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APPENDIX 7

EVALUATION OF CODE SECTION 14 CCR 916.4(A) [936.4(A), 956.4(A)] RELATIVE TO "THP MINING"

The intent of this exercise was to look for information provided in THPs (and NTMPs) that respond to the requirements of code section 14 CCR916.4(a). It was necessary to first determine if the requirements of the code section would be likely to apply to conditions found in the Pilot Project Planning Watershed. An attempt was then made to describe how the requirements of 916.4(a) had been reflected in terms of narrative, tables, graphs, maps, etc. in the most recent THPs in the Pilot Project Planning Watershed. This process and the information gathered were not found to be of much use in identifying potential restoration needs/opportunities for this planning watershed, and opportunities identified were likely to be treated as part of the THP process or in conjunction with Trout Unlimited concurrently with harvest operations.

Background: A planning watershed with the type of ownership and harvest history found in the Pilot Project Planning Watershed seems ill suited as a place to identify substantial restoration opportunities via the requirements of code section 14 CCR 916.4(a). Code section 14 CCR 916.4(a) speaks to restoration where existing conditions pose a significant impact on impaired values. The Pilot Project has <u>not</u> demonstrated that the Campbell Creek Planning Watershed has existing <u>significantly adversely</u> impacted aquatic or terrestrial conditions requiring restoration.

THPs and NTMPs, because they are permits to harvest timber and function in part as a sort of contract for the Licensed Timber Operator (spelling out the operational requirements of the harvest), are not organized to provide data in a format that allows for easy collation to meet the needs of this Pilot Project. THPs/NTMPs must be submitted on standardized forms. These forms do not require that information specific to identification of "restoration opportunities" be in any one specific place in the harvest document, or in most cases, in any specific format (narrative, table, graph, map, …). Lack of clear criteria for what constitutes a "restoration opportunity" for this Pilot Project also made identifying where such information might be available difficult.

To understand the complexity of the THP/NTMP harvest documents it is necessary to understand the rules that govern them. The Forest Practice Rules have been developed over the past four decades to:

> "… create and maintain an effective and comprehensive system of regulation and use of all timberlands so as to ensure both of the following:
>
> **(a)** Where feasible, the productivity of timberlands is restored, enhanced, and maintained.
>
> **(b)** The goal of maximum sustained production of high-quality timber products is achieved while giving consideration to values relating to sequestration of carbon dioxide, recreation, watershed, wildlife, range and forage, fisheries, regional economic vitality, employment, and aesthetic enjoyment." (Z'Berg-Nejedly Forest Practice Act of 1973, code section PRC 4513)

Forty plus years of adding new code sections to and modifying existing code sections in the Forest Practice Act and the Forest Practice Rules to address different situations as they arose (i.e., cumulative

impacts assessment requirements were added in the 1990s, greenhouse gas evaluation requirements in 2011, wildlife protection requirements for newly listed species, etc.) has led to unintended complexity when it comes to preparing harvest documents in conformance with the Forest Practice Rules (294 pages in 2018 rulebook). There is no specific Article addressing "restoration opportunities" in the same way that "Silvicultural Methods," "Site Preparation," "Hazard Reduction," "Fire Protection," etc. are addressed. This makes it difficult to determine what might be found in a "typical" THP/NTMP to address the subject of "restoration opportunities." Many rules, because of the bureaucratic process required for approval, are confusing for both the RPFs who need to follow them in the preparation of harvest plans and for the review team members (CAL FIRE, CDFW, Regional Water Quality Control Boards, CGS, State Parks, Coastal Commission, etc.) who enforce them. Interpretation is not always uniform. This is not unique to the Forest Practice Act and Rules. The California Fish and Game Code can be as difficult to interpret.

Time management: If unsupervised "data mining" is to occur on a Planning Watershed by Planning Watershed basis it will be necessary to go through every THP/NTMP page by page to find and capture "data." If guided by a clear, concise and finite list of specific criteria/values/measurements to be captured (not the case with the Pilot Project) there is a better chance of limiting how much of the THPs/NTMPs would have to be searched. Either way it could take 20 hours or more to finish a complete review of a single THP/NTMP, including transferring map features into GIS products and filling in spreadsheet or tables with pertinent information. The "THP Data Mining: Presentation" PowerPoint dated October 5, 2017 on the "Campbell Creek Pilot Project" public website (https://campbellcreek-calfire-forestry.opendata.arcgis.com/) included the following observation: "It took 60+ hours to capture the information presented on the map and attached tables." Only four harvest plans had been "mined," or an average of 15 hours per THP. That 15 hours did not include much of the information presented below which would require approximately 5-6 hours per THP/NTMP find and document. Again, less time would be needed if a clear, concise and brief list of specific criteria/values/measurements to be captured is provided up front.

There is a "Catch 22" situation here. If a Planning Watershed has only a few THPs/NTMPs or only the most recent few plans are "mined" then maybe a dedicated team of several people with no other duties could process two or three Planning Watersheds a week, and the forested watersheds could be completed in a matter of years. But data from only a few THPs/NTMPs per Planning Watershed will not provide adequate coverage for drawing any conclusions. If many plans are available and are "mined" the time it takes to do each Planning Watershed will extend the time needed to compete the forested watersheds to decades. Plus, there is the caveat that THPs/NTMPs may not contain sufficient information, or information in a format that readily allows for identification of restoration opportunities. How will data that changes over time (i.e., tree growth in riparian zones changing percent of canopy closure, 100-year storm flow changing channel characteristics like pool depths and configuration of large woody debris) be updated?

Organization:

Introduction to 14 CCR 916.4 (a), 936.4(a), 956.4(a)
Code section 14 CCR 916.4 (a)(1), 936.4(a)(1), 956.4(a)(1)
Sensitive conditions listed in code section 14 CCR §§ 916.4(a)(1), 936.4(a)(1), 956.4(a)(1):

"Values set forth in 14 CCR §§ 916.4(b), 936.4(b), 956.4(b)" referenced in 14 CCR §§ 916.4(a)(1), 936.4(a)(1), 956.4(a)(1):
Code section 14 CCR 916.4 (a)(2), 936.4(a)(2), 956.4(a)(2)
Code section 14 CCR 916.4 (a)(3), 936.4(a)(3), 956.4(a)(3)
Code section 14 CCR 916.4 (a)(4), 936.4(a)(4), 956.4(a)(4)
Code section 14 CCR 916.4 (a)(5), 936.4(a)(5), 956.4(a)(5)
Code section 14 CCR 916.4 (a)(6), 936.4(a)(6), 956.4(a)(6)
Summary of Sections I and II of THPs to suggest where information may or may not be found.

Introduction to code section 14 CCR 916.4(a), 936.4(a), 956.4(a)

This code section is not specific to the Pilot Project Planning Watershed, to Mendocino County or even to the Coast Forest District. The same rule also applies to the Northern Forest District (as code section 14 CCR 936.4) and the Southern Forest District (as code section 14 CCR 956.4). It is a single rule written to cover all contingencies throughout all of California. The rule does not presume that every planning watershed will have sensitive conditions or opportunities for restoration. It is an umbrella that provides the RPF preparing a THP/NTMP a list of potential sensitive conditions to look for and consider when establishing Watercourse and Lake Protection Zones (WLPZs) on watercourses and lakes.

The Pilot Project Planning Watershed has an extensive past harvest history. The "Campbell Creek Pilot Project" public website (https://campbellcreek-calfire-forestry.opendata.arcgis.com/), in the "Timber Harvesting Documents and other Reports" tab of the "Background Information" section, lists 62 THPs and two NTMPs for the period 1982-2015. Most of these plans were not written to conform to code section 14 CCR 916.4 (a), 936.4(a), 956.4(a) as it stands today.

In 1989, the oldest copy of the Forest Practice Rules readily available, this code section simply stated:

"**916.4, 936.4, 956.4 Watercourse and Lake Protection**
(a) The RPF shall conduct a field examination of all lakes and water courses and shall map all lakes and watercourses which contain or conduct Class I II, III or IV waters designated on the THP map."

By 1992 (the next oldest readily available rulebook) the code section had been expanded to require:

"916.4, 936.4, 956.4 Watercourse and Lake Protection [All Districts]
(a) The RPF shall conduct a field examination of all lakes and watercourses and shall map all lakes and watercourses which contain or conduct Class I, II, III or IV waters. As part of this field examination, the RPF shall evaluate areas near watercourses and lakes for sensitive conditions including, but not limited to, use of existing roads within the standard WLPZ width, unstable and erodible watercourse banks, debris jam potential, flow capacity and changeable channels, overflow channels and flood prone areas. The RPF shall consider these conditions when proposing WLPZ widths and protection measures. The THP shall identify such conditions where they may interact with proposed timber operations to significantly and adversely affect the beneficial uses of water, and shall describe measures to protect the beneficial uses of water."

At least thirty-six (36) of the more recent past THPs (depending on whether the expanded rule went into effect in 1992, 1991 or 1990) and both NTMPs required at least this level of watercourse protection.

Therefore, protection of the beneficial uses of water, with respect to the listed sensitive conditions, has been associated with at least 36 past harvest operations in the Pilot Project Planning Watershed for a period of over 25 years. The rule above requires beneficial uses of water to be protected when the listed conditions are found and when they may interact with the proposed timber operations to produce adverse significant effects. However, opportunities for anadromous salmonid habitat restoration was not a requirement of the rules in the 1990s or earlier.

The next change to the rule was in 1998; where "RPF" appeared in the rule it was changed to "RPF or supervised designee."

Then in 2001 the rule changed again, to a form that is almost identical to that found in the current rulebook (2015 changes are in *underlined italics*, those changes added watercourse classifications, altered wording from "changeable" to "migrating" and revised formatting of a code section):

> **"916.4, 936.4, 956.4 Watercourse and Lake Protection [All Districts]**
>
> **(a)** The RPF or supervised designee shall conduct a field examination and map all lakes and *Class I, II, III, and IV* watercourses.
>
> **(1)** As part of this field examination, the RPF or supervised designee shall evaluate areas near, and areas with the potential to directly impact, watercourses and lakes for sensitive conditions including, but not limited to, existing and proposed roads, skidtrails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris jam potential, inadequate flow capacity, changeable *migrating* channels, overflow channels, flood prone areas, and riparian zones wherein the values set forth in 14 CCR §§ 916.4(b), [936.4(b), 956.4(b)] *14 CCR §§ 916.4, [936.4, 956.4] subsection (b)* are impaired. The RPF shall consider these conditions, and those measures needed to maintain, and restore to the extent feasible, the functions set forth in 14 CCR §§ 916.4(b), 936.4(b), 956.4(b), when proposing WLPZ widths and protection measures. The plan shall identify such conditions, including where they may interact with proposed timber operations, that individually or cumulatively significantly and adversely affect the beneficial uses of water, and shall describe measures to protect and restore to the extent feasible, the beneficial uses of water. In proposing, reviewing, and approving such measures, preference shall be given to measures that are on-site, or to offsite measures where sites are located to maximize the benefits to the impacted portion of a watercourse or lake.
>
> **(2)** As part of this field examination, the RPF or supervised designee shall map the location of spawning and rearing habitat for anadromous salmonids, and the condition of the habitat shall be evaluated using habitat typing that at a minimum identifies the pool, flatwater, and riffle percentages. The opportunity for habitat restoration shall be described within the plan for each Class I watercourse, and for each Class II watercourse that can be feasibly restored to a Class I.
>
> **(3)** The mapping of conditions identified in subsection (a)(1) and (a)(2) above, and their protective measures, shall be sufficiently clear and detailed to permit the Director and the other review team representatives to evaluate the potential environmental impacts of timber operations, the proposed mitigation measures and the proposed restoration measures.
>
> **(4)** The mapping of conditions identified in subsection (a)(1) and (a)(2) above, and their protective measures, shall be sufficiently clear and detailed to provide direction and clear guidance to the timber operator.
>
> **(5)** The mapping of conditions identified in 14 CCR §§ 916.4, 936.4, 956.4 subsections (a)(1) and (a)(2), and their protective and restoration measures, should be done at a scale of 1:2,400. In site-specific cases, the mapping of critical locations of corrective work and logging

operation impacts shall be done at a scale of at least 1:240 when the Director determines it is necessary to evaluate the plan.

