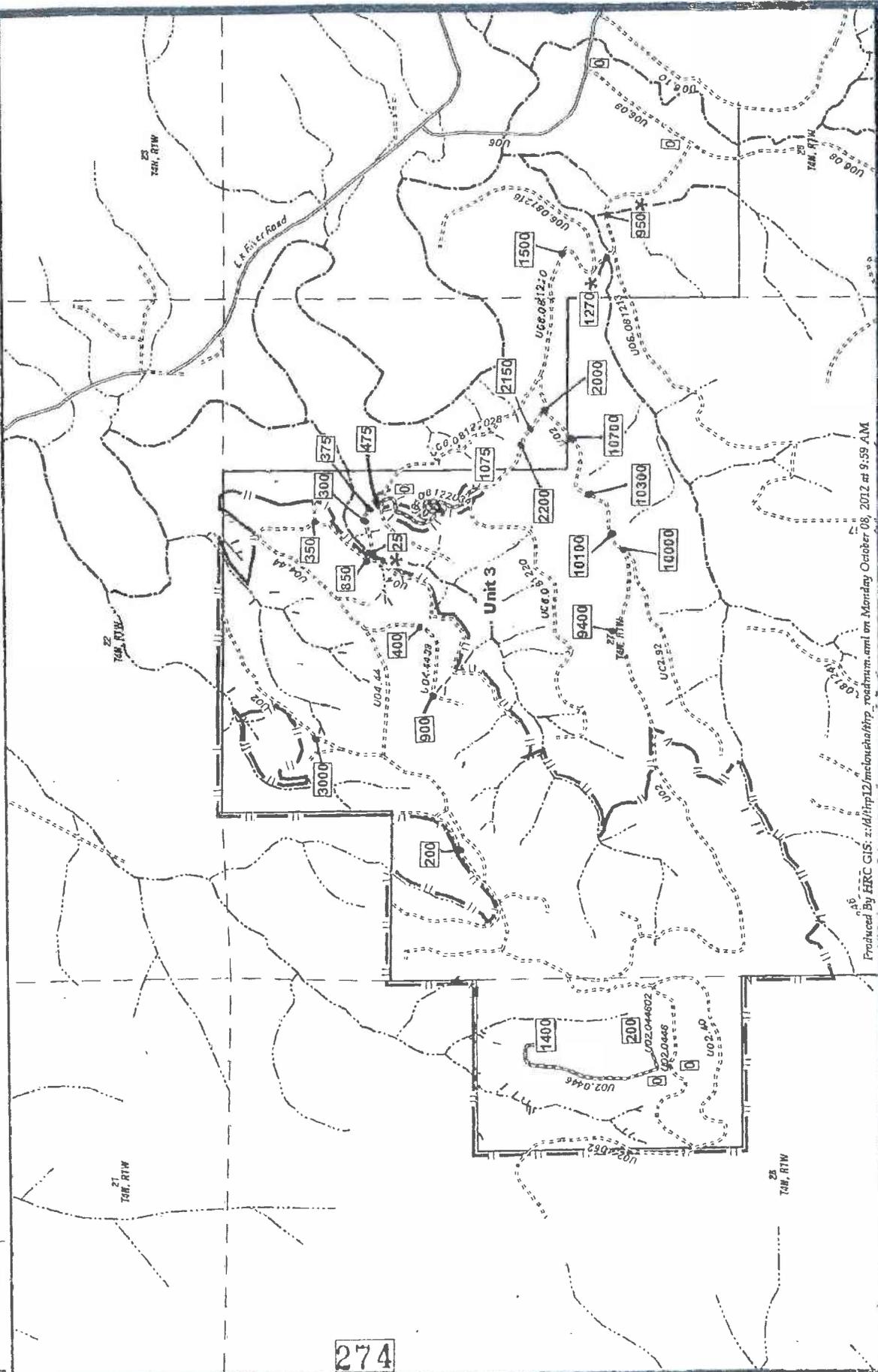
ECP Site Locator Map 3 of 3

USGS Quad (S) 7 FILLER LANDING, McBRIDE COUNTY

- Property Line
- Harvest Boundary
- Perimeter Road
- Subroad Road
- Proposed Subroad Road
- Class I Wetlands
- Class II Wetlands
- Class III Wetlands

* Indicates ECP Site

Map Scale: 1 inch = 1000 feet



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III Inspection Plan and Reporting Requirements

A. Inspection Plan

The Inspection Plan is designed to ensure that all required management measures are installed and functioning prior to rainfall events; that the management measures are effective in controlling sediment discharge sources throughout the winter period; and that no new controllable sediment discharge sources developed.

B. Qualified and trained professionals will conduct all specified inspections of the project site to identify areas causing or contributing to a violation of the applicable water quality requirements or other provisions of these WWDRs. The responsible party for inspection and reporting is **Jon Woessner (707) 764-376**.

C. No inspections are required in Project Areas where Timber Harvest Activities have not yet commenced.

D. Project Areas where Timber Harvest Activities have commenced and no winter period Timber Harvest Activities have occurred inspections will be conducted each year and throughout the duration of the Project while Timber Harvest Activities occur.

a. The Project is covered under WWDRs and the following inspection requirements will begin at the startup of timber harvest activities within the Project area:

- i. By November 15 to assure Project Areas are secure for the winter period;
- ii. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and
- iii. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

b. Project Areas with Winter Period Timber Harvest Activities will conduct inspections of such Project Areas while Timber Harvesting Activities occur and the Project is covered under the WWDRs as follows:

- i. Immediately following cessation of winter period Timber Harvest Activities to assure areas with winter Timber Harvest Activities are secure for the winter;
- ii. Once following ten (10) inches of cumulative rainfall commencing on November 15 and prior to March 1, as worker safety and access allows; and
- iii. After April 1 and before June 15 to assess the effectiveness of management measures designed to address controllable sediment discharges and to determine if any new controllable sediment discharges sources have developed.

c. Inspection reports will identify where management measures have been ineffective and when repairs and design changes will be implemented to correct management measure failures.

d. After completing the required inspections, and when it has been determined new controllable sediment discharges sources have developed, the ECP, implementation schedule, and inspection plan will be updated, if required, consistent with the WWDRs and submit the updated documents to the Regional Water Board to maintain coverage under the WWDRs. If the approved amendment is found to be out of compliance with the WWDRs, the Project will be amended to be consistent with the provisions of the WWDR within 30 days, or coverage under the WWDRs will be terminated. The Project will then be required to seek Project coverage under an individual WDR.

e. Equipment, materials, and workers will be available for rapid response to failures and emergencies, implement, as feasible, emergency management measures depending upon field conditions and worker safety for access.

D. If during the inspection or during the course of conducting timber harvest activities, a violation of an applicable water quality requirement or conditions of WWDRs is discovered, the following procedures will be followed:

a. When it has been determined that discharges are causing or contributing to a violation or an exceedence of an applicable water quality requirement or a violation of a WWDR prohibition:

- i. Corrective measures will be implemented immediately following the discovery that applicable water quality requirements were exceeded or a prohibition violated, followed by notification to the Regional Board by telephone as soon as possible but no later than 48 hours after the discharge has been discovered. The notification will be followed by a report within 14 days to the Regional Board, unless otherwise directed by the Executive Officer, that includes:
 1. the date the violation was discovered;
 2. the name and title of the person(s) discovering the violation;
 3. a map showing the location of the violation site;
 4. a description of recent weather conditions prior to discovering the violation;
 5. the nature and cause of the water quality requirement violation or exceedence or WWDR prohibition violation;

6. photos of the site characterizing the violation;
7. the management measure(s) currently being implemented;
8. any maintenance or repair of management measures;
9. any additional management measures which will be implemented to prevent or reduce discharges that are causing or contributing to the violation or exceedence of applicable water quality requirements or WWDR prohibition violation; and,
10. the signature and title of the person preparing the report.
11. the report will include an implementation schedule for corrective actions and describe the actions taken to reduce the discharges causing or contributing to violation or exceedence of applicable water quality requirements or WWDR prohibition violation.

E. For other inspections conducted where violations are not discovered, a summary report will be submitted to Executive Officer by June 30th for each year of coverage under the WWDRs or upon termination of coverage. The summary report, at a minimum will include the date of inspections, the inspector's name, the location of each inspection, and the title and name of the person submitting the summary report.