(6) One set of photocopies of recent stereo aerial photographs of the plan area may be required by the Director."

Considering just the THPs, most the Planning Watershed is covered. For over 30 years these THPs were submitted for a single ownership (although the owners have changed three times), a large industrial timberland ownership on lands zoned for timber production (TPZ). For over 20 of those years each THP has been required to conduct a field examination looking for sensitive conditions and considering those conditions when proposing measures to protect the beneficial uses of water. For over 20 years, when sensitive conditions were identified that could interact with proposed timber operations to significantly and adversely affect the beneficial uses of water corrective measures were taken. Thus, watercourse restoration has been taking place on this ownership for over 20 years already. Since 1992, most of the large industrial timberland ownership in this Planning Watershed has been harvested once, some areas have been harvested twice. Therefore, most of the watercourses have been evaluated, and in many cases treated, as part of timber harvest operations in the past 20 years. Large industrial timberland owners tend to maintain roads, often cited as a problem area (potential sediment delivery, potential blockage to fish migration at watercourse crossings, …) to a very high standard, because the road systems are used to access several harvesting areas and are often used in subsequent years. The current landowner, Lyme Redwood Timberlands LLC (per their website), and probably Hawthorne Timber Company LLC before them, has Forest Stewardship Council certification. One of the FSC principles, required for certification, is "The Organization shall maintain, conserve and/or restore ecosystem services and environmental values of the Management Unit, and shall avoid, repair or mitigate negative environmental impacts." It appears that the landowner has been doing just that for quite some time.

The Pilot Project has <u>not</u> demonstrated that the Campbell Creek Planning Watershed has existing <u>significant adverse</u> aquatic or terrestrial conditions requiring restoration. For at least the past five years THPs in the Pilot Project Planning Watershed have mentioned working with Trout Unlimited. Information from Trout Unlimited is part of the Pilot Project review. A document titled "Grant Agreement D1513104 – Large Wood Augmentation Projects in the Mendocino HUC Proposed Selection Criteria Process, Overview and Results Trout Unlimited – April 28, 2017" was provided to the PPIIT on August 9, 2018. Both Smith and Campbell Creek, as well as the South Fork Ten Mile River (all or parts of which are within the Pilot Project Planning Watershed) were included in the initial scoping for possible restoration project consideration. However, the "Narrowed Potential Project Site List" found at the end of the report does <u>not</u> include the Campbell Creek Planning Watershed (the Pilot Project Planning Watershed) as among the "… good candidates for wood augmentation under this grant."

Several of the most recent THPs expand on the above and support a view that the Pilot Project Planning Watershed very probably does <u>not</u> have existing <u>significant adverse</u> aquatic or terrestrial conditions requiring restoration (underlining added for emphasis):

- THP 1-15-107 MEN, under the header "Sediment Effects": "The landowner has completed an inventory of active erosion sites within the Planning Watershed. This task was completed through Campbell's voluntary efforts, largely in partnership with Trout Unlimited, Pacific Watershed Associates and grant funding available from the Department of Fish and Wildlife. After completing the initial inventory, it became clear that the historic riparian truck roads parallel to the main fish-bearing channels posed the greatest challenge to the continuing recovery of aquatic resources. not only did these roads have eroding features their upgrade

and/or continued use could reduce the potential for further improvement of riparian conditions. To address identified sediment production concerns, the landowner has systematically invested substantial resources in watershed improvement projects since 2000. Much of the road abandonment work has required 1600 permits and therefore was completed as part of active timber harvest plans with full agency interaction and review. In 1993, the previous landowner initiated the transformation of the road network to facilitate cable yarding. The Aquatic Habitat Assessment reports that watercourse conditions are recovering from historic land management impacts and that conditions observed in this drainage are improving rather than deteriorating."

- THP 1-15-094 MEN, under the heading "Offsetting Corrective Actions": "The landowner has completed an inventory of active erosion sites within the Planning Watershed. This task was completed through Campbell's voluntary efforts, largely in partnership with Trout Unlimited, Pacific Watershed Associates and grant funding available from the Department of Fish and Wildlife. After completing the initial inventory, it became clear that the historic riparian truck roads parallel to the main fish-bearing channels posed the greatest challenge to the continuing recovery of aquatic resources. Not only did these roads have eroding features their upgrade and/or continued use could reduce the potential for further improvement of riparian conditions. To address identified sediment production concerns, the landowner has systematically invested substantial resources in watershed improvement projects since 2000. Much of the road abandonment work has required 1600 permits and therefore was completed as part of active timber harvest plans with full agency interaction and review. In 1993, the previous landowner initiated the transformation of the road network to facilitate cable yarding. The Aquatic Habitat Assessment reports that watercourse conditions are recovering from historic land management impacts and that conditions observed in this drainage are improving rather than deteriorating."
- THP 1-14-126 MEN, under the heading "Offsetting Corrective Actions": "The landowner has completed an inventory of active erosion sites within the Planning Watershed. This task was completed through Campbell's voluntary efforts, largely in partnership with Trout Unlimited, Pacific Watershed Associates and grant funding available from the Department of Fish and Wildlife. After completing the initial inventory, it became clear that the historic riparian truck roads parallel to the main fish-bearing channels posed the greatest challenge to the continuing recovery of aquatic resources. Not only did these roads have eroding features their upgrade and/or continued use could reduce the potential for further improvement of riparian conditions. To address identified sediment production concerns, the landowner has systematically invested substantial resources in watershed improvement projects since 2000. Much of the road abandonment work has required 1600 permits and therefore was completed as part of active timber harvest plans with full agency interaction and review. In 1993, the previous landowner initiated the transformation of the road network to facilitate cable yarding. The Aquatic Habitat Assessment report that watercourse conditions are recovering from historic land management impacts and that conditions observed in this drainage are improving rather than deteriorating."
- THP 13-031 MEN under the heading "Offsetting Corrective Actions: "The landowner has completed an inventory of active erosion sites within the Planning Watershed. This task was completed through Campbell's voluntary efforts, largely in partnership with Trout Unlimited, Pacific Watershed Associates and grant funding available from the Department of Fish and Wildlife. After completing the initial inventory, it became clear that the historic riparian truck roads parallel to the main fish-bearing channels posed the greatest challenge to the continuing recovery of aquatic resources. Not only did these roads have eroding features their upgrade and/or continued use could reduce the potential for further improvement of riparian conditions. To address identified sediment production concerns, the landowner has systematically invested substantial resources in watershed improvement projects since 2000. Much of the road

abandonment work has required 1600 permits and therefore was completed as part of active timber harvest plans with full agency interaction and review. In 1993, the previous landowner initiated the transformation of the road network to facilitate cable yarding. ... The Aquatic Habitat Assessment Report for the Mill Smith THP report that watercourse conditions are recovering from historic land management impacts and that conditions observed in this drainage are improving rather than deteriorating."

- THP 1-09-022 MEN: "… (I)mprovements in forest practices have allowed time for the area to recover significantly from earlier practices. The stream conditions reported in the Aquatic Habitat Assessment (THP Section V) support the conclusion that recovery to more natural conditions is occurring within streams located in the watershed assessment areas. [The Plan Submitter] is constantly maintaining and upgrading its road system. ... These activities combined with annual inspections and general maintenance, will substantially lessen the potential for significant adverse effects."
- THP 1-07-036 MEN: "Based upon these observations and monitoring studies, I conclude that recovery is occurring within the assessment areas. This plan as proposed, with continuing implementation of current best management practices and the mitigations of the proposed project, continued progress towards recovery should not be impeded."

A Planning Watershed with the type of ownership and harvest history found in the Pilot Project Planning Watershed seem ill suited as a place to identify substantial restoration opportunities via the requirements of code section 14 CCR 916.4 (a), 936.4(a), 956.4(a).

The two NTMPs were not evaluated due to time constraints and other considerations. They were both prepared under the version of the rules that required only mapping of the watercourses (which has been captured by GIS already – see "an Overview of Campbell Creek Watershed" hydrology layer on the Campbell Creek Pilot Project public website) and identifying conditions that may interact with proposed timber operations to significantly and adversely affect the beneficial uses of water. Also, the approved NTMPs are from 1994 and 1996, over 20 years ago. No THPs of a similar vintage were evaluated.

Code section 14 CCR 916.4(a)(1), 936.4(a)(1), 956.4(a)(1)

"916.4, 936.4, 956.4 Watercourse and Lake Protection [All Districts]

(a) The RPF or supervised designee shall conduct a field examination and map all lakes and Class I, II, III, and IV watercourses.

(1) As part of this field examination, the RPF or supervised designee shall evaluate areas near, and areas with the potential to directly impact, watercourses and lakes for sensitive conditions including, but not limited to, existing and proposed roads, skidtrails and landings, unstable and erodible watercourse banks, unstable upslope areas, debris jam potential, inadequate flow capacity, migrating channels, overflow channels, flood prone areas, and riparian zones wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired. The RPF shall consider these conditions, and those measures needed to maintain, and restore to the extent feasible, the functions set forth in 14 CCR §§ 916.4(b), 936.4(b), 956.4(b) when proposing WLPZ widths and protection measures. The plan shall identify such conditions, including where they may interact with proposed timber operations, that individually or cumulatively significantly and adversely affect the beneficial uses of water, and shall describe measures to protect and restore to the extent feasible, the beneficial uses of

water. In proposing, reviewing, and approving such measures, preference shall be given to measures that are on-site, or to offsite measures where sites are located to maximize the benefits to the impacted portion of a watercourse or lake."

What needs to be evaluated in this rule: "… areas near, and areas with the potential to directly impact, watercourses and lakes for sensitive conditions … wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired." The rule does not indicate that a written evaluation is necessary if the specified values are not impaired and conditions do not individually or cumulatively significantly and adversely affect the beneficial uses of water. (See the end of this section regarding what the "values set forth in 14 CCR §§ 916.4(b), 936.4(b), 956.4(b)" are, with a discussion of whether those functions/characteristics are impaired in the Pilot Project Planning Watershed.)

The sideboards on code section 14 CCR 916.4 (a), 936.4(a), 956.4(a) confine the identification for restoration opportunities to aquatic and riparian habitat. This falls short of identifying opportunities for restoration as restoration was defined in the May 25, 2016 "Forest Planning Watershed Pilot Projects Concept Paper, Implementation Draft": "Ecological restoration is the process of assessing the recovery of an ecosystem that has been degraded, damaged, or destroyed." For a Planning Watershed, the ecosystem reaches to the ridges that separate it from adjacent Planning Watersheds. If the ecosystem were to be revised to encompass just the aquatic systems then perhaps the spatial context for future Pilot Projects should be from the headwaters to the ocean of a single drainage.

Sensitive conditions listed in code section 14 CCR §§ 916.4(a)(1), 936.4(a)(1), 956.4(a)(1):

1. **Existing and proposed roads** wherein the values set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
   Note: the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) do <u>not</u> appear to be impaired associated with existing and proposed roads in the Pilot Project Planning Watershed. If this is the case then restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values as they relate to roads.

   - Narrative - In Section IV of THP 1-15-107 MEN (pages 150-153) the RPF addressed erosion from existing roads:

     "<u>Direct Observation of Watershed Conditions</u>
     During my travels around the plan area and WAA, I did not see evidence of active ongoing erosion. I did not see evidence of recent watercourse aggradation, accelerated stream bank cutting or active mass wasting.

     Additional opportunities for significant proactive sediment reducing mitigation measures were searched for during CG's road assessment. In the past ten to fifteen years, investment in corrective actions has occurred at an accelerated pace in the South Fork Ten Mile River watersheds. Continued harvest activity occurring over the same period of time has not resulted in additional new situations where application of corrective sediment saving mitigation measures is called for. CG's use of an accelerated restoration schedule in these watersheds over the past 10-15 years combined with use of modern road and harvest practices have resulted in a current

> situation where opportunities for additional large scale proactive sediment saving corrective actions are not available. This is consistent with my personal observation of current watercourse conditions reported above where evidence of recent watercourse aggradation, accelerated stream bank cutting or active mass wasting was not observed. …
>
> The mechanism used to address potential and ongoing sediment discharges into streams is through the individual THP. As part of the preparation process for each individual THP, CG Staff conducts an inventory of active erosion sites and controllable sediment discharge sources within the project area. A forest road and skid trail inventory is conducted utilizing aerial photo review and ground assessment of the harvest units along with a complete ground assessment of all watercourses and associated stream protection zones. As a result of that inventory a list of sites requiring treatment is developed and planned for implementation under the THP. With the approval of the THP, operations begin and sediment discharge sources are corrected in conjunction with the timber harvest. Within this watershed the landowner's sustained effort to minimize anthropogenic sediment production is having a cumulative result which is offsetting elevated sediment levels associated with cumulative impacts of early logging practices. Considering the application of the current ASP rules which require increased protection measures on watercourses (no-harvest cores, increased retention, etc.), absence of broadcast burning, increased post harvest vegetation cover, the special treatment zones and application of CEG recommendations it is clear that substantial protection measures have been embedded within this THP which address the potential for significant adverse cumulative impacts resulting from implementation of this THP in combination with past and future plans. In summary, watershed conditions today are improving and over time continued improvement of stream conditions within the watershed is anticipated. …
>
> With respect to future projects, Campbell staff is committed to the continued demonstration of its stewardship through the implementation of on-the-ground projects that will result in direct benefits to aquatic resources. In general, this is reflected with a greater emphasis on hydrologic disconnection of roads from the stream networks and other activities which minimize the potential for future sediment production such as rocking road surfaces, outsloping, ditch maintenance, upgrading culverts to pass 100 year flood flows, addition of energy dissipaters, increasing the frequency of ditch relief culverts, installation of rocked rolling dips and the construction of settling basins where appropriate."

["CG" is "Campbell Global" the plan submitter when the timberlands were owned by Hawthorne Timber Company LLC, which includes all the THPs from 2007-2015 addressed below. WAA is Watershed Assessment Area]

Section IV of THP 1-15-094 MEN (page 157) expresses similar sentiments with regards to roads on the plan submitter's ownership:

> "Most of the active logging roads in this area are in good condition due to the landowner's ongoing intensive capital investment program which is directed at

maintaining and improving their road system. Other legacy roads have been evaluated and where warranted corrective actions and abandonment procedures have been implemented. Within the WAA, segments of legacy road have been abandoned in recent years and older roads have been hydrologically improved to minimize the potential for future sediment production.

Since 2000, the timberland owner has been committed to proactively mitigating potential sediment production sites that might discharge sediment into streams within these planning watersheds. As a result of these efforts, thousands of yards of sediment savings have been accrued by rehabilitating high risk roads and watercourse crossings as well as implementing other erosion control measures where it was beneficial to do so. Legacy roads within the watershed have been evaluated and where warranted corrective actions and abandonment procedures have been implemented under past THPs within the watershed assessment area. Many legacy roads have been decommissioned in recent years and many additional miles of road have been hydrologically disconnected and otherwise improved to minimize the potential for current and future sediment production. Thousands of cubic yards of soil with sediment production potential has been removed or otherwise stabilized reducing potential for deposition into fish streams. Multiple diversions, in-stream landings, fill failures, bank slumps, cracking road fills, ditch relief pipes, watercourse crossings, energy dissipaters were fixed, replaced, pulled and/or installed. Miles of road has been rocked or re-rocked to minimize fine sediment production potential."

Very similar text is found in THP 1-15-107 MEN (pages 149-150), THP 1-14-126 MEN (page 170), THP 1-13-031 MEN (pages 252-253), THP 1-10-033 MEN (page 204, abbreviated version) and THP 1-09-022 MEN (page 221, first paragraph).

Given Forest Practice Rule restrictions for existing road use and for new road construction situations (i.e., restrictions on use of heavy equipment in WLPZs and new road construction in WLPZs) the most likely place to find descriptions of potential stream restoration opportunities would seem to be where an in-lieu or alternative practice in a WLPZ associated with existing or new roads was proposed, although it is also very likely that such an opportunity would be made a treatment priority as part of the plan:

- THP 1-15-107 MEN – no in-lieu or alternative WLPZ practices involving existing or proposed roads in item 27 (Section II of plan, page 43)
- THP 1-15-094 MEN – one in-lieu or alternative WLPZ practice involving existing or proposed roads in item 27 (Section II of plan, page 44), use of existing WLPZ logging road. Section III of the plan (item 27, pages 121-122) describes moderate slopes and high quantities of vegetation between the road and the Class II watercourse providing an effective sediment buffer. Soil exposed by harvest operations treated to prevent sediment delivery to the watercourse. No signs of sediment transport or failure associated with previous use were observed by the RPF.
- THP 1-14-126 MEN – no in-lieu or alternative WLPZ practices involving existing or proposed roads in item 27 (Section II of plan, pages 45-48)
- THP 1-13-031 MEN – no in-lieu or alternative WLPZ practices involving existing or proposed roads in item 27 (Section II of plan, pages 45-47.1)

- THP 1-10-033 MEN – one in-lieu or alternative WLPZ practice involves and existing road in the Pilot Project Planning Watershed, per item 27 (Section II of plan, pages 40-41). A ditch relief culvert is to be added to an existing road 300 feet above a watercourse crossing on an existing road in a WLPZ. Item 27 in Section III of the plan explains (pages 152-153) that the existing ditch that drains the road runs 500-600 feet at a grade of 7-10 percent. Providing a ditch relief culvert will minimize the potential for future ditch line erosion and sediment production that could be delivered to the watercourse. [There is another practice but it is proposed in a different Planning Watershed.]
- THP 1-09-022 MEN – all in-lieu or alternative WLPZ practices, including those that may involve existing or proposed roads, in item 27 (Section II of plan, page 42) are located in a different, Churchman Creek, Planning Watershed (as seen on the Operators map, THP pages 70-72.)
- THP 1-08-015 MEN – three in-lieu or alternative WLPZ practices involving existing or proposed roads in item 27 (Sections II and III of plan, pages 39 and 202). The practices involve installing three culverts, cleaning the outlet of an existing culvert and removing crossings associated with planned road abandonment (two of the culverts have the potential to deliver 10-50 cubic yards of sediment each if left untreated – Erosion Control Plan table, pages 373-374). The road to be abandoned will not be used for harvest operations, only to provide access to remove the crossings.
- THP 1-07-036 MEN – no in-lieu or alternative WLPZ practices involving existing or proposed roads in item 27 (Section II of plan, page 51).

[Caution: it can be easy to start collecting descriptions from item 27 in Sections II and III of THPs only to find that the conditions described are found in a different Planning Watershed. In the case of THP 1-10-033 MEN above only one harvest unit associated with the THP is in the Pilot Project Planning Watershed. Some of the in-lieu or alternative WLPZ practices associated with roads in THP 1-10-033 MEN are located in the Little Valley Creek Planning Watershed. It can take as long, or longer, to determine that a described point is not in the target Planning Watershed than it does to find and record the information.
Note: Planning Watershed boundaries are not generally shown on the THP maps that contain operational information, like the road points associated with in-lieu or alternative WLPZ practices described above.]

- Tables – Erosion Control Plan tables (Note: these are the values for the entire plan areas, most plans are in more than one Planning Watershed so the values are not specific to the Pilot Project Planning Watershed. These values are for road, skidtrail and other drainage facility points, not just roads.):
  - THP 1-15-107 MEN one existing watercourse crossing with the potential to deliver an estimated 10-25 cubic yards of sediment to the watercourse was treated.
  - THP 1-15-094 MEN two existing watercourse crossings with the potential to deliver an estimated 20-50 cubic yards of sediment to the watercourse was treated.
  - THP 1-14-126 MEN six existing watercourse crossings drainage facilities with the potential to deliver an estimated 34 cubic yards of sediment to the watercourse were treated.
  - THP 1-13-031 MEN two existing watercourse crossings with the potential to deliver an estimated 50-100 cubic yards of sediment to the watercourse was treated.

- THP 1-10-033 MEN five existing watercourse crossings with the potential to deliver an estimated 145-180+ cubic yards of sediment to the watercourses were treated.
- THP 1-09-022 MEN eight watercourse crossings and a Class III watercourse diversion with the potential to deliver an estimated 100+ - 500+ cubic yards of sediment to the watercourse was treated.
- THP 1-08-015 MEN 16 existing watercourse crossings, one road erosion site and one wet area drainage with the potential to deliver an estimated 140+ - 700+ cubic yards of sediment to the watercourse was treated.
- THP 1-07-036 MEN an existing watercourse crossing with the potential to deliver an estimated 170+ - 550+ cubic yards of sediment to the watercourse was treated.

- Graphs – none
- Maps – existing and proposed roads area all mapped. The Operators and Erosion Control Plan maps show road points where operations will occur near watercourses, primarily culvert replacement and sediment reduction treatments.
  Note: Planning Watershed boundaries are <u>not</u> generally shown on the maps that contain operational information for the plan, like road points (with or without sediment reduction measures proposed).
- Other – Sensitive conditions associated with existing roads that cross South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. Those reports would have no information on new road construction that post-dated the reports. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

2. **Skidtrails and landings** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
   Note: there do <u>not</u> appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with skid trails and landings in the Pilot Project Planning Watershed. If this is true then restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values as they relate to skidtrails and landings.

   - Narrative - In Section IV of THP 1-15-107 MEN (pages 150-152) the RPF addressed erosion from existing skidtrails and landings:

     "<u>Direct Observation of Watershed Conditions</u>
     During my travels around the plan area and WAA, I did not see evidence of active ongoing erosion. I did not see evidence of recent watercourse aggradation, accelerated stream bank cutting or active mass wasting.

> Additional opportunities for significant proactive sediment reducing mitigation measures were searched for during CG's road assessment. In the past ten to fifteen years, investment in corrective actions has occurred at an accelerated pace in the South Fork Ten Mile River watersheds. Continued harvest activity occurring over the same period of time has not resulted in additional new situations where application of corrective sediment saving mitigation measures is called for. CG's use of an accelerated restoration schedule in these watersheds over the past 10-15 years combined with use of modern road and harvest practices have resulted in a current situation where opportunities for additional large scale proactive sediment saving corrective actions are not available. This is consistent with my personal observation of current watercourse conditions reported above where evidence of recent watercourse aggradation, accelerated stream bank cutting or active mass wasting was not observed. …
>
> The mechanism used to address potential and ongoing sediment discharges into streams is through the individual THP. As part of the preparation process for each individual THP, CG Staff conducts an inventory of active erosion sites and controllable sediment discharge sources within the project area. A forest road and skid trail inventory is conducted utilizing aerial photo review and ground assessment of the harvest units along with a complete ground assessment of all watercourses and associated stream protection zones. As a result of that inventory a list of sites requiring treatment is developed and planned for implementation under the THP. With the approval of the THP, operations begin and sediment discharge sources are corrected in conjunction with the timber harvest. Within this watershed the landowner's sustained effort to minimize anthropogenic sediment production is having a cumulative result which is offsetting elevated sediment levels associated with cumulative impacts of early logging practices. Considering the application of the current ASP rules which require increased protection measures on watercourses (no-harvest cores, increased retention, etc.), absence of broadcast burning, increased post harvest vegetation cover, the special treatment zones and application of CEG recommendations it is clear that substantial protection measures have been embedded within this THP which address the potential for significant adverse cumulative impacts resulting from implementation of this THP in combination with past and future plans. In summary, watershed conditions today are improving and over time continued improvement of stream conditions within the watershed is anticipated."

Given Forest Practice Rule restrictions for skid trail use and construction (i.e., restrictions on use of heavy equipment in WLPZs) the most likely place to find descriptions of potential stream restoration opportunities would seem to be where an in-lieu or alternative practice in a WLPZ associated with a skid trail was proposed, although it is also very likely that such an opportunity would be made a treatment priority as part of the plan:

- THP 1-15-107 MEN – <u>no</u> in-lieu or alternative WLPZ practices involving skid trails or landings in item 27 (Section II of plan, page 43)
- THP 1-15-094 MEN – one in-lieu or alternative WLPZ practice involving skid trails/landings in item 27 (Section II of plan, page 44), use of an existing WLPZ skid

trail and landing. Section III of the plan (item 27, pages 121-122) describe moderate slopes and high quantities of vegetation between the skid trail/landing and the Class II watercourse providing an effective sediment buffer. Soil exposed by harvest operations will be treated to prevent sediment delivery to the watercourse. No signs of sediment transport or failure associated with previous use were observed by the RPF.