If helicopter operations are proposed for this project, please find attached a Columbia Helicopters, Inc. (CHI) Fuel Spill Prevention and Cleanup Plan For Columbia Helicopters Field Operations.

| Explanation of Information Included in the Controllable Sediment Sources Table | |
|--|--|
| Column Heading | Explanation |
| Site No. | Site identification unique to project area |
| Site Type | A description of the existing site. Example: Humboldt Crossing; Culvert Crossing; Unstable Fill; Unstable Cut Slope; Diversion Potential. |
| Estimate of Potential Erosion | A quantitative estimate of the volume, in cubic yards, of the total amount of potential erosion/displacement of soil that will occur should the site entirely fail. The landowner often uses a methodology developed by Pacific Watershed Associates to estimate erosion, which assumes 100% delivery of calculated volume—use of this method for individual sites is noted in Site Description. |
| Potential Sediment Delivery Percent | An estimate of the relative potential for sediment delivery expressed as a percent of the total amount of Potential Erosion that will be discharged to waters of the State should the site fail. |
| Sediment Prevention Volume | The volume, in cubic yards, of sediment discharge estimated to be prevented by implementation of the prescribed treatment. Volume represents the Estimate of Potential Erosion multiplied by the Potential Sediment Delivery Percent. |
| Priority for Treatment | Treatment priority reflects the immediacy of sediment discharge and the relative risk to the receptor, should the site fail. Low priority sites are ones that will not likely deliver significant amounts of sediment during the life of the WWDR permit, and will be treated prior to filing of THP work completion report, which does not exceed 5-years following THP approval date. Medium or high priority sites indicate potentially imminent discharge, and the timing of treatment is indicted in Implementation Schedule column. |
| Implementation Schedule | Indicates the timing of implementing the prevention and minimization measures listed in the Treatment column. |
| Site Description | Provides sufficient information that describes the existing condition of the site and factors that inform the chosen treatment methods and implementation schedule. This information will include a description of how the existing condition of the site (ie. stable or unstable) will be affected by different storm events, and whether sediment discharge is imminent. For example, an unstable site could easily discharge significant amounts of sediment in a small storm, thus the treatment priority should be higher. Conversely, a stable site that may take one or more very large storms to trigger discharge could be lower treatment priority. If PWA method is used to calculate erosion/delivery volumes, it will noted here. |
| Treatment | Sediment discharge prevention and minimization measures that will be implemented at the site, including treatment specifications if necessary. |

Attachments:

- ECP Table
- Skid Trail Inventory Summary
- Skid Trail Inventory Map

Erosion Control Plan

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| Site Type | Est. Potential Erosion (Cu.Yards) | Est. Potential Delivery (Cu.Yards & %) | Priority for Treatment | Priority for Implementation Schedule | Site Description | Treatment |
|--|-----------------------------------|--|------------------------|---|---|--|
| Project McCloud Shaw | | | | | | |
| RD: U06 STATION: 7836 SITE: WOID: -237534371 SEDDID: 11716 REPAIRED: NO | 12 | 12 100% | Med | Prior to Oct 15; FIRST year of operations. | Outside edge of road has slumped 2-3'; adjacent to a class I | Outside edge of road has slumped 2-3'. Base of the road is a redwood clump. Road is currently wide enough for truck up traffic. The road may be retreated into the easement up to 6 feet without additional review. Perched fills shall be pulled back from the outboard edge and incorporated into the re-graded road surface or end-hauled to an appropriate spoils location. The road shall be re-graded and the vertical outboard edge removed by lowering the grade and/or by compacting clean native fills against the vertical outboard edge of the fill slope. Disconnect any surface drainage that is concentrated on to the site as feasible. Refer to Geo report for further description. |
| RD: U06.0812 STATION: 950 SITE: C1 WOID: 1659629691 SEDDID: 11711 REPAIRED: NO | 20 | 20 100% | Med | Prior to THP Final Completion. | Replace existing culvert on a class I with a bridge. | Watercourse with minimal fish habitat, other than at high flows it could serve as refugia for salmonids. Replace existing culvert with a bridge. Ensure base of bridge is higher than existing road grade elevation. Refer to sketch map page 82.2 |
| RD: U06.0812 STATION: 1270 SITE: C2 WOID: 783837346 SEDDID: 11710 REPAIRED: NO | 40 | 40 100% | Med | Prior to THP Final Completion. | Culvert on class I has rusted through and may be a partial barrier to fish migration. | Existing 54" culvert on a class I watercourse. Culvert has rusted through and may be a partial barrier to fish migration. No recent signs of culvert overtopping. Replace culvert with a bridge. Ensure the base of the bridge is higher in elevation than current road grade. This should be sufficient to pass any sediment and debris. 100 yr culvert size (96") is larger than existing channel and at a hundred year event the site would be flooded by mainstem of elk river. Refer to sketch on page 82.3 |
| RD: U06.08122028 STATION: 25 SITE: C1 WOID: -384774712 SEDDID: 11712 REPAIRED: NO | 75 | 75 100% | High | Prior to Oct 15; FIRST year of operations. | Undersized culvert on a class I watercourse. | currently undersize 30" culvert on a class I watercourse. The culvert is serving as grade control and causing aggradation above the watercourse. The crossing is a barrier to fish migration. Replace culvert with a permanent bridge. Ensure grade controls above and below crossing are installed with either rip rap or large wood. RPF or Geologist to be on site during grade control construction to ensure controls are built to prevent headcutting and are passable to fish. Refer to sketch map page 82.1 |
| RD: U06.08122028 STATION: 200 SITE: WOID: 307896081 SEDDID: 11976 REPAIRED: NO | 25 | 25 100% | Med | Prior to THP Final Completion. | Existing culvert with a shotgun outlet. | Existing class II 24" culvert with a shotgun out. Replace with new 24" culvert. If crossing at 25' is to be abandoned then shall site shall be abandoned by pulling the existing crossing, excavating fill and slash packing channel. |

PART OF PLAN

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| Site | Site Type | Est. Potential Erosion (Cu.Yards) | Est. Potential Delivery (Cu.Yards & %) | Priority for Treatment | Implementation Schedule | Site Description | Treatment |
|--|------------------|-----------------------------------|--|------------------------|--|--|---|
| RD: U06.0825 STATION: 3700 SITE: S1 WOID: -405886763 SEDID: 11714 REPAIRED: NO | Crossing | 5 | 5 100% | Med | Prior to THP Final Completion. | Small sinkhole developing above class III. | Rolling dip above class III watercourse. The outlet of the dip has a small sinkhole developing. Excavate sinkhole and back fill with a mix of rock sizes. |
| RD: U06.0825 STATION: 4700 SITE: S2 WOID: 927140722 SEDID: 11717 REPAIRED: NO | Rocked Dip | 5 | 5 100% | Med | Prior to THP Final Completion. | Failing fill above class III. | Existing truck road above Class III watercourse. Install a rocked rolling dip. |
| RD: U06.0825 STATION: 4795 SITE: SFE806.1 WOID: 1182108339 SEDID: 15242 REPAIRED: NO | Surface Drainage | 13 | 13 100% | Med | Prior to THP Final Completion. | This segment of road above a class III, show signs of poor drainage. The rocked rolling dip will be installed at a low point in the road to aid in maintaining a dry road surface. The rock surfacing will also aid in maintaining a dry road surface. | Existing seasonal road above a class III watercourse. Install a rocked rolling dip. Rock surface the road back to Road Point 4700. |
| RD: U06.0825 STATION: 5300 SITE: WOID: 1362408171 SEDID: 15243 REPAIRED: NO | Surface Drainage | 5 | 5 100% | Med | Prior to THP Final Completion. | Spring/bank flow not disconnected from water course | Install cross drain (dip or drc) to drain springs along bank and road surface. |
| RD: U06.0825 STATION: 5400 SITE: WOID: 46306640 SEDID: 11977 REPAIRED: NO | Surface Drainage | 5 | 5 100% | Med | Prior to THP Final Completion. | Spring/bank flow not disconnected from watercourse | Install cross drain (dip or drc) to drain springs along bank and road surface. |
| RD: U06.0825 STATION: 7465 SITE: SFE807.3 WOID: 368796655 SEDID: 15248 REPAIRED: NO | Crossing | 120 | 120 100% | High | Prior to Oct 15; FIRST year of operations. | The crossing is located near the top of the class III. The crossing was not completely pulled following past operations. | Install a rock ford |
| RD: U06.0825 STATION: 8345 SITE: SFE809.1 WOID: 1236880132 SEDID: 15249 REPAIRED: NO | Crossing | 6 | 6 100% | Med | Prior to THP Final Completion. | The road crosses a class II spring. Perched fill is located at the outlet of the crossing. | Existing temporary crossing on a class II spring. Remove perched fill and install rocked ford |
| RD: U06.082517 STATION: 1100 SITE: SFE803.5 WOID: -1057562685 SEDID: 15240 REPAIRED: NO | Crossing | 1796 | 1796 100% | High | Prior to Oct 15; FIRST year of operations. | Failing humboldt on a class II | Failing humboldt. Excavated soil to LWD. Leave LWD in place, backfill with 6" minus rock to necessary road grade, creating a rocked ford. |

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PART OF PLAN

278.1

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 RESOURCE MANAGEMENT

PART OF PLAN

| Site | Site Type | Est. Potential Erosion (Cu.Yards) | Est. Potential Delivery (Cu.Yards & %) | Priority for Treatment | Implementation Schedule | Site Description | Treatment |
|--|-----------|-----------------------------------|--|------------------------|--------------------------------|--|---|
| RD: U06.221689 STATION: 845 SITE: C1 WOID: 1075078896 SEDID: 11715 REPAIRED: NO | Crossing | 5 | 5 100% | Med | Prior to THP Final Completion. | Sink holes are evident in the crossing on class III. | Existing crossing near the top of a class III watercourse. Sink holes are evident in the crossing. Excavate crossing to sinkhole depth, back fill with a mix of rock sizes to regain road grade and surface with road rock. |
| RD: U07 STATION: 360 SITE: C1 WOID: -1358500633 SEDID: 11713 REPAIRED: NO | Crossing | 10 | 10 100% | Low | Prior to THP Final Completion. | Partially pulled crossing on class III. | Existing partially pulled crossing. Install a permanent 24" culvert |
| Total Estimated Yards | | 2142 | 2142 | | | | |

Crossing Inventory Summary

A crossing inventory was updated and revised for Units 1 and 3. A crossing inventory was conducted on Unit 2. The crossing inventory includes *all* previously unidentified skid trail crossings located within the THP area. The sites were evaluated to determine if they meet the definition of Controllable Sediment Discharge Source. See the summary of inventoried sites below.