- THP 1-14-126 MEN – no in-lieu or alternative WLPZ practices involving skid trails or landings in item 27 (Section II of plan, pages 44-45)
- THP 1-13-031 MEN – one in-lieu or alternative WLPZ practice involving skid trails or landings in item 27 (Section II of plan, pages 45-48). Underlining added for emphasis: "… The LTO is limited to the use of the existing pre-flagged tractor road within the WLPZ. This practice will allow tractors access to correct potential sediment inputs to watercourses." Soil exposed by harvest operations will be treated to prevent sediment delivery to the watercourse.
- THP 1-10-033 MEN – one in-lieu or alternative WLPZ practice involving skid trails or landings in item 27 (Section II of plan, 40-41). An existing skid trail in a flood prone area will be used to place a tractor to be used as a tailhold to facilitate cable yarding. No construction or log skidding was proposed. Item 27 in Section III of the plan explains (page 153) that the ground is flat and well drained, operations will be confined to when soils are dry, any disturbed soil will be mulched. [There is another practice but it is proposed in a different Planning Watershed.]
- THP 1-09-022 MEN – all in-lieu or alternative WLPZ practices, including those that may involve skid trails and/or landings, in item 27 (Section II of plan, page 42) are located in a different, Churchman Creek, Planning Watershed (as seen on the Operators map, THP pages 70-72.)
- THP 1-08-015 MEN – one in-lieu or alternative WLPZ practices involving skid trails or landings in item 27 (Section II of plan, page 39) is for the use of an existing stable skid trail located on a ridge between two minor Class II watercourses. The skid trail "… is in good condition and evidence of sediment production having occurred at this location was not observed." (Item 27, Section III, page 202).
- THP 1-07-036 MEN – one in-lieu or alternative WLPZ practice involving skid trails or landings in item 27 (Section II of plan, page 51). Use of one skid trail within the WLPZ to (underlining added for emphasis) "… allow tractors access to correct potential sediment inputs to watercourses."

[Caution: it can be easy to start collecting descriptions from item 27 in Sections II and III of THPs only to find that the conditions described are found in a different Planning Watershed. In the case of THP 1-10-033 MEN above only one harvest unit associated with the THP is in the Pilot Project Planning Watershed. Some of the in-lieu or alternative WLPZ practices associated with skid trails and/or landings proposed in THP 1-10-033 MEN are located in the Little Valley Creek Planning Watershed. It can take as long, or longer, to determine that a described point is not in the target Planning Watershed than it does to find and record the information.]

- Tables – Erosion Control Plan table – see the "Existing and Proposed Roads" section above – road and skid trail/landing numbers regarding treatment of potential sediment sources have been combined.
- Graphs – none

- Maps – not all landings are required to be mapped, although these THPs appear to have mapped them all. The Forest Practice Rules do not require mapping of skid trails outside of WLPZs (use of heavy equipment in WLPZs requires mapping) with a few exceptions. It should be noted that often the location of an upland skid trail is not determined until after harvest operations have begun – the location of upland skid trails is specific to how the trees that are felled are positioned on the ground as much as the characteristics of the local topography. The Operators and Erosion Control Plan maps show points where operations will occur near watercourses, which could include drainage improvements or other work in WLPZs associated with skid trails or landings.
  Note: Planning Watershed boundaries are not generally shown on the maps that contain operational information for the plan, like landing and/or skid trail locations associated with in-lieu or alternative practices.
- Other - Sensitive conditions associated with existing skid trails or landings adjacent to the South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. Those reports would have no information on any landings or skid trails that post-date the reports. CDFW generated these reports and presumably has the data sheets from the survey of the watercourses, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

3. **Unstable and erodible watercourse banks** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
   Note: Because the May 3, 2018 "Geologic and Geomorphic Information Review" webinar posted on the Campbell Creek Pilot Project website (in the "Ongoing Analysis and Resulting Products" section, the Analysis tab) on June 15, 2018 mentioned pulling unstable area information from THPs, the California Geological Survey (CGS(would be the expert on whether or not there appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with unstable and erodible watercourse banks in the Pilot Project Planning Watershed. All the THPs for the period 2007-2015 reviewed for the Pilot Project Planning Watershed contain reports prepared by a Certified Engineering Geologist – these reports have not been "mined" by the Forester because of the technical nature of the reports and potential for errors if trying to summarize the contents. There is a danger of practicing geology without a license as well. Based on the contents of the webinar it seems likely that CGS has already evaluated these THPs and their geology reports. Below is an overview of the content of those reports. (Note: Planning Watershed boundaries are not generally shown on maps in these reports, map points are not confined to the Pilot Project Planning Watershed):
   - THP 1-15-107 MEN has a Focused Engineering Geologic Review, pages 286-310 in Section V of the plan. Extensive narrative, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2004). Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint

and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.

- THP 1-15-094 MEN has a Focused Engineering Geologic Review, pages 297-321 in Section V of the plan. Conclusion: "It is our opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Extensive narrative, Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-14-126 MEN has a Focused Engineering Geologic Review, pages 307-335 in Section V of the plan. Extensive narrative, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2013). Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-13-031 MEN has a Focused Engineering Geologic Review, pages 406-444 in Section V of the plan. Extensive narrative, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2011), tables summarizing shallow and deep-seated landslide features. Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-10-033 MEN has a Focused Engineering Geologic Review, pages 406-350 in Section V of the plan. Extensive narrative and a map. Conclusion: "Proposed harvest appears reasonable from a slope stability standpoint. No additional recommendations are warranted."
- THP 1-09-022 MEN has a Focused Engineering Geologic Review, pages 298-332.3 in Section V of the plan. Conclusion: "Based on the results of this investigation, it is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Extensive narrative, Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-08-015 MEN has a Focused Engineering Geologic Review, pages 383-398.5 in Section V of the plan. Conclusion: "… Based on our observations, it appears unlikely that the proposed silvicultural methods (selection, commercial thinning, and clearcutting) would cause large-scale reactivation of an older deep-seated landslide." Extensive narrative, Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-07-036 MEN has an Engineering Geologic Review, pages 517-555.5 in Section V of the plan. Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Extensive narrative, table of acres of soils by type, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2006), Observations and

Recommendations are presented in table format with map point numbers tied to maps included in the report.

Caution: do not expect every harvest plan to have a report prepared by a Certified Engineering Geologist. It is the policy of this large industrial landowner, to provide a report for every plan. That will not be the case in Planning Watersheds with smaller, non-industrial, timberland owners.

- Narrative – In Section IV of THP 1-15-107 MEN (pages 150-152) the RPF addressed unstable and erodible watercourse banks:

  "Direct Observation of Watershed Conditions
  During my travels around the plan area and WAA, I did not see evidence of active ongoing erosion. I did not see evidence of recent watercourse aggradation, accelerated stream bank cutting or active mass wasting. …

  The mechanism used to address potential and ongoing sediment discharges into streams is through the individual THP. As part of the preparation process for each individual THP, CG Staff conducts an inventory of active erosion sites and controllable sediment discharge sources within the project area. A forest road and skid trail inventory is conducted utilizing aerial photo review and ground assessment of the harvest units along with a complete ground assessment of all watercourses and associated stream protection zones. As a result of that inventory a list of sites requiring treatment is developed and planned for implementation under the THP. With the approval of the THP, operations begin and sediment discharge sources are corrected in conjunction with the timber harvest. Within this watershed the landowner's sustained effort to minimize anthropogenic sediment production is having a cumulative result which is offsetting elevated sediment levels associated with cumulative impacts of early logging practices. Considering the application of the current ASP rules which require increased protection measures on watercourses (no-harvest cores, increased retention, etc.), absence of broadcast burning, increased post harvest vegetation cover, the special treatment zones and application of CEG recommendations it is clear that substantial protection measures have been embedded within this THP which address the potential for significant adverse cumulative impacts resulting from implementation of this THP in combination with past and future plans. In summary, watershed conditions today are improving and over time continued improvement of stream conditions within the watershed is anticipated."

- Section IV of THP 1-15-094 MEN (page 157) expresses similar sentiments with regards to sediment sites, possibly including unstable or erodible watercourse banks on the plan submitter's ownership:

  "Since 2000, the timberland owner has been committed to proactively mitigating potential sediment production sites that might discharge sediment into streams within these planning watersheds. As a result of these efforts, thousands of yards of sediment savings have been accrued by rehabilitating high risk roads and watercourse crossings as well as implementing other erosion control measures where it was beneficial to do so. Legacy roads within the watershed have been

evaluated and where warranted corrective actions and abandonment procedures have been implemented under past THPs within the watershed assessment area. Many legacy roads have been decommissioned in recent years and many additional miles of road have been hydrologically disconnected and otherwise improved to minimize the potential for current and future sediment production. Thousands of cubic yards of soil with sediment production potential has been removed or otherwise stabilized reducing potential for deposition into fish streams. Multiple diversions, in-stream landings, fill failures, bank slumps, cracking road fills, ditch relief pipes, watercourse crossings, energy dissipaters were fixed, replaced, pulled and/or installed. Miles of road has been rocked or re-rocked to minimize fine sediment production potential."

Very similar text is found in THP 1-15-107 MEN (page 150) THP 1-14-126 MEN (page 170) and THP 1-13-031 MEN (pages 252-253).

- Tables – Section IV (Cumulative Impacts Assessment) under the header "Current Stream Channel Conditions"
  - THP 1-15-107 MEN (page 140) there has been minimal bank mass wasting associated with Smith Creek and minimal/moderate bank mass wasting on the Unnamed Tributary A that lie within the project boundaries

Stream	Smith Creek	Unnamed Tributary A
Channel Type	F4	G4
Class	I	I
Gravel Embeddedness	Moderate/Heavy	High
Pool Filling	Minimal/Moderate	Moderate
Aggradation	Minimal/Moderate	Moderate
Bank Cutting	Minimal/Moderate	Moderate/High
Bank Mass Wasting	Minimal	Minimal/Moderate
Down Cutting	Minimal	Moderate
Scouring	None	None
LWD Accumulation	Moderate/Heavy	Moderate
Canopy Reduction	Minimal	Minimal
Recent Flooding	None	None

  - THP 1-15-094 MEN a similar table (page 149) shows minimal bank mass wasting associated with South Fork Ten Mile River within the project boundaries.
  - THP 1-14-126 MEN a similar table (page 163) shows minimal bank mass wasting associated with South Fork Ten Mile River and Campbell Creek within the project boundaries.
  - THP 1-13-031 MEN a similar table (page 242) shows minimal bank mass wasting associated with Smith Creek within the project boundaries.
  - THP 1-10-033 MEN a similar table (page 201) shows minimal bank mass wasting associated with South Fork Ten Mile River within the project boundaries.
  - THP 1-09-022 MEN a similar table (page 214) shows minimal bank mass wasting associated with South Fork Ten Mile River and Campbell Creek within the project boundaries.
  - THP 1-08-015 MEN a similar table (page 280) shows minimal bank mass wasting associated with Campbell Creek within the project boundaries.
  - THP 1-07-036 MEN a similar table (page 403) shows minimal bank mass wasting associated with Smith Creek within the project boundaries.