CROSSING INVENTORY - UNIT #1 (See Crossing Inventory Maps).

17 additional crossings were identified within Unit #1 (Sites A through Site P and Site T) All of these crossings are located within areas that were previously tractor yarded but are now proposed for cable yarding. The "Decision tree for road and off road sediment source site treatment" was reviewed and the sites are considered NO TREAT sites for the following reasons:

The sites will not be used for current or future timber operations. The amount of ground disturbance created by heavy equipment access is GREATER than the sediment saved from site remediation. Treatment may destabilize the adjacent hillslope. The majority of the sites have already delivered most of the volume originally stored in the site. The fills are stable with second and third growth trees and little evidence of active erosion. The sites are generally associated with watercourses with low stream power.

One previously identified NO TREAT site (Site U) will be treated due to its use as a truck road crossing for current and future Operations.

Three previously identified TREAT sites (Site Q, Site R, and Site S) have been reevaluated and based on the "Decision tree for road and off road sediment source site treatment" have been shifted to NO TREAT sites.

CROSSING INVENTORY - UNIT #2 (See Crossing Inventory Maps).

17 additional crossings were identified within Unit #2 (Sites A through Sites Q). All additional crossings are located within areas that were previously tractor yarded but are now proposed for cable yarding. The "Decision tree for road and off road sediment source site treatment" was reviewed and the sites are considered NO TREAT sites for the following reasons:

The sites will not be used for current or future timber operations. The amount of ground disturbance created by heavy equipment access is GREATER than the sediment saved from site remediation. Treatment may destabilize the adjacent hillslope. The majority of the sites have already delivered most of the volume originally stored in the site. The fills are stable with second and third growth trees and little evidence of active erosion. The sites are generally associated with watercourses with low stream power.

The remaining sites within Unit #2 that have been identified as TREAT SITES will be treated due their being along truck roads that will be used for current and future operations.

CROSSING INVENTORY - UNIT #3 (See Crossing Inventory Maps).

4 additional crossings were identified within Unit #3 (Sites A through Sites D). All additional crossings are located within areas that were previously tractor yarded but are now proposed for cable yarding. The "Decision tree for road and off road sediment source site treatment" was reviewed and the sites are considered NO TREAT sites for the following reasons:

The sites will not be used for current or future timber operations. The amount of ground disturbance created by heavy equipment access is GREATER than the sediment saved from site remediation. Treatment may destabilize the adjacent hillslope. The majority of the sites have already delivered most of the volume originally stored in the site. The fills are stable with second and third growth trees and little evidence of active erosion. The sites are generally associated with watercourses with low stream power.

Five previously identified TREAT sites (Site E through Site J) have been reevaluated and based on the "Decision tree for road and off road sediment source site treatment" have been shifted to NO TREAT sites. All sites are along an existing streamside truck road that is not proposed for use for current or future operations. The area was previously tractor logged and will no be yarded from the upper ridge top road using cable based systems.

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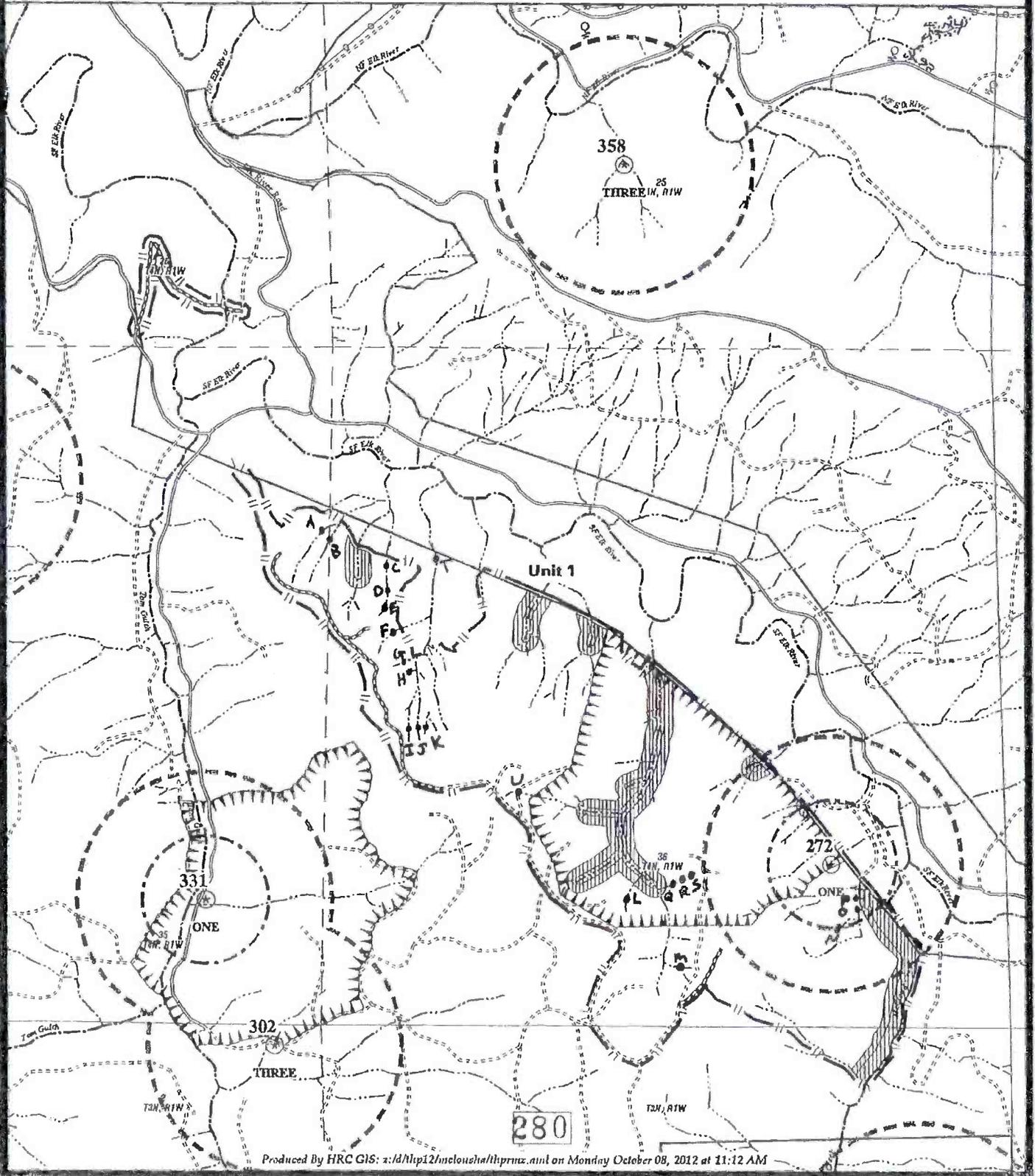
Crossing Inventory Map 1 of 3

T3N R1W Sec. 1, 2, 3 H6&H
 T4N R1W Sec. 26, 27, 28, 34, 35, 36 H6&H

USGS Quad (e) : FIELDS LANDING, McHENREY CREEK

- | | | | | | |
|---------|------------------------|---|-----------------------|----|------------------|
| — | Property Line | ~ | Class I Watercourse | ⊙ | Power Line |
| | Harvest Boundary | ~ | Class II Watercourse | ⊙* | NSO Site |
| — | Permanant Road | ~ | Class III Watercourse | ⊙* | 600' NSO Buffer |
| - - - - | Seasonal Road | ~ | Class II Wetans | ⊙* | 1000' NSO Buffer |
| - - - - | Proposed Seasonal Road | ~ | | ⊙* | HRA |
| | | | | | RMZ of WLPZ Area |

Map Scale: 1 inch = 1000 feet



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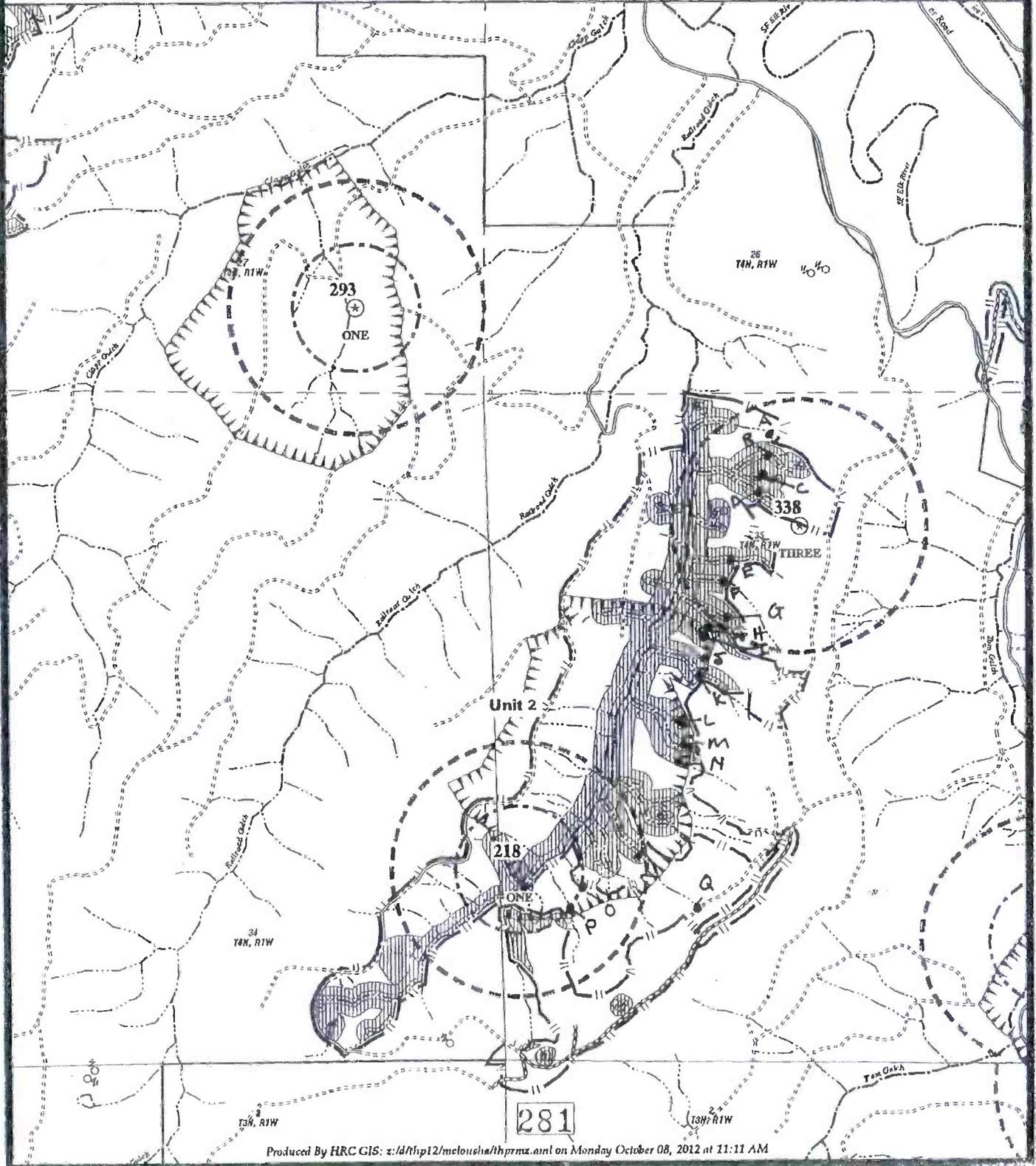
N Crossing Inventory Map 2 of 3

T3N R1E Sec. 1, 2, 3 1B6M
 T4N R1W Sec. 26, 27, 28, 34, 35, 36 1B6M

USGS Quad (e): FIELDS LANDING, MENHINNEY CREEK

Map Scale: 1 inch = 1000 feet

- | | | | | | | | |
|-------|------------------------|---|-----------------------|---|------------------|---|------------------|
| — | Property Line | ~ | Class I Watercourse | ☆ | NSD Site | ▨ | RMZ or WIPY Area |
| | Harvest Boundary | ~ | Class II Watercourse | ⊙ | 500' NSO Buffer | | |
| — | Permanent Road | ~ | Class III Watercourse | ⊙ | 1000' NSO Buffer | | |
| - - - | Seasonal Road | ~ | Class II Water | ⊙ | HRA | | |
| - - - | Proposed Seasonal Road | | | | | | |



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Crossing Inventory Map 3 of 3

2017 RLR Sec. 1, 2, 3
 2017 RLR Sec. 26, 27, 28, 34, 35, 36 BACK

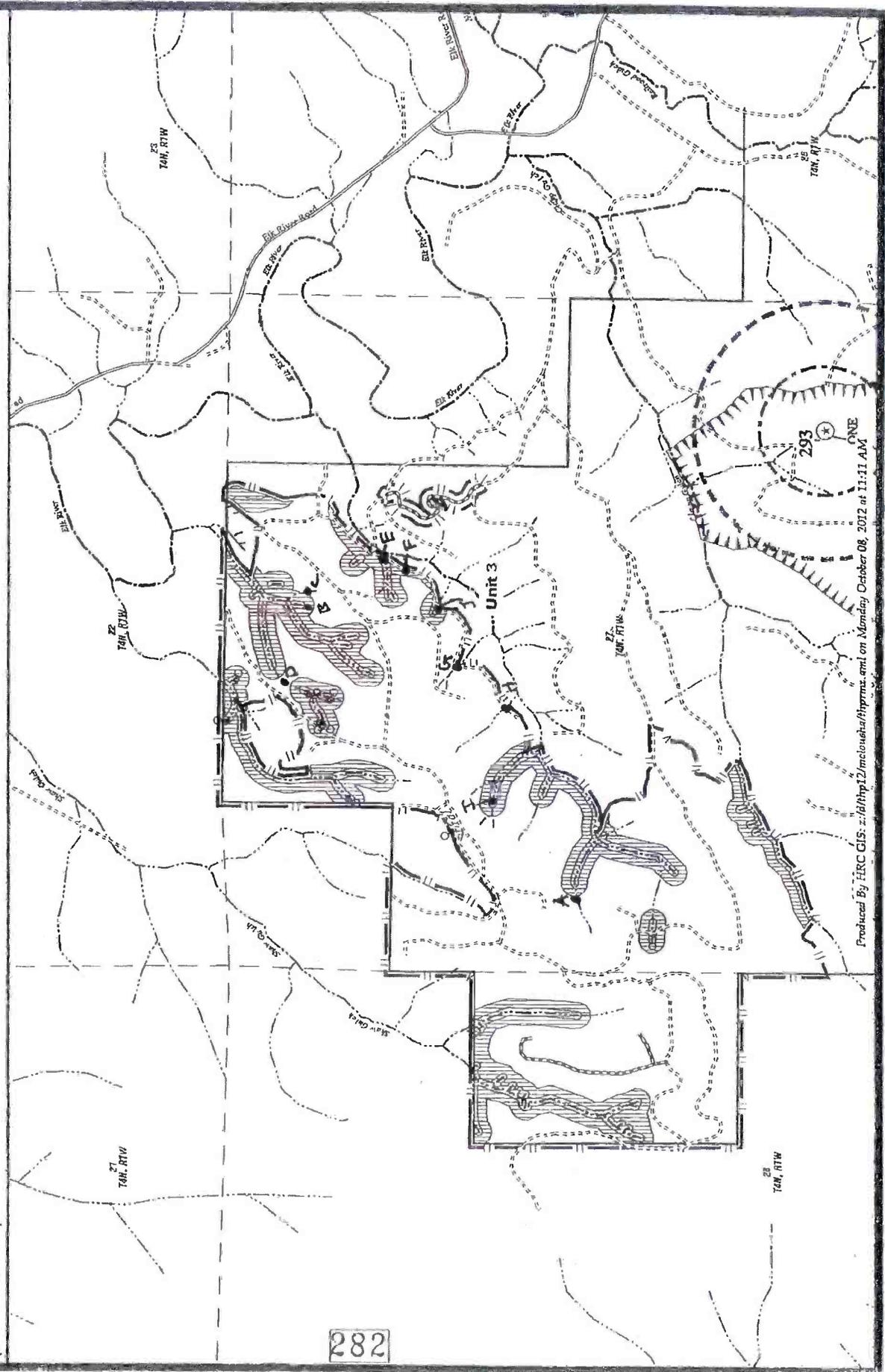
10000 Quad (A) - FIELDS LANDING, MONTICNEY CREEK

- Property Line
- Harvest Boundary
- Permanant Road
- Seasonal Road
- Proposed
- Seasonal Road
- Class I Wetlands
- Class II Wetlands
- Class III Wetlands
- Class II Wetlands
- NSO Sid
- 600' NSO Buffer
- 1000' NSO Buffer
- HRA



Map Scale: 1 inch = 1000 feet

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Produced By: HRC GIS: z:\61\hp12\mcloudshaw\hrrms.mxd on Monday, October 08, 2012 at 11:11 AM