In Section IV of THP 1-15-107 MEN (page 147) shows low potential for unstable and erodible watercourse banks to be exacerbated by harvest operations:

E. Potential On-Site Effects

Based on current conditions and your knowledge of the impacts of similar past projects, what is the potential of the proposed project, as described and mitigated, to produce the following individual effects? (High, Moderate, Low)

1. Increased stream or lake sediment from:

(a.)	Channel or bank erosion	H	M	L
(b.)	Streamside or inner gorge mass wasting that could directly enter a stream channel.	H	M	L

- THP 1-15-094 MEN a similar table (page 155) has the same ratings associated with South Fork Ten Mile River within the project boundaries.
- THP 1-14-126 MEN a similar table (page 168) has the same ratings associated with South Fork Ten Mile River and Campbell Creek within the project boundaries.
- THP 1-13-031 MEN a similar table (page 251) has the same ratings associated with Smith Creek within the project boundaries.
- THP 1-10-033 MEN a similar table (page 203) has the same ratings associated with South Fork Ten Mile River within the project boundaries.
- THP 1-09-022 MEN a similar table (page 220) has the same ratings associated with South Fork Ten Mile River and Campbell Creek within the project boundaries.
- THP 1-08-015 MEN a similar table (page 282) has the same ratings associated with Campbell Creek within the project boundaries.
- THP 1-07-036 MEN a similar table (page 405) has the same ratings associated with Smith Creek within the project boundaries.

- Graphs – none
- Maps – none immediately evident
  Note: Planning Watershed boundaries are not generally shown on the maps found in the Focused Engineering Geologic Reviews that are part of these THPs.
- Other - Sensitive conditions associated with unstable and erodible banks adjacent to the South Fork Ten Mile River, Smith Creek or Campbell Creek are disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have detailed maps. Those reports would have no information on any unstable or erodible banks that post-date the reports. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

4. **Unstable upslope areas** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
   Note: Because the May 3, 2018 "Geologic and Geomorphic Information Review" webinar posted on the Campbell Creek Pilot Project website (in the "Ongoing Analysis and Resulting Products" section, the Analysis tab) on June 15, 2018 mentioned pulling unstable area information from

THPs, CGS should be the expert on whether or not there appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with unstable upslope areas in the Pilot Project Planning Watershed. All the THPs for the period 2007-2015 reviewed for the Pilot Project Planning Watershed contain reports prepared by a Certified Engineering Geologist – these reports have not been "mined" by the Forester because of the technical nature of the reports and potential for errors if trying to summarize the contents. There is also the potential of practicing geology without a license. Based on the contents of the webinar it seems likely that CGS has already evaluated these THPs and their geology reports. Below is an overview of the content of those reports (Note: Planning Watershed boundaries are not generally shown on maps in these reports, map points are not confined to the Pilot Project Planning Watershed):

- THP 1-15-107 MEN has a Focused Engineering Geologic Review, pages 286-310 in Section V of the plan. Extensive narrative, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2004). Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-15-094 MEN has a Focused Engineering Geologic Review, pages 297-321 in Section V of the plan. Conclusion: "It is our opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Extensive narrative, Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-14-126 MEN has a Focused Engineering Geologic Review, pages 307-335 in Section V of the plan. Extensive narrative, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2013). Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-13-031 MEN has a Focused Engineering Geologic Review, pages 406-444 in Section V of the plan. Extensive narrative, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2011), tables summarizing shallow and deep-seated landslide features. Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-10-033 MEN has a Focused Engineering Geologic Review, pages 406-350 in Section V of the plan. Extensive narrative and a map. Conclusion: "Proposed harvest appears reasonable from a slope stability standpoint. No additional recommendations are warranted."
- THP 1-09-022 MEN has a Focused Engineering Geologic Review, pages 298-332.3 in Section V of the plan. Conclusion: "Based on the results of this investigation, it is my

opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Extensive narrative, Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.

- THP 1-08-015 MEN has a Focused Engineering Geologic Review, pages 383-398.5 in Section V of the plan. Conclusion: "… Based on our observations, it appears unlikely that the proposed silvicultural methods (selection, commercial thinning, and clearcutting) would cause large-scale reactivation of an older deep-seated landslide." Extensive narrative, Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.
- THP 1-07-036 MEN has an Engineering Geologic Review, pages 517-555.5 in Section V of the plan. Conclusion: "It is my opinion that the proposed harvest appears reasonable from a slope stability standpoint and that a substantial increase in shallow or deep-seated landsliding resulting from the proposed harvest is unlikely. …" Extensive narrative, table of acres of soils by type, table showing channel bank and hillslope shallow landslide volumes in cubic yards for various years (1952-2006), Observations and Recommendations are presented in table format with map point numbers tied to maps included in the report.

- Narrative– In Section IV of THP 1-15-107 MEN (page 150) the RPF addressed unstable areas (active mass wasting):

  "<u>Direct Observation of Watershed Conditions</u>
  During my travels around the plan area and WAA, I did not see evidence of active ongoing erosion. I did not see evidence of recent watercourse aggradation, accelerated stream bank cutting or active mass wasting."

  - In Item 21 in Section II of THP 1-15-107 MEN (pages 25) the RPF answered the question "Within the THP area will ground based equipment be used on: Unstable areas?" "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).
  - In Item 21 in Section II of THP 1-15-094 MEN (pages 24) the RPF answered the question "No."
  - In Item 21 in Section II of THP 1-14-126 MEN (pages 28) the RPF answered the question "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).
  - In Item 21 in Section II of THP 1-13-031 MEN (pages 29) the RPF answered the question "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).
  - In Item 21 in Section II of THP 1-10-033 MEN (pages 28) the RPF answered the question "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).

- In Item 21 in Section II of THP 1-09-022 MEN (pages 25) the RPF answered the question "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).
- In Item 21 in Section II of THP 1-08-015 MEN (pages 24) the RPF answered the question "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).
- In Item 21 in Section II of THP 1-07-036 MEN (pages 32) the RPF answered the question "Yes" Those areas are described elsewhere in the plan and have been reviewed by a Certified Engineering Geologist whose report is part of the plan (see above).

- Tables - In Section IV of THP 1-15-107 MEN (page 148, parts c, d and e address unstable upslope areas):

E. Potential On-Site Effects

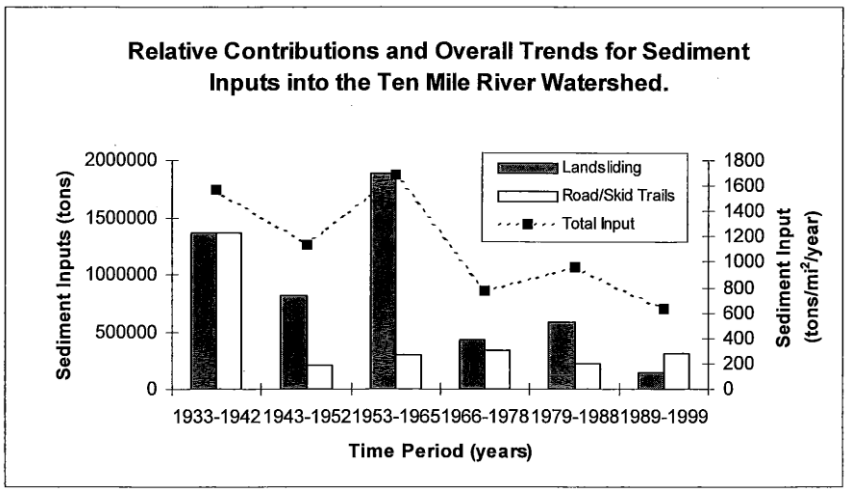
Based on current conditions and your knowledge of the impacts of similar past projects, what is the potential of the proposed project, as described and mitigated, to produce the following individual effects? (High, Moderate, Low)

1. Increased stream or lake sediment from:

(a.)	Channel or bank erosion	H	M	L
(b.)	Streamside or inner gorge mass wasting that could directly enter a stream channel.	H	M	L
(c.)	Debris flows or torrents that could move directly into the stream system from sideslopes, swales, small channels, roads, landings, or skid trails.	H	M	L
(d.)	Debris flows or torrents caused by debris jams.	H	M	L
(e.)	Sideslopes mass wasting that directs surface runoff into gullies, swales, or small channels connected to the stream system.	H	M	L

The same table is found in THPs 1-15-094 MEN (page 155), 1-14-126 MEN (page 168), 1-13-031 MEN (page 251), 1-10-033 MEN (page 203), 1-09-022 MEN (page 220), 1-08-015 MEN (page 282) and 1-17-036 MEN (page 405). All have the same "low" rating for parts c, d and e. THP 1-08-015 has a different value ("moderate") for part c.

- Graphs – Section IV of THP 1-15-107 MEN (page 154):



The same graph is found in THPs 1-15-094 MEN (page 160), 1-14-126 MEN (page 173), 1-13-031 MEN (page 257), 1-10-033 MEN (page 206), 1-09-022 MEN (page 223), 1-08-015 MEN (page 284) and 1-17-036 MEN (page 407).

The downward trend in sediment inputs from landsliding corresponds to the implementation of the Forest Practice Rules.

- Maps – Operators (found at end of Section II), Reviewers (found at the end of Section III) and Erosion Control Plan Maps in each of the plans show unstable areas. More detailed geologic maps can be found in the Engineering Geologic Review/Focused Engineering Geologic Review reports found in each of the THPs (described above). [Caution: do not expect every harvest plan to have a report prepared by a Certified Engineering Geologist. It is the policy of this large industrial landowner, to provide a report for every plan. That will not be the case in Planning Watersheds with smaller, non-industrial, timberland owners.]
  Note: Planning Watershed boundaries are not generally shown on the maps found in the THPs or in the Focused Engineering Geologic Reviews that are part of these THPs.
- Other – Unstable upslope areas are not as likely to be included in the 2012 CDFW Stream Inventory Reports as some other characteristics, a large feature that impinges on a major drainage might be addressed.

5. **Debris jam potential** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired. No potential for debris jams indicated.
   Note: there do not appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with debris jam potential in the Pilot Project Planning Watershed. If this is true then restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values with respect to debris jam potential.

   - Narrative – In the Erosion Control Plan (page 274 in THP 1-15-107 MEN) debris jam potential is indirectly addressed:

     - "**Stream Clearance:** Stream clearing activities were initiated by the California Department of Fish and Game within the Ten-Mile River basin in the 19.60's. These stream restoration activities focused on the removal of log-jam barriers, which partially or completely blocked access by anadromous fish into important spawning and nursery tributaries. Unfortunately, these clearance activities led to the release of large slugs of stored sediment. Recent efforts in the Ten Mile basin have focused mainly upon habitat enhancement projects, as opposed to stream clearance, in an effort to increase available spawning and rearing habitat for juvenile fish. This work has included installation of scour/cover sites using stumps, logs, and boulders, in combination with some minor barrier modifications. Initial enhancement projects were completed in November of 1992, by the Center for Education and Manpower Resources, INC. In 1993, 1994, and 1996, Georgia-Pacific (GP) completed additional projects. Details of the GP projects are included with THP #1-02-132MEN. More recently, CTM is involved with a LWD project for the lower Churchman Creek area. This project was initiated in association with THP 1-02-030 and is receiving full CEQA review in association with this proposed "Lake Gulch" THP."

   - Tables – In Section IV of THP 1-15-107 MEN (page 147):

E. Potential On-Site Effects			
Based on current conditions and your knowledge of the impacts of similar past projects, what is the potential of the proposed project, as described and mitigated, to produce the following individual effects? (High, Moderate, Low)			
6. Inputs of large organic debris in streams or lakes as a result of project activities.	H	M	**L**
7. Extraction of large organic debris from streams or lakes as a result of project activities.	H	M	**L**
8. Loss of future large organic debris as a result of streamside timber harvesting.	H	M	**L**

...

The same table is found in THPs 1-15-094 MEN (page 156), 1-14-126 MEN (page 169), 1-13-031 MEN (page 251), 1-10-033 MEN (page 203), 1-09-022 MEN (page 220), 1-08-015 MEN (page 282) and 1-17-036 MEN (page 405). All have the same "low" rating for all three of the criteria shown.

- Graphs – none
- Maps – none
- Other – Sensitive conditions associated with debris jam potential on the South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. Those reports would have no information on any landings or skid trails that post-date the reports. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

6. **Inadequate flow capacity** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired. Potential for inadequate flow capacity avoided.
Note: there do not appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with inadequate flow capacity in the Pilot Project Planning Watershed. If this is true then restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values with respect to inadequate flow capacity.

- Narrative – part of the CDFW Streambed Alteration Agreement 1600-2012-0213-R1 for water drafting locations (page 81 in THP 1-15-107 MEN) requires avoidance of inadequate flow capacity:

  "2.20 Water drafting shall cease if the minimum water depth in the deepest portion of Class I watercourse's drafting pool riffle crest is less than 0.2 feet deep."

The CDFW Streambed Alteration Agreement 1600-2012-0213-R1 was signed on April 16, 2013 and a copy is included in THPs 1-15-094 MEN and 1-14-126 MEN (end of Section II). Earlier plans operated under a similar CDFW Streambed Alteration Agreement. Section V, "Support Documentation for Approved DFG 1600 Water Drafting Permits" (page 371 in THP 1-15-107 MEN) expands on this:

> "(G) a discussion of the effects on aquatic habitat downstream from the drafting site(s) of single pumping operations, or multiple pumping operations at the same location, and at other locations in the same watershed;
>
> During filling time there is a temporary reduction in streamflow, the effect of which is decreased with distance downstream and drainage input. Under the proposed drafting conditions (H, listed below) the effects on aquatic habitat are predicted to be short term and not substantial. A minor reduction in wetted area will necessarily result that should not prevent the movement of salmonids or habitation by other organisms. Water temperature is not anticipated to be increased in a substantial way. Refer to Attachment B for a graphical example at a representative site. Long term sediment input into the habitat will be reduced as a result of water use for dust abatement and compaction
>
> (H) a discussion of proposed alternatives and measures to prevent adverse effects to fish and wildlife resources, such as reducing hose diameter; using gravity-fed tanks instead of truck pumping; reducing the instantaneous or daily intake at one location; describing allowances for recharge time; using other dust palliatives; and drafting water at alternative sites; and
>
> The drafting operations at Class I sites shall be conducted to avoid adverse effects during low flow periods. No drafting shall take place if the water level falls below 0.2 feet at the riffle crest thalweg. The bypass flow in the watercourse during water drafting shall remain at 1.0 cfs or greater. At the Class II tank sites diversion shall not exceed 50 percent of the surface flow. The intake line will be covered with a screened inlet. Round openings in the screen shall not exceed 3/32-inch and slotted openings shall not exceed 1/16-inch. Magnesium Chloride use is an alternative option when cost effective."

If flows are inadequate no water drafting can occur. THPs 1-15-094 MEN, 1-14-126 MEN and 1-13-031 MEN have similar "Support Documentation for Approved DFG 1600 Water Drafting Permits" in Section V.

- Tables – none
- Graphs – none
- Maps – Operations Map shows water drafting locations.
  Note: Planning Watershed boundaries are <u>not</u> generally shown on the maps that disclose the water drafting locations.
- Other – Sensitive conditions associated with inadequate flow capacity in the South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report,

pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

7. **Migrating channels** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
   There do not appear to be any migrating channels in or adjacent to any of the recent THPs. Migrating channels are more likely to occur downstream of the Lyme Redwood Timberland LLC property in the Pilot Project Planning Watershed, on other ownerships. (See discussion of "Flood Prone Areas" below.) Therefore, restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values with respect to migrating channels.
   - Narrative – none
   - Tables – none
   - Graphs – none
   - Maps – none
   - Etc. - Sensitive conditions associated with migrating channels, if any are present, in the South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

8. **Overflow channels** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
   There do not appear to be any overflow channels in or adjacent to any of the recent THPs. Overflow channels are more likely to occur downstream of the Lyme Redwood Timberland LLC property in the Pilot Project Planning Watershed, on other ownerships. See discussion of "Flood Prone Areas" below.
   Note: there do <u>not</u> appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with overflow channels in the Pilot Project Planning Watershed and there are no overflow channels in or adjacent to harvest units. Therefore, restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection

(b) is not required and the plan does not need to identify or describe measures to restore those values with respect to overflow channels.

- Narrative – none
- Tables – none
- Graphs – none
- Maps – none
- Other - Sensitive conditions associated with overflow channels, if any are present, in the South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

9. **Flood prone areas** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
Note: there do <u>not</u> appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with flood prone areas in the Pilot Project Planning Watershed. If this is true then restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values with respect to flood prone areas.

- Narrative – Section II, Item 26 of THP 1-15-107 MEN and THP 1-15-094 MEN quote the "Class I watercourse protection measures for <u>confined</u> channels (page 38 in both THPs). Section II, Item 26 of THP 1-14-126 MEN quotes the "Class I watercourse protection measures for <u>confined</u> channels (page 39). Rules changed in 2010 so there were no confined channel rules that could be quoted in the earlier THPs. A single harvest unit in THP 1-13-031 MEN appears to address flood prone areas – (page 39.1 – only for Unit C on Smith Creek), for the remainder of the THP Section II, Item 26 quotes the "Class I watercourse protection measures for <u>confined</u> channels (page 40). The proposed harvest related activity in the flood prone area in THP 1-13-031 MEN is confined to a project described as a "Large Woody Debris (LWD) and Habitat Complexity pilot project" implemented as part of the THP. The project proposed to manually fell up to 30 trees into Smith Creek from the Core Zone of the Class I WLPZ in THP Unit C (a watercourse segment with a flood prone area). This was a restoration project that was completed as part of the harvest plan.
THP 1-10-033 MEN (Section II of plan, 40-41) proposed use of an existing skid trail in a flood prone area to place a tractor to be used as a tailhold to facilitate cable yarding. No construction or log skidding was proposed. Item 27 in Section III of the plan explains

(page 153) that the ground is flat and well drained, operations will be confined to when soils are dry, any disturbed soil will be mulched. The alluvial flat is not mapped as a flood prone area on the THP maps, it is designated as within the Coastal Commission Special Treatment Area with "Tractor Road in WLPZ" and "Tailhold" symbols clearly shown.

- Tables (see Riparian zones for a sample of "Table 1 Channel Inventory form, found in THPs in Section IV under the header "Current Stream Channel Conditions")
  - THP 1-15-107 MEN there has been no recent flooding associated with Smith Creek or the Unnamed Tributary A that lie within the project boundaries (see table in "Riparian Zones" below).
  - THP 1-15-094 MEN a similar table (page 149) also shows no recent flooding associated with South Fork Ten Mile River
  - THP 1-14-126 MEN a similar table (page 163) also shows no recent flooding associated with South Fork Ten Mile River or Campbell Creek
  - THP 1-13-031 MEN a similar table (page 201) shows no recent flooding associated with Smith Creek.
  - THP 1-10-033 MEN a similar table (page 201) shows minimal recent flooding associated with South Fork Ten Mile River.
  - THP 1-09-022 MEN a similar table (page 214) shows minimal recent flooding associated with South Fork Ten Mile River and Campbell Creek within the project boundaries.
  - THP 1-08-015 MEN a similar table (page 280) shows minimal recent flooding associated with Campbell Creek within the project boundaries.
  - THP 1-07-036 MEN a similar table (page 403) shows recent flooding associated with Smith Creek within the project boundaries to be slight.
- Graphs – none
- Maps – THP 1-13-031 MEN has the flood prone area adjacent to Unit C mapped on the Operators Map (map 2, page 62 in Section II of the plan), the Reviewers Map (map 2, page 214.2, in Section III of the plan) and the Erosion Control Plan Map (page 2, page 399.2, in Section V of the plan).
  Note: Planning Watershed boundaries are <u>not</u> generally shown on the maps that contain operational information for the plan, like the flood prone area mentioned above.
- Other - Sensitive conditions associated with flood prone areas in the South Fork Ten Mile River, Smith Creek or Campbell Creek drainages may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

10. **Riparian zones** wherein the values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) are impaired.
    Note: there do not appear to be any values set forth in 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) that are impaired associated with riparian zones in the Pilot Project Planning Watershed. If this is true then restoration of the functions set forth in code section 14 CCR §§ 916.4, 936.4, 956.4, subsection (b) is not required and the plan does not need to identify or describe measures to restore those values with respect to riparian areas.

    - Narrative – Although not actually stated as being impaired THP 1-13-031 MEN described a "Large Woody Debris (LWD) and Habitat Complexity pilot project" implemented as part of that THP. The project proposed to fell up to 30 trees into Smith Creek from the Core Zone of the Class I WLPZ in THP Unit C. The Forest Practice Rules for the Core Zone of Class I WLPZs are designed to protect many ecosystem functions, and therefore require that trees be felled away from or parallel to the watercourse, require that logging debris be removed from below the watercourse and lake transition line, and prohibit timber falling in the core zone. Therefore, Section II of the THP, item 27 (pages 46-48), required extensive discussion as to how the proposal provides equal or better resource protection than the standard Forest Practice Rules when the trees would be felled into the watercourse (not away from or parallel to it), the logs felled into the watercourse are not being removed, and the trees for the project were harvested from the trees within the core zone. Obviously, the condition of the pre-harvest riparian zone had to be quite good to consider these alternative practices (especially the cutting of trees from the inner zone) that differ from those incorporated into the Forest Practice Rules specifically for the protection of the riparian zones.
    - Tables – In Section IV of THP 1-15-107 MEN (pages 140) addresses several features that are used to describe riparian zones, for example, Canopy Reduction (which is minimal):

      2. Using a copy of attached Table 1, describe the condition of the order 2 or larger stream channels, or apparently different segments of these channels, that lie within the project boundary and are downstream of the point where the contributing watershed area of the stream is less than 300 acres.

Stream	Smith Creek	Unnamed Tributary A
Channel Type	F4	G4
Class	I	I
Gravel Embeddedness	Moderate/Heavy	High
Pool Filling	Minimal/Moderate	Moderate
Aggradation	Minimal/Moderate	Moderate
Bank Cutting	Minimal/Moderate	Moderate/High
Bank Mass Wasting	Minimal	Minimal/Moderate
Down Cutting	Minimal	Moderate
Scouring	None	None
LWD Accumulation	Moderate/Heavy	Moderate
Canopy Reduction	Minimal	Minimal
Recent Flooding	None	None

      - THP 1-15-094 MEN a similar table (page 149) shows canopy reduction associated with South Fork Ten Mile River within the project boundaries as minimal.
      - THP 1-14-126 MEN a similar table (page 163) shows canopy reduction associated with South Fork Ten Mile River or Campbell Creek within the project boundaries as minimal.
      - THP 1-13-031 MEN a similar table (page 242) shows canopy reduction associated with Smith Creek within the project boundaries as "none."

- THP 1-10-033 MEN a similar table (page 201) shows canopy reduction associated with South Fork Ten Mile River within the project boundaries as minimal.
- THP 1-09-022 MEN a similar table (page 214) shows canopy reduction associated with South Fork Ten Mile River and Campbell Creek within the project boundaries as moderate.
- THP 1-08-015 MEN a similar table (page 280) shows canopy reduction associated with Campbell Creek within the project boundaries as moderate.
- THP 1-07-036 MEN a similar table (page 403) shows canopy reduction associated with Smith Creek within the project boundaries as minimal.

The Aquatic Habitat Assessment in Section V of THP 1-15-107 MEN:

Positive Factors
Ideal canopy values in Smith Creek and Unnamed Tributary A

The Aquatic Habitat Assessment in Section V of THP 1-15-094 MEN: referenced the Aquatic Habitat Assessment from THP 1-14-126 MEN.
The Aquatic Habitat Assessment in Section V of THP 1-14-126 MEN: had as Positive Factors: "Ideal Embeddedness and Canopy Values in Campbell Creek and the South Fork Ten Mile River."
The Aquatic Habitat Assessment in Section V of THP 1-13-031 MEN: had as Positive Factors: "Ideal canopy values in Smith and Mill Creek."
The Aquatic Habitat Assessment in Section V of THP 1-10-033 MEN: had as Positive Factors: "Optimal canopy levels for South Fork Ten Mile River."
The Aquatic Habitat Assessment in Section V of THP 1-09-022 MEN: referenced the Aquatic Habitat Assessments from THPs 1-08-015 MEN and 1-08-127 MEN.
The Aquatic Habitat Assessment in Section V of THP 1-08-015 MEN: had a Negative Factor: "Sub-optimal canopy levels, particularly lower in the sample reach." However, there has been almost ten years of growth since that was written.
The Aquatic Habitat Assessment in Section V of THP 1-07-036 MEN: had as Positive Factors: "Optimal canopy levels."