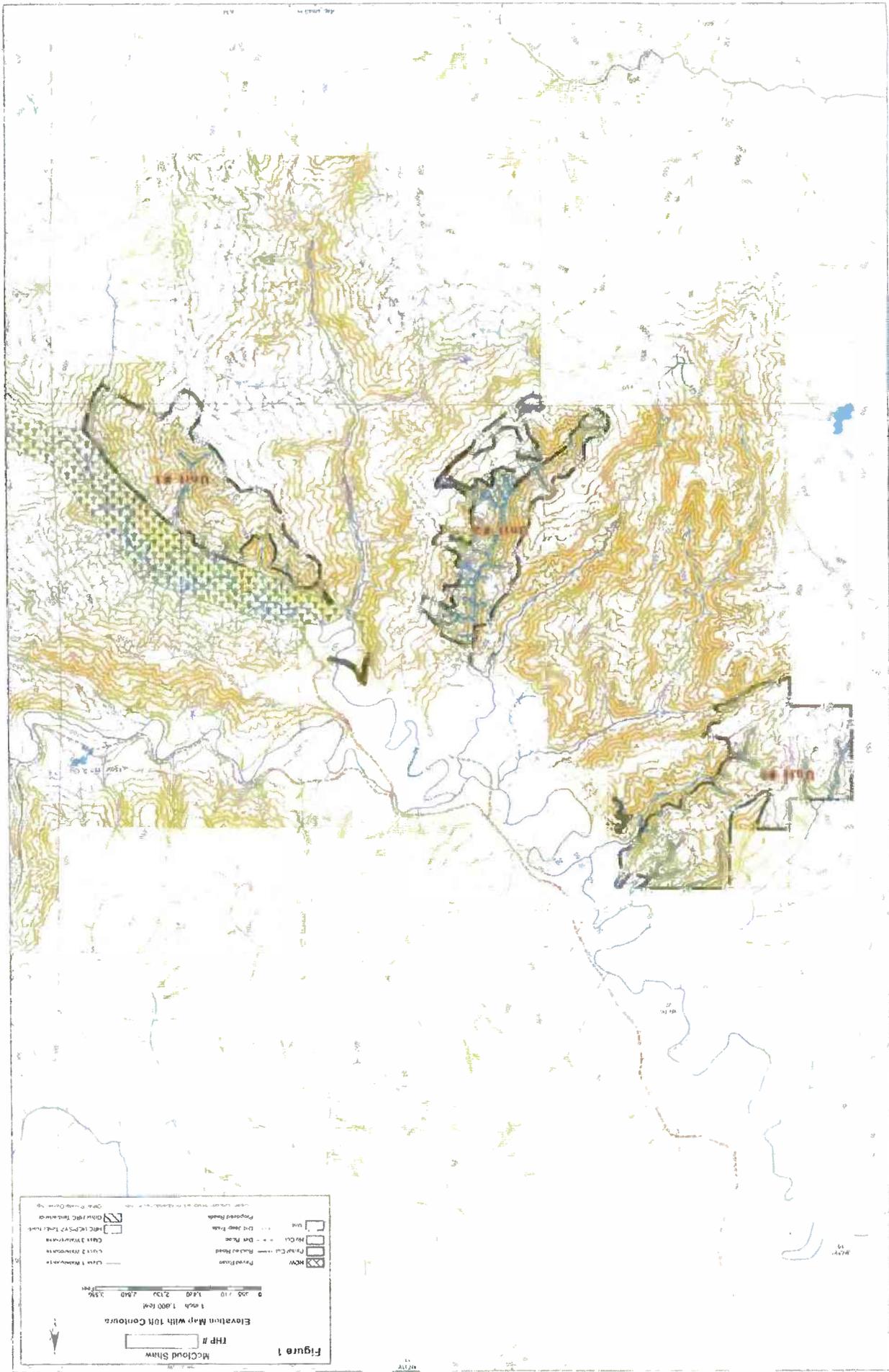


Figure 1
 McCloud Shew
 TWP # _____
 Elevation Map with 10ft Contours
 1 inch = 1,000 feet
 0 500 1,000 1,500 2,000 2,500 3,000 3,500 feet

| | | | |
|---|---------------|---|---------------|
| <input type="checkbox"/> Hatched | Proposed Road | <input type="checkbox"/> Hatched | Proposed Road |
| <input type="checkbox"/> Dotted | Dry Wash | <input type="checkbox"/> Dotted | Dry Wash |
| <input type="checkbox"/> Solid | Dry Road | <input type="checkbox"/> Solid | Dry Road |
| <input type="checkbox"/> Solid with dashed center | Proposed Road | <input type="checkbox"/> Solid with dashed center | Proposed Road |
| <input type="checkbox"/> Solid with double center | Private Road | <input type="checkbox"/> Solid with double center | Private Road |

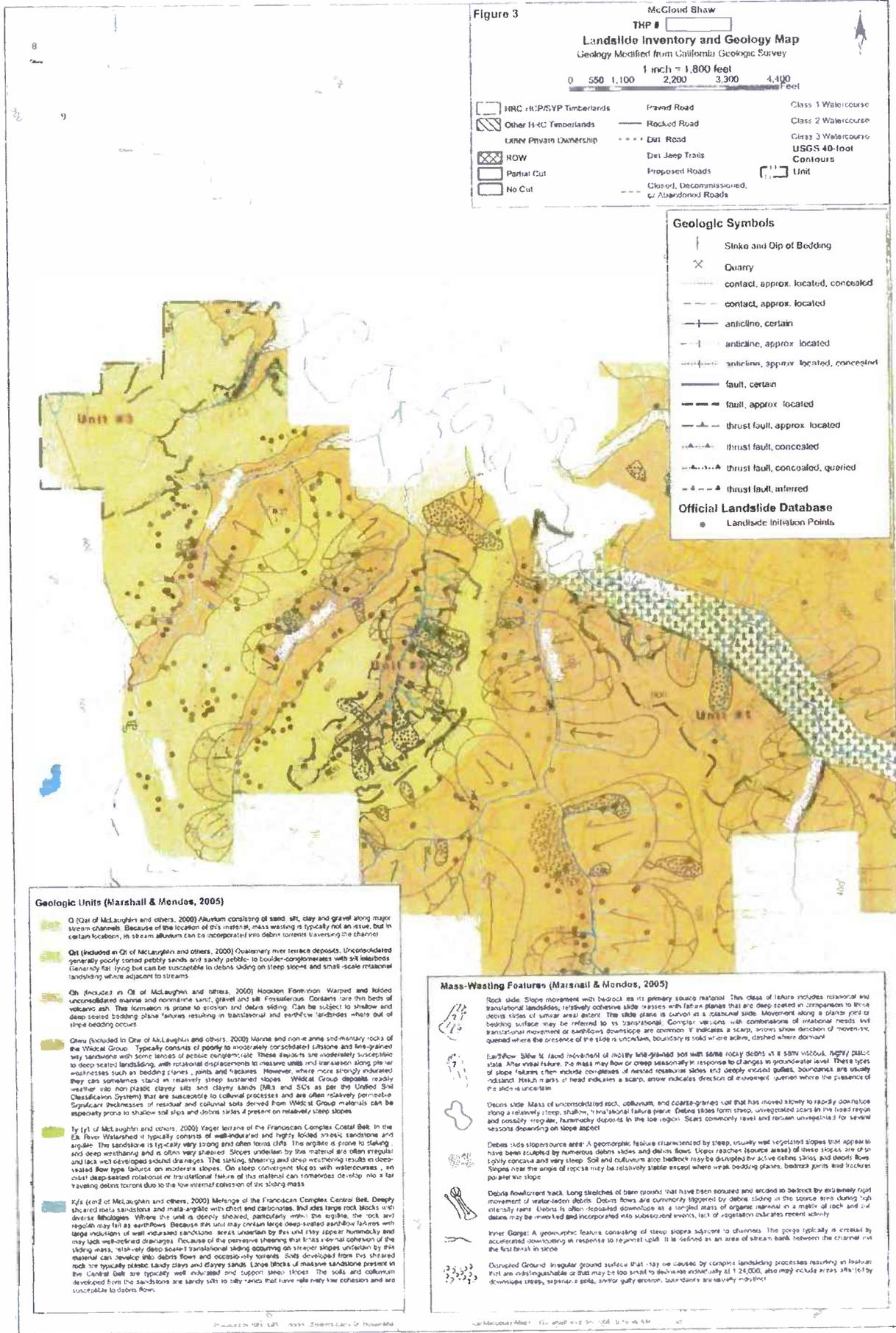


Figure 3
 McCloud Shew
 THP # []
Landslide Inventory and Geology Map
 Geology Modified from California Geologic Survey
 1 inch = 1,800 feet
 0 550 1,100 2,200 3,300 4,400 Feet

| | | | |
|----------|-------------------------|--|-----------------------|
| [Symbol] | HRC H-C/SYP Timberlands | Fravel Road | Class 1 Watercourse |
| [Symbol] | Other H-C Timberlands | Rocked Road | Class 2 Watercourse |
| [Symbol] | URR Private Ownership | Dirt Road | Class 3 Watercourse |
| [Symbol] | ROW | Dirt Jeep Trails | USGS 40-foot Contours |
| [Symbol] | Partial Cut | Proposed Roads | Limit |
| [Symbol] | No Cut | Closed, Decommissioned, or Abandoned Roads | |