- Graphs

In Section V of THP 1-15-107 MEN, in the Aquatic Habitat Assessment, there are pie graphs of riparian canopy structure for Smith Creek adjacent to the plan area and the unnamed Tributary A downstream of the THP (pages 344 and 348):

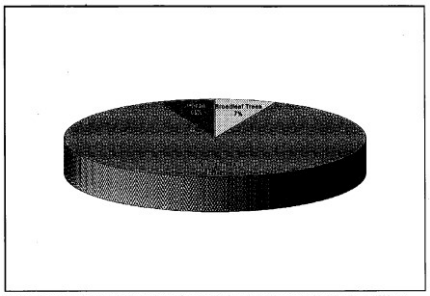


Figure 3: Riparian canopy structure for Smith Creek adjacent to the Dutchman West THP, 2015.

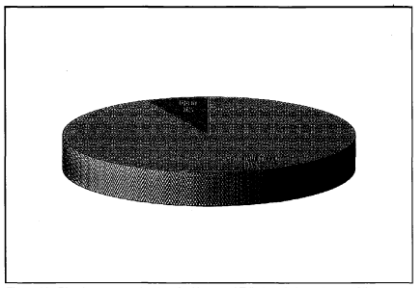


Figure 11: Riparian canopy structure for Unnamed Tributary A downstream of the Dutchman West THP, 2015.

Similar pie charts are found in the Aquatic Habitat Assessments or attachments to those assessments (i.e., the CDFW Stream Survey Reports in THP 1-14-126 MEN) in Section V of other THPs in the Pilot Project Planning Watershed (from 2007-2015), or in the Aquatic Habitat Assessments/attachments incorporated by reference (i.e., THP 1-15-094

MEN incorporated by reference the Aquatic Habitat Assessment from THP 1-14-126 MEN and THP 1-09-022 MEN did the same the Aquatic Habitat Assessment from THP 1-08-015 MEN).

- Maps – because WLPZs are defined clearly in the Forest Practice Rules and in the THPs they are not generally mapped, and were not mapped in any of the THPs evaluated as part of this project.
- Other - Sensitive conditions associated with riparian areas adjacent to the South Fork Ten Mile River, Smith Creek or Campbell Creek may be disclosed in the 2012 CDFW Stream Inventory Reports for those drainages, copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

"Values set forth in 14 CCR §§ 916.4(b), 936.4(b), 956.4(b)" referenced in 14 CCR §§ 916.4(a)(1), 936.4(a)(1), 956.4(a)(1):

The values set forth in code sections 14 CCR 916.4(b), 936.4(b), 956.4(b) are:

(b) The standard width of the WLPZ and/or the associated basic protection measures shall be determined from Table I (14 CCR §§ 916.5, 936.5, 956.5) or §§ 916.4(c), 956.4(c), 956.4(c), and shall be stated in the plan. A combination of the rules, the plan, and mitigation measures shall provide protection for the following:

a. Water temperature control.
b. Streambed and flow modification by large woody debris.
c. Filtration of organic and inorganic material.
d. Upslope stability.
e. Bank and channel stabilization.
f. Spawning and rearing habitat for salmonids
g. Vegetation structure diversity for fish and wildlife habitat, possibly including but not limited to:
  1. Vertical diversity
  2. Migration corridor
  3. Nesting, roosting, and escape
  4. Food abundance
  5. Microclimate modification
  6. Snags
  7. Surface cover

Many of the values set forth in 14 CCR §§ 916.4(b), 936.4(b), 956.4(b) may be addressed in the 2012 CDFW Stream Inventory Reports for South Fork Ten Mile River, Campbell Creek and Smith Creek (draft), copies of which were submitted as supporting documentation in Section V of THP 1-14-126 MEN (South Fork Ten Mile River Stream Inventory Report, pages 376-417 and Campbell Creek Stream Inventory Report, pages 418-459) and THP 1-13-031 MEN (Smith Creek Stream Inventory Report Draft, pages 536-569). These reports contain narratives, tables and graphs. A single map was included in each of the reports made part of THPs 1-14-126 MEN and 1-13-031 MEN. The maps show only the beginning and end of the survey and changes in channel type. The original reports on file with CDFW would be more likely to have more detailed maps. CDFW generated these reports and presumably has the data sheets from the actual stream surveying activities, making the gathering of data more detailed if coming from the CDFW. Also, much of the information in the reports is complex and could be misinterpreted by personnel from other agencies.

Conformance with the standard Forest Practice Rules for WLPZ widths and protections generally provide adequate measures to maintain and protect those functions. (see the CAL FIRE/Board of Forestry Hillslope Monitoring, FORPRIEM and other programs that monitor and evaluate the effectiveness of the Forest Practice rules – results have been published - http://www.bof.fire.ca.gov/board_committees/monitoring_study_group/msg_monitoring_reports/forpriem_report_final_022715.pdf and http://www.bof.fire.ca.gov/board_committees/monitoring_study_group/msg_monitoring_reports/combodocument_8_.pdf)

a. **Water temperature control** – no restoration appears to be necessary, at least not on the commercial timberlands currently owned by Lyme Redwood Timberlands LLC. Measures needed to maintain water temperatures are included in the Forest Practice Rules as described on page 159 of THP 1-15-107 MEN and page 263 of THP 1-13-031 MEN (and likely the other THPs as well): "… With this proposed THP being in compliance with the 2009 [2010] 'Anadromous Salmonid Protection' (ASP) rules, it is expected that canopy levels along Class I and II watercourses will continue to improve in the future throughout the WLPZ to the point where virtually all of the WLPZs will have a canopy density in excess of current regulatory guidelines. With that a decrease in water temperature may come as a result."
Section IV of THP 1-15-107 MEN (page 147) has a table that addresses stream temperatures and page 39 in Section II, item 26 states: "… Current shade canopy levels along Class II watercourses range from near 75% to 90% or higher.":

E. Potential On-Site Effects

Based on current conditions and your knowledge of the impacts of similar past projects, what is the potential of the proposed project, as described and mitigated, to produce the following individual effects? (High, Moderate, Low)

2. Openings created by project activities along stream channels that could result in substantially increased stream temperature. H M **L**

Section IV of THP 1-15-094 MEN (page 155) has the same table with the same "low" designation and page 39 in Section II, item 26 states: "… Current shade canopy levels along Class II watercourses range from near 70% to 85% or higher. … There are also some unnamed Class II watercourse within and adjacent to the plan area. Current shade canopy levels along Class II watercourses range from near 90% to 95% or higher"

Section IV of THP 1-14-126 MEN (page 168) has the same table with the same "low" designation. Page 349: had as Positive Factors: "Ideal Temperatures for coho in Campbell Creek."
Section IV of THP 1-13-031 MEN (page 251) has the same table with the same "low" designation and page 40 in Section II, item 26 states: "… Current shade canopy levels along Class II watercourses range from near 70% to 85% or higher."
Section IV of THP 1-10-033 MEN (page 203) has the same table with the same "low" designation and page 36 in Section II, item 26 states: "… Current shade canopy levels along Class II watercourses range from near 70% to 85% or higher." Page 394: "Instream temps optimal for steelhead and coho in South Fork Ten Mile River."
Section IV of THP 1-09-022 MEN (page 220) has the same table with the same "low" designation and page 37 in Section II, item 26 states: "… Current shade canopy levels along Class II watercourses range from near 70% to 85% or higher."
Section IV of THP 1-08-015 MEN (page 282) has the same table with the same "low" designation, page 285 states: "Temperature monitoring efforts document that instream temperatures in Campbell Creek are favorable for both steelhead and coho." and page 35 in Section II, item 26 states: "… Current shade canopy levels along Class II watercourses range from near 70% to 85% or higher. Page 409: "Instream temperatures optimal for steelhead and coho."
Section IV of THP 1-07-036 MEN (page 405) has the same table with the same "low" designation, page 408 states: "Temperature monitoring efforts document that instream temperatures in both Mill and Smith Creek are optimal for both steelhead and coho." Page 568: had as Positive Factors: "Instream temps optimal for steelhead and acceptable for coho in both creeks" (Smith Creek and Mill Creek – Mill Creek is not in the Pilot Project Planning Watershed.)

Other sections of the plan also address water temperatures directly or indirectly. <u>There does not appear to be a need for restoration for this watercourse related function in the Pilot Project Planning Watershed.</u>

b. **Streambed and flow modification by large woody debris** – addressed in the Erosion Control Plan (page 273 in THP 1-15-107 MEN) debris jam potential is indirectly addressed:

- "**Stream clearance:** Stream clearing activities were initiated by the California Department of Fish and Game within the Ten-Mile river basin in the 1960's. These stream restoration activities focused on the removal of log-jam barriers, which partially or completely blocked access by anadromous fish into important spawning and nursery tributaries. Unfortunately, these clearance activities led to the release of large slugs of stored sediment. Recent efforts in the Ten Mile basin have focused mainly upon habitat enhancement projects, as opposed to stream clearance, in an effort to increase available spawning and rearing habitat for juvenile fish. This work has included installation of scour/cover sites using stumps, logs, and boulders, in combination with some minor barrier modifications. Initial enhancement projects were completed in November of 1992, by the Center for Education and Manpower Resources, INC. In 1993, 1994, and 1996, Georgia Pacific (GP) completed additional projects. Details of the GP projects are included with THP #1-02-132 MEN. …"

The Aquatic Habitat Assessment (page 336 in THP 1-15-107 MEN) describes Smith Creek with respect to large woody debris:

> "The high complexities of pools in upper Smith Creek are likely reflective of the quantity of LWD present in the channel. The surveyed section contained 90 pieces of Non-Key LWD per 1000 feet and 30 pieces of Key LWD per 1000 feet (Appendix A, Figure 5). These numbers are at the upper end the National Marine Fisheries Service (NMFS) category of 18 to 34 pieces per 1000 feet for "Good" salmonid habitat (National Marine Fisheries Service, 2012). Note that NMFS's classification of a "key piece" of LWD (≥ 1.8 feet in diameter and ≥ 33ft in length) differs from the Key category criterion utilized in this report (≥ 12 inches ≥ 1.5 times bankfull width). In small systems such as the upper reaches of Smith Creek, the abundant "Non-Key" LWD is likely to promote scour and associated channel complexity and depth. Surveyors noted that most pools were formed by legacy logging debris that was embedded in the channel. Despite the presence of logging debris, no partial or full LWD barriers to fish migration were observed during CG' s survey."

Section IV, the Cumulative Impacts Assessment of THP 1-15-107 MEN also addresses large woody debris (page 151):

> "Wood budget data confirms that the previous T&I and current ASP rules for stream protection are adequate to ensure the recruitment of large woody debris."

Large woody debris was also addressed outside of the THPs. A document titled "Grant Agreement D1513104 – Large Wood Augmentation Projects in the Mendocino HUC Proposed Selection Criteria Process, Overview and Results Trout Unlimited – April 28, 2017" was provided to the PPIIT on August 9, 2018. Both Smith and Campbell Creek, as well as the South Fork Ten Mile River (all or parts of which are within the Pilot Project Planning Watershed) were included in the initial scoping for possible restoration project consideration. However, the "Narrowed Potential Project Site List" found at the end of the report does <u>not</u> include the Campbell Creek Planning Watershed as among the "… good candidates for wood augmentation under this grant." <u>There does not appear to be a need for restoration for this watercourse related function in the Pilot Project Planning Watershed.</u>

c. Filtration of organic and inorganic material – implies removal of vegetation or surface cover near watercourses or possibly compaction. Where this would be expected to be a concern could include areas where there have been high intensity wildland fire (removing vegetation, duff and possibly causing water repellent soils), severe flooding (washing away protective groundcover) or use of heavy equipment (compacting soils, decreasing permeability). The zoning of the property as TPZ (timber production zone) has effectively confined land use to timber harvest**.** Rules to protect the filtering capacity of organic and inorganic materials in the immediate vicinity of watercourses (WLPZs) have been in place for several decades. The harvest plans associated with this ownership have been in conformance with the Forest Practice Rules. The property does not appear to have been subject to wildfire for over 60 years, has not flooded recently (see #9 above) and heavy equipment has been largely excluded from WLPZs for decades.