Geologic Symbols

- [Symbol] Sink and Dip of Bedding
- [Symbol] Quarry
- [Symbol] contact, approx. located, concealed
- [Symbol] contact, approx. located
- [Symbol] anticline, certain
- [Symbol] anticline, approx. located
- [Symbol] anticline, approx. located, concealed
- [Symbol] fault, certain
- [Symbol] fault, approx. located
- [Symbol] thrust fault, approx. located
- [Symbol] thrust fault, concealed
- [Symbol] thrust fault, concealed, queried
- [Symbol] thrust fault, inferred

Official Landslide Database

- [Symbol] Landslide Initiation Points

Geologic Units (Marshall & Mendos, 2005)

- Q1** (part of McLaughlin and others, 2000) Alluvium consisting of sand, silt, clay and gravel along major stream channels. Because of the location of this material, mass wasting is typically not an issue, but in certain locations, stream alluvium can be incorporated into debris torrents traversing the channel.
- Qt** (included in Qt of McLaughlin and others, 2000) Quaternary river terrace deposits. Unconsolidated generally poorly sorted pebbly sands and sandy pebbles to boulder-conglomerates with silt interbeds (generally fine). They can be susceptible to debris sliding on steep slopes and small-scale rotational topsoil where adjacent to streams.
- Qn** (included in Qn of McLaughlin and others, 2000) Holocene Formation. Warped and folded unconsolidated marine and non-marine sand, gravel and silt. Considerable. Contains rare thin beds of volcanic ash. The formation is prone to erosion and debris sliding. Can be subject to shallow and deep seated bedding plane failures resulting in translational and earthflow landslides where out of the bedding occurs.
- Qm** (included in Qm of McLaughlin and others, 2000) Marine and non-marine sedimentary rocks of the Miocene Group. Typically consists of poorly to moderately consolidated siltstone and fine-grained silt sandstones with some lenses of acidic outcrop-radic. These deposits are moderately susceptible to deep seated landsliding, with rotational displacements in massive units and translation along planar weaknesses such as bedding planes, joints and fractures. However, where more strongly indurated they can sometimes stand on relatively steep sustained slopes. WMSG Group deposits readily weather into non-plastic clayey silts and clayey sands (M3 and S2) as per the United Soil Classification System) that are susceptible to rotational processes and are often relatively permeable. Significant thicknesses of residual and colluvial soils derived from WMSG Group materials can be especially prone to shallow soil slips and debris slides if present on relatively steep slopes.
- Qc** (part of McLaughlin and others, 2000) Yager terrane of the Franciscan Complex Coastal Belt. In the EA River Watershed it typically consists of well-indurated and highly folded orogenic sandstones and argillite. The sandstone is typically very strong and often forms cliffs. The argillite is prone to slaking, and deep weathering and is often very plastic. Slopes underlain by the material are often irregular and lack well developed subsoil drainages. The slaking, shearing and deep weathering results in deep-seated low angle rotational failure. On steep convergent slopes with watercourses, an out of deep-seated rotational or translational failure of this material can sometimes develop into a far traveling debris torrent due to the low internal cohesion of the sliding mass.
- Qd** (part of McLaughlin and others, 2000) Metrege of the Franciscan Complex Coastal Belt. Deeply sheared meta sandstone and meta argillite with chert and carbonates. Includes large rock blocks with diverse lithologies. Where the soil is deeply sheared, particularly within the argillite, the rock and argillite may fail as earthflows. Because this unit may contain large deep-seated subsoil failures with large volumes of well-saturated argillite, areas underlain by this unit may appear hummocky and may lack well-defined drainages. Because of the pervasive shearing that limits vertical cohesion of the sliding mass, shallow deep seated translational sliding occurring on steeper slopes underlain by this material can develop into debris flows and occasionally torsees. Soils developed from this sheared rock are typically plastic sandy clays and clayey sands. Large blocks of massive sandstone present in the Coastal Belt are typically well indurated and support steep slopes. The soils and alluvium developed from the sandstones are sandy silts to silty sands that have relatively low cohesion and are susceptible to debris flows.

Mass-Wasting Features (Marshall & Mendos, 2005)

- Rock slide** Slope movement with bedrock as its primary source material. This class of failure includes rotational and translational landslides, relatively cohesive slide masses with lateral planes that are deep seated in comparison to live debris slides of similar area extent. The slide plane is curvilinear in rotational slides. Movement along a planar joint or bedding surface may be referred to as translational. Geologic features with combinations of rotational heads and translational movement or both down slope are common. Y indicates a scarp, arrows show direction of movement, queried where the presence of the slide is uncertain, boundary is solid where active, dashed where dormant.
- Landslide** Slide of land involvement of mobility limited debris with some rocky debris in a semi viscous, heavy plastic state. After initial failure, the mass may flow or creep seasonally in response to changes in groundwater level. These types of slope failures often include combinations of nested rotational slides and deeply eroded gullies, boulders are usually not found. Head marks or head indicates a scarp, arrow indicates direction of movement, queried where the presence of the slide is uncertain.
- Debris slide** Mass of unconsolidated rock, colluvium, and coarse-grained soil that has moved slowly to rapidly down slope along a relatively steep, shallow, translational failure plane. Debris slides form steep, unvegetated scars in the head region and possibly irregular, hummocky deposits in the toe region. Scars commonly level and remain unvegetated for several seasons depending on slope aspect.
- Debris slide slopes source area** A geomorphic feature characterized by steep, usually well-vegetated slopes that appear to have been sculpted by numerous debris slides and debris flows. Upper reaches (source areas) of these slopes are often lightly concave and very steep. Soil and colluvium slope bedrock may be disrupted by active debris slides and debris flows. Slopes near the angle of repose may be relatively stable except where weak bedding planes, bedrock joints and fractures point into slope.
- Debris flow/corridor track** Long stretches of bare ground that have been scoured and eroded to bedrock by extremely rapid movement of water-laden debris. Debris flows are commonly triggered by debris sliding on the source area during high intensity rains. Debris in often deposited down slope as a longed mass of organic material in a matrix of rock and soil debris may be reworked and incorporated into subsequent events, text of vegetation indicates recent activity.
- Inner Gorge** A geomorphic feature consisting of steep slope adjacent to channels. The gorge typically is created by accelerated downcutting in response to repeated slide. It is defined as an area of stream bank between the channel and the first bench in slope.
- Disturbed ground** Irregular ground surface that may be caused by complex landsliding processes resulting in features that are indistinguishable or that may be too small to be visible on the July 81 1:25,000, also may include areas that do not develop steep, separate spots, unless gully erosion, bare scars are clearly indicated.

Figure 6

McCloud Show

TWP #

Watershed Analysis Deep-Seated Landslide

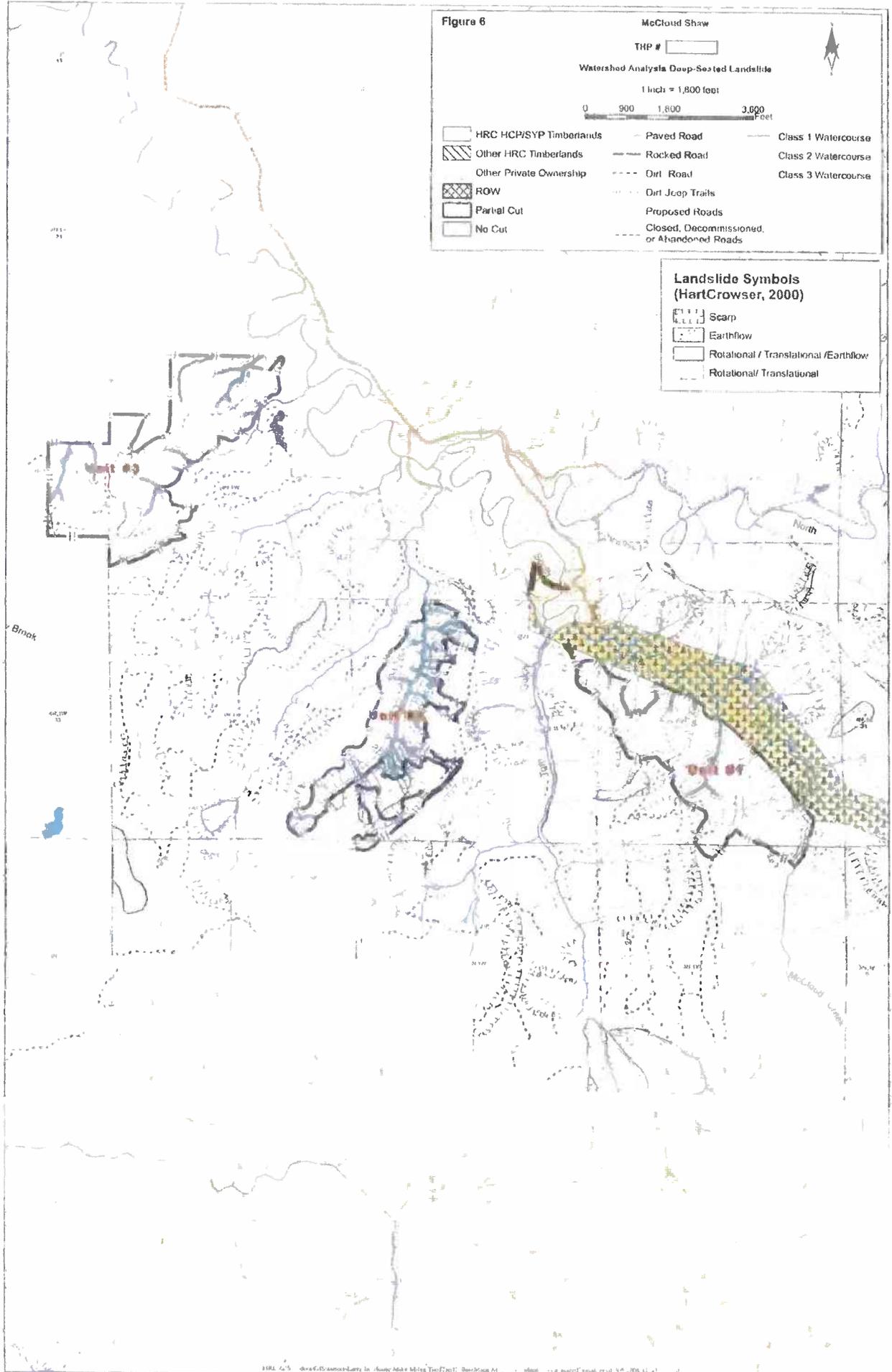
1 inch = 1,800 feet

0 900 1,800 3,600 Feet

- | | | |
|---|--|---|
|  HRC HCP/SYP Timberlands |  Paved Road |  Class 1 Watercourse |
|  Other HRC Timberlands |  Rocked Road |  Class 2 Watercourse |
|  Other Private Ownership |  Dirt Road |  Class 3 Watercourse |
|  ROW |  Dirt Jeep Trails | |
|  Partial Cut |  Proposed Roads | |
|  No Cut |  Closed, Decommissioned, or Abandoned Roads | |

Landslide Symbols (HartCrowser, 2000)

- | |
|--|
|  Scarp |
|  Earthflow |
|  Rotational / Translational / Earthflow |
|  Rotational / Translational |



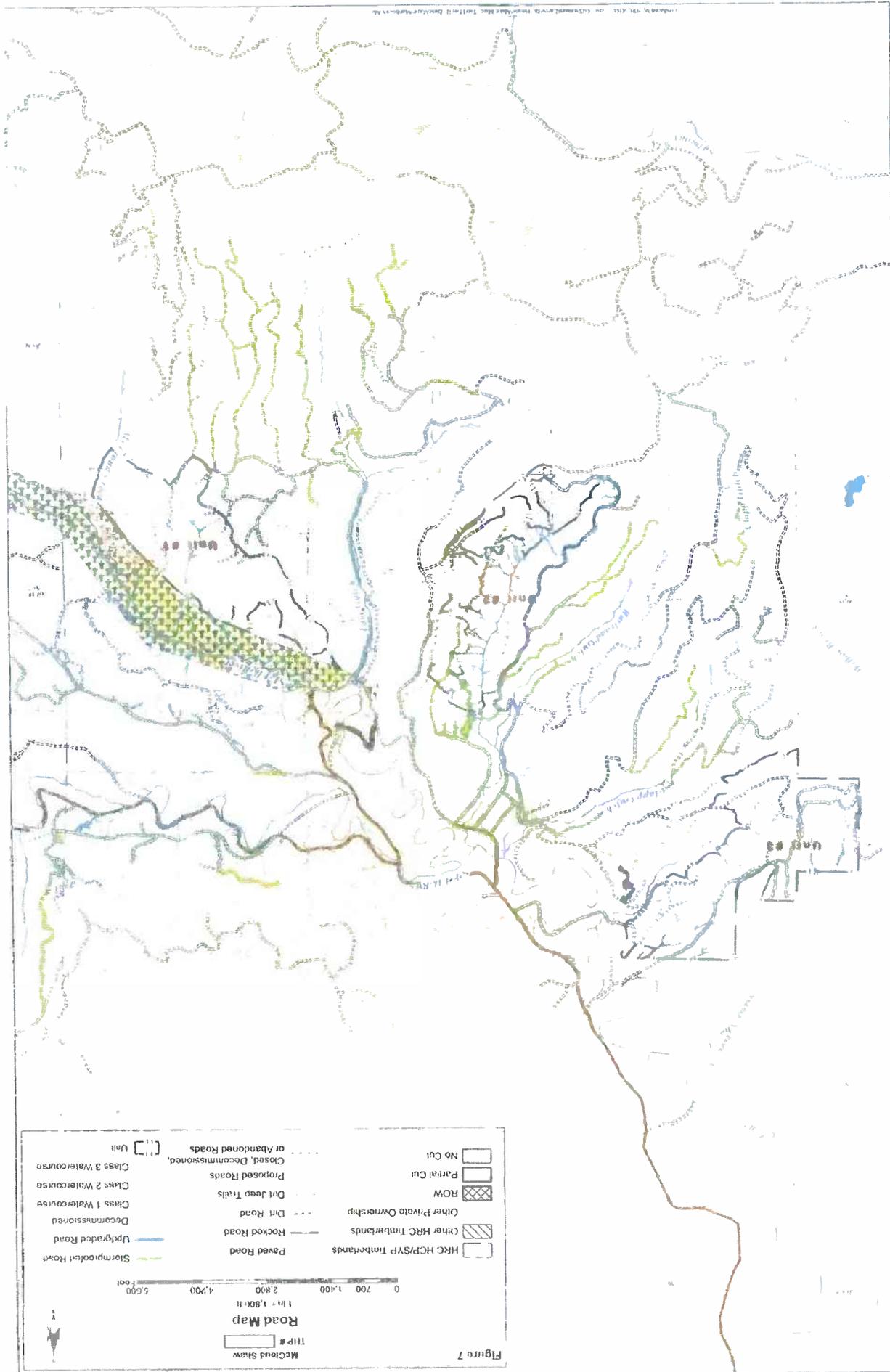


Figure 7

EXHIBIT 11



North Coast Regional Water Quality Control Board

September 5, 2013

Mr. Jon Woessner
Humboldt Redwood Company, LLC.
P.O. Box 712
Scotia, CA 95565
jwoessner@hrcllc.com

Dear Mr. Woessner:

Subject: Application for coverage of 1.0 acre of road right-of-way construction and upgrading under *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region*, Order No. R1-2004-0030

File: GWDR 1-12-110 HUM, McCloud-Shaw THP

On May 2, 2013, we received your request for coverage of 1.0 acre of road right-of-way construction and upgrading on portions of timber harvesting plan (THP) 1-12-110 HUM, the McCloud-Shaw THP, under Order No. R1-2004-0030, *General Waste Discharge Requirements for Discharges Related to Timber Harvest Activities on Non-Federal Lands in the North Coast Region*. The North Coast Regional Water Quality Control Board is no longer collecting fees for the Timber General WDRs due to the passage of California Assembly Bill 1492.

The 590-acre THP is located in the South Fork and mainstem Elk River watersheds. The proposed silviculture methods include selection and group selection. Harvesting will consist of tractor yarding, high-lead and skyline cable yarding methods. The Erosion Control Plan (ECP) contains 13 controllable sediment discharge sites (CSDSs) and proposes road construction and upgrading on land owned by three additional land owners.

The plan is predominantly on land owned by HRC in the South Fork and mainstem Elk River watersheds. Timber harvesting activities conducted by HRC in the South Fork Elk River watershed are typically enrolled for coverage under *Watershed-Wide Waste Discharge Requirements for Timber Harvesting Activities Conducted by Humboldt Redwood Company, LLC, in the Elk River Watershed*, Order No. R1-2006-0039. Presently there is no permitting mechanism for timber harvesting activities in the mainstem Elk River watershed.

DAVID M. NICHOL, CHAIR • MATTHIAS ST. JOHN, EXECUTIVE OFFICER

5550 Skyline Blvd Suite A Santa Rosa CA 95403 • www.waterboards.ca.gov/northcoast

Because timber harvesting activities are proposed in the South Fork Elk and mainstem Elk River watersheds, as well on lands owned by three additional landowners, the Regional Water Board determined that HRC will seek Regional Board permitting coverage for the McCloud-Shaw THP under Order No. R1-2004-0030, and will also comply with all the general terms and conditions of Order No. R1-2006-0039, and specifically the terms, conditions, and limits for the South Fork Elk River.

The 1.0 acre of road right-of-way construction and upgrading consists of THP road segment 0 – 1050, road segment 1050 – 1300, and the construction of a permanent bridge over the South Fork Elk River at THP road point 1050. During review of the plan and the application for enrollment, staff determined that additional information was needed before the application could be deemed complete. A letter was sent to HRC on May 30, 2013, requesting additional information regarding the design standards used in the development of the bridge deck elevation and design features, the model(s) that were used in determining flood water elevations used in the bridge design, and whether the bridge will be used for activities other than timber harvesting. Additionally, documentation that the bridge did not require U.S. Army Corps of Engineers Clean Water Act Section 404 permitting, and a copy of the California Department of Fish and Wildlife 1602 Lake and Streambed Agreement for the bridge were also requested.

HRC has submitted the requested information to RWB staff, with the last requested item received on August 19, 2013.

After reviewing the application for completeness, which included: the final California Department of Forestry and Fire Protection approved THP, the preharvest inspection reports, the ECP contained in the THP, and the additional requested information, we have determined that the application is complete and that waste discharges from road construction and upgrading on the 1.0 acre of road right-of-way within THP 1-12-110 HUM is eligible for coverage under Order No. R1-2004-0030.

The 1.0 acre of road right-of-way construction and upgrading within THP 1-12-110 HUM is now subject to the requirements of Order No. R1-2004-0030, the general terms and conditions of Order No. R1-2006-0039, and specifically the terms, conditions, and limits for the South Fork Elk River. We urge you to review and familiarize yourself with the provisions of the Orders. Please be aware that inspections of the plan area are required pursuant to Order No. R1-2004-0030, regardless of the presence of CSDSs. If you have any questions, please call Maggie Robinson of our staff at (707) 576-2292.

Sincerely,

Original signed by Fred Blatt for

Matthias St. John
Executive Officer

EXHIBIT 12



**Humboldt
Redwood™**

April 27, 2015

Mr. Matthias St. John
California Regional Water Quality Control Board
North Coast Region
5550 Skylane Blvd, Suite A
Santa Rosa, CA 95403

Subject: Application for Coverage of a portion of THP 1-12-110 HUM (McCloud Shaw) under Watershed-Wide Waste Discharge Requirement (WWDR) Order No. R1-2006-0039 / So Fork Elk River WWDR, "Tier I & II".

Dear Mr. St. John:

HRC is requesting Tier I & Tier II enrollments for portions of THP 1-12-110 HUM under the General WDR for timber (Order R1-2004-0030). In addition to complying with the terms and conditions of Order R1-2004-0030, as a condition of enrollment of the McCloud Shaw THP under R1-2004-0030, HRC will also comply with all the general terms and conditions of Order R1-2006-0039 (as amended by R1-2008-0100), and specifically the terms, conditions, and limits for the South Fork Elk River.

This enrollment is comprised of 187 acres of selection logging, (114 acres Tier I and 73 acres of Tier II) located in Unit 1. Total acres currently enrolled or proposed for enrollment under Order No. R1-2006-0039 Tier I & II are shown in the Attached HRC 2015 Pre-Harvest Planning Report. A complete Tier II enrollment package is not included with this letter as it remains posted on the Regional Board's website *THP 1-12-110 HUM (Posted June 24, 2013)*.

In keeping with the recently submitted *Application/Report of Waste Discharge (ROWD)* for sediment discharges from timber harvesting activity conducted by Humboldt Redwood Company, LLC, in the Elk River watershed, dated April 9, 2015; HRC agrees to operate this enrollment with additional mitigations measures as described below.

While the THP is covered under the watershed wide WDR, the discharger is and will remain in compliance with the Terms and Provisions of this Order. Other portions of the plan will be, or have previously been enrolled.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information submitted. The information is, to the best of my knowledge and belief true, accurate and complete.

Please do not hesitate to contact me should you have any questions or comments regarding this application for enrollment into WWDR (Order No. R1-2006-0039).

Respectfully,



Tom Schultz,
Forest Manager, RPF #1910
Humboldt Redwood Company, LLC

Attachments:

Pre-harvest Planning Report Table,
Enrollment Map,

Additional Mitigation Measures:

The intent of the following mitigation is to further reduce the influence timber operations can have on the stability of slopes/ soils and the subsequent potential delivery of sediment to down slope watercourses.

- *Slopes with gradients equal to or greater than 50% and within 300 feet of a Class I or II watercourses shall be field reviewed by a state license professional geologist.*
- *Retention of a minimum of 150 square feet of basal area (of any commercial species) per acre shall be required on headwall swales that envelope Class III watercourse source areas as identified in THP geologic reports.*
 - *Headwall swales are steep (50% plus) areas of convergent topography that intercept, without interruption, a watercourse. These commonly concave, spoon-shaped landforms range from 30 to 200 feet in width and terminate at defined watercourse channels, either at the point of channel initiation or at a stream bank edge. Most headwall swales will be perpendicular to the underlying hillside and retain steep side slopes (40% plus) of variable height. These drainage features should not be confused with other hill slopes concavity such as small zero order draws, bodies of large landslides, tree throw depression, or low-gradient hollows.*
- *Maintain a minimum of 100 square feet of conifer basal area on unstable slopes identified in THP geologic reports as potential point of sediment delivery.*
- *No timber will be marked for harvest within 10 feet of a Class III watercourse unless associated with a stump clump. Removal of timber associated with road construction, re-construction, or decommissioning may be harvested.*
- *All new road construction alignments shall be reviewed by a state licensed geologist. Findings will be documented in a CGS Note 45 compliant report.*
- *Road surfaces sloped at 10% or greater that contour across Hookton deposits will be storm proofed in accordance with a high or extreme erosion hazard rating. Ratings will be determined by the project forester in conjunction with project geologist.*
- *Haul road water bar outlets within 150 feet of a downslope Class I or II watercourse will be slash packed with sound woody debris.*

- *All temporary road surfaces within Class I, II and III's RMZ shall be slash packed at the completion of operations with sound woody debris or equivalent type material. A walking or quad trail may be kept open on the inside (upslope) edge of the road facilitating safe access if desired.*
- *All skid trail surfaces within 50 feet of a watercourse shall be slash packed with sound woody debris or equivalent type material.*

HRC 2015 Amended PreHarvest Planning Report vs #3

Table 1 Proposed 2015 Harvest Enrollments for South Fork Elk River, 8-Apr-15

| THP Name | THP Number | Unit Number | Silviculture | | | | CC Equivalent | |
|---|------------|-------------|--------------|-----|---------|------|---------------|-----|
| | | | CC | ROW | Disp VR | SHR | | SEL |
| McCloud Shaw | 1-12-110 | 1/II | | | | 57.0 | 114.0 | |
| McCloud Shaw | 1-12-110 | 1/III | | | | 27.0 | 54.0 | |
| McCloud Shaw | 1-12-110 | 1/III | | | | 9.5 | 19.0 | |
| McCloud Shaw | 1-12-110 | 2/III* | | 1 | | 1.0 | | |
| McCloud Shaw | 1-12-110 | 3/III* | | 0.1 | | 0.1 | | |
| Total CC Equiv. Acres for 2015 operations | | | | | | | 94.6 | |

* Previously enrolled in 2014

Tier I Highlight indicates a THP and Specific Unit to be enrolled to demonstrate compliance with the Staff Landslide Model limit of 114 Tier I Harvest Acres in the South Fork Elk River drainage.

Tier II No Highlight indicates a THP and Specific Unit to be enrolled as per the requirements of the Enforceable Harvest Related Landslide Monitoring Plan (Tier II). **No acreage limitation.**

Table 3. Summary of THPs by Yarding System and Site Preparation for South Fork Elk River

| THP Name | THP Number | Unit Number | Yarding System | | | | Site Preparation | |
|--------------|------------|-------------|----------------|--------|------------|------------|------------------|--|
| | | | Ground Based | Yarder | Helicopter | Mechanical | Broadcast | |
| McCloud Shaw | 1-12-110 | 1/II | 0 | 114 | | | | |
| McCloud Shaw | 1-12-110 | 1/III | | 54 | | | | |
| McCloud Shaw | 1-12-110 | 1/III | 19 | | | | | |
| McCloud Shaw | 1-12-110 | 2/III* | 1 | | | | | |
| McCloud Shaw | 1-12-110 | 3/III* | 0.1 | | | | | |

PROOF OF SERVICE BY ELECTRONIC TRANSMISSION

I, Robert J. Foley, the undersigned, hereby declare as follows:

1. I am over the age of 18 years and am not a party to the within cause. I am employed by Pillsbury Winthrop Shaw Pittman LLP in the City of San Francisco, California.
2. My email and business addresses are robert.foley@pillsburylaw.com; Four Embarcadero Center, 22nd Floor, San Francisco, CA 94111-5998. My mailing address is Four Embarcadero Center, 22nd Floor, San Francisco, CA 94126-2824.
3. On June 19, 2015, at Four Embarcadero Center, 22nd Floor, San Francisco, CA 94111-5998, I served a true copy of the attached document(s) titled exactly:

1. **PETITION OF HUMBOLDT REDWOOD COMPANY, LLC FOR REVIEW AND REQUEST FOR HEARING; and**
2. **DECLARATION OF MICHAEL E. JANI IN SUPPORT OF HUMBOLDT REDWOOD COMPANY, LLC FOR REVIEW AND REQUEST FOR HEARING**

by sending them via electronic transmission to the following persons at the electronic-mail addresses so indicated:

State Water Resources Control Board
waterqualitypetitions@waterboards.ca.gov

Matthias St. John
North Coast Regional Board Executive Officer
matt.st.john@waterboards.ca.gov

Samantha Olson
Senior Staff Counsel
State Water Resources Control Board, Office of Chief Counsel
samantha.olson@waterboards.ca.gov

I declare under penalty of perjury that the foregoing is true and correct. Executed this 19th day of June, 2015, at San Francisco, California.

Robert J. Foley