The Erosion Hazard Rating forms found in all THPs include a factor, "Protective Vegetative Cover Remaining after Disturbance." On its face one might think this could be a useful value for the identification of potential restoration sites. The factors are numeric values 1-15 corresponding to Low, Moderate and High projections of cover that will remain immediately after harvest operations. By interpolating the numeric values back to percentages it looks like this value is

greater than 50% and most often 70% to 100+%. One exception, where the extrapolated value was about 20%, corresponds to a small area of a harvest unit on a ridgetop with no watercourses (it is time consuming to match the calculated values to the locations on the ground when a single value of interest does pop up). The disclaimer for use of the values from the EHR tables is that they are averages for areas larger than 10 or 20 acres, the ratings vary across the landscape and are not confined to conditions within WLPZs. WLPZs are lumped into acreages with the same soil type, yarding and silviculture. The numbers also represent expected vegetative cover immediately upon completion of harvest operations. No values are provided for pre-harvest conditions. Within a year growth and needlecast will increase protective vegetative cover. All of the above make the use of the "Protective Vegetative Cover Remaining after Disturbance" of little practical value for the purposes of the Pilot Project.
There does not appear to be a need for restoration for this watercourse related function in the Pilot Project Planning Watershed.

d. **Upslope stability** – the THPs evaluated (2007-2015) included a report prepared by a Certified Engineering Geologist. [Caution: do not expect every harvest plan to have a report prepared by a Certified Engineering Geologist. It is the policy of this large industrial landowner, to provide a report for every plan. That may not be the case in Planning Watersheds with smaller, non-industrial, timberland owners.] The maps from those Focused Engineering Geological Reviews found in the four most recent THPs (THPs 1-15-107 MEN, 1-15-094 MEN, 1-14-126 MEN and 1-13-031 MEN) may have been captured and displayed in a different format on the "THP Data Mining: Map" found in the "Analysis" part of the "Ongoing Analysis and Resulting Products" section, under the heading of "Mapping" on the "Campbell Creek Pilot Project" website (https://campbellcreek-calfire-forestry.opendata.arcgis.com/).
While there are unstable slopes present, there does not appear to be a significant need for restoration for this watercourse related function in the Pilot Project Planning Watershed.

e. **Bank and channel stabilization** – addressed in the Cumulative Impacts Assessment, Section IV of THP 1-15-107 MEN (page 151, underlining added for emphasis):

> "Aquatic Habitat Assessment Reports located in Section V of the THP further describes the range of watershed conditions observed over time in the watershed assessment area. The Aquatic Habitat Assessment Report acknowledges the existence of pre-plan adverse cumulative watershed effects on populations and the habitat for anadromous salmonids. The report suggests that aquatic habitat in the South Fork Ten Mile River has substantially recovered from the effects of historic land management practices. The current THP will avoid exacerbating existing watercourse habitat conditions as measured by pool filling, gravel embeddedness and stream aggradation by careful design and execution in addition to complying with the Anadromous Salmonid Protection (ASP) rules. With no harvest buffers on both Class I and II watercourses along with other enhanced protection measures where appropriate, avoidance of broadcast burning, use of existing roads with minimal new road construction, cable yarding where appropriate and the overall maintenance of a robust post harvest vegetation component it is clear to me that this project is unlikely to result in additional long term impacts to watercourses. Over the past twenty years that this RPF has been working in this watershed, it is the opinion of the RPF that the overall watershed condition has improved and will likely continue to do so through Hawthorne's and others vigilant land stewardship practices.

In addition to changes in watershed condition, the landowner has implemented a disturbance-based management strategy that emphasizes (1) the use of uneven-age management in resource-sensitive areas and (2) prioritization and treatment of active erosion sites."

There does not appear to be a need for restoration for this watercourse related function in the Pilot Project Planning Watershed.

f. **Spawning and rearing habitat for salmonids** – The spawning and rearing habitat maps in the Aquatic Habitat Assessments of the 2007-2015 THPs in the Pilot Project Planning Watershed show this habitat is available for practically the entire length of Campbell and Smith Creeks. There does not appear to be a need for restoration for this watercourse related function in the Pilot Project Planning Watershed.

g. **Vegetation structure diversity for fish and wildlife habitat**

1. Vertical diversity - in Section IV (Cumulative Impacts), III. Cumulative Biological Resource Impacts Assessment. B. Habitat Condition is a table showing presence of multistory canopy as moderate on-site pre-project, off-site and on-site post-project in THP 1-15-107 MEN (page 194), THP 1-15-094 MEN (page 196), THP 1-14-126 MEN (page 209), THP 1-13-031 MEN (page 296), THP 1-09-022 MEN (page 254), THP 1-08-015 MEN (page 309), THP 1-17-036 MEN (page 434) and as low on-site pre-project, off-site and on-site post-project in THP 1-10-033 MEN (page 232).
2. Migration corridor - Item 26q in THPs submitted from 2015 onward (not a THP form question prior to 2015) – asks "Are there existing permanent Class I crossings, where fish are always or seasonally present or where passage is restorable? If yes, describe each crossing; and where the current crossing conditions may be adversely affecting fish passage, disclose such conditions in the plan and propose measures, if feasible, to address conditions 923.9 [943.9, 963.9] (d)." The question is answered "no" in THP 1-15-107 MEN (page 36) and in THP 1-15-094 MEN (page 38). Code sections 14 CCR 923.9(d), 943.9(d) and 963.9(d) referenced in the quote were revised in 2015 to include the language about fish passage so the question does not appear in any of the THPs approved prior to 2015.
3. Nesting, Roosting and escape – this appears to be specific to terrestrial species, primarily raptors. Forest Practice Rule WLPZ requirements protect large trees near watercourses that are used for nesting and roosting of species such as hawks, owls, osprey, eagles. The WLPZs provide migration/escape corridors as well.
4. Food abundance – this probably refers to mast tree species (oaks providing acorns as a wildlife food supply) or browsing/foraging plant species such as would be utilized by deer.
5. Microclimate modification – Forest Practice Rule WLPZ requirements protect the microclimate in and adjacent to watercourses.
6. Snags – in Section IV (Cumulative Impacts), III. Cumulative Biological Resource Impacts Assessment. B. Habitat Condition is a table showing presence of snags/dens/nest trees as moderate on-site pre-project and post-project in THP 1-15-094 MEN (page 196), THP 1-13-031 MEN (page 296), and low on-site pre-project and post-project in THP 1-15-107 MEN (page 194), THP 1-14-126 MEN (page 209), THP 1-10-033 MEN (page 232), THP 1-09-022 MEN (page 254), THP 1-08-015 MEN (page 309) and THP 1-17-036 MEN (page 434).

7. Surface cover – in Section IV (Cumulative Impacts), III. Cumulative Biological Resource Impacts Assessment. B. Habitat Condition is a table showing amount of downed large woody debris as moderate or high on-site pre-project, off-site and on-site post-project for all but one plan (THP 1-10-033 MEN).
   The Erosion Hazard Rating forms found in all THPs include a factor, "Protective Vegetative Cover Remaining after Disturbance." On its face one might think this could be a useful value for the identification of potential restoration sites. The factors are numeric values 1-15 corresponding to Low, Moderate and High projections of cover that will remain immediately after harvest operations. By interpolating the numeric values back to percentages it looks like this value is greater than 50% and most often 70% to 100+%. One exception, where the extrapolated value was about 20%, corresponds to a small area of a harvest unit on a ridgetop with no watercourses (it is time consuming to match the calculated values to the locations on the ground when a single value of interest does pop up). The disclaimer for use of the values from the EHR tables is that they are averages for areas larger than 10 or 20 acres, the ratings vary across the landscape and are not confined to conditions within WLPZs. WLPZs are lumped into acreages with the same soil type, yarding and silviculture. The numbers also represent expected vegetative cover immediately upon completion of harvest operations. No values are provided for pre-harvest conditions. Within a year growth and needlecast will increase protective vegetative cover. All of the above make the use of the "Protective Vegetative Cover Remaining after Disturbance" of little practical value for the purposes of the Pilot Project.

<u>There does not appear to be a need for restoration for this watercourse related function in the Pilot Project Planning Watershed.</u>

Code section 14 CCR 916.4(a)(2), 936.4(a)(2), 956.4(a)(2)

(a) The RPF or supervised designee shall conduct a field examination and map all lakes and Class I, II, III, and IV watercourses. …

(2) As part of this field examination, the RPF or supervised designee shall map the location of spawning and rearing habitat for anadromous salmonids, and the condition of the habitat shall be evaluated using habitat typing that at a minimum identifies the pool, flatwater, and riffle percentages. The opportunity for habitat restoration shall be described within the plan for each Class I watercourse, and for each Class II watercourse that can be feasibly restored to a Class I.

See spreadsheet 2 in the Workbook titled "Workbook for Aquatic Habitat Assessments from THPs" (Appendix 12). The spreadsheet contains a detailed summary of the "habitat typing used to evaluate the condition of the habitat" on Lyme Redwood Timberlands, LLC lands (Hawthorne Timber Company, LLC lands prior to 2016) for the period 2007-2015 as evaluated in the Aquatic Habitat Assessments (Section V - Supplemental Information) in THPs for the Pilot Project Planning Watershed.

- Narrative – Pool, flatwater and riffle percentages are required to be stated in the plan where there is spawning and rearing habitat for anadromous salmonids. As indicated above, this information is found in the Aquatic Habitat Assessment that is included in Section V (Supplemental Information) of

the 2007-2015 THPs reviewed. However, this information takes the form of an inconspicuous and easily overlooked paragraph in a document averaging 20-30 pages, as in this example from THP 1-15-107 MEN:

> "Figure 1 summarizes the Level II Habitat Types: Rifle, Flatwater, Pool and Dry. Of the Level II Habitat Types, Riffles comprised 25%, Flatwater 43% and Pool 28% by total length. Four percent of the units were dry."

The rule does not specify what length of stream reach this information should be associated with so the specificity of the measurements may vary from one plan to another. See the spreadsheet referenced above (Appendix 12), one list of percentages might be for a 1,059-foot segment of Smith Creek, a 628-foot segment of an unnamed tributary or for 106,178 feet of the fishbearing reach of Campbell Creek.

There is discussion of: length of stream surveyed and when, catchment area, survey level, channel type, number of pools surveyed, stream channel canopy, pool tailout embeddedness, LWD, mean shelter rating, bank stability, salmonid presence and temperature. Also addressed are: how the data was gathered (or source, if copied from a published source such as a CDFW Stream Survey report), results of the data gathering, discussion of the results and conclusions. Opportunity for habitat restoration was also addressed as in this discussion from THP 1-15-107 MEN (page 340 in the Aquatic Habitat Assessment):

> "A barrier in the form of a large head-cut exists in upper Campbell Creek which prevents fish from migrating to the uppermost Class I habitat. The CDFW Habitat Inventory Survey in Campbell Creek terminated at this location. Shortly upstream of the barrier, the habitat in Campbell Creek transitions to a low gradient marsh. The rearing and spawning habitat in this area is limited. Because the head-cut is located in the uppermost reaches of Campbell Creek, close to the Class I/II transition point, and because the habitat upstream is marginal, removal of the barrier would most likely not result in a significant increase in salmonids in Campbell Creek. It is also unlikely that anadromous fish spawn in these upper reaches in most seasons."

- Tables – Several tables, similar format from one THP to the next, are found in most, if not all, of the Aquatic Habitat Assessments from the recent harvest plans (2007-2015) in the Pilot Project Planning Watershed.

  Pool, flatwater and riffle mean width and mean <u>depth</u> are provided in table format. See above, the rule does not specify what length of stream reach this information should be associated with so the specificity of the measurements vary from one plan to another. Example from the Aquatic Habitat Assessment of THP 1-15-107 MEN (similar tables are found in, or incorporated by reference in, the Aquatic Habitat Assessments of other THPs from 2007-2015 in the Pilot Project Planning Watershed):

Table 1: Mean width and depth of habitat units in Smith Creek.

Stream	Riffle		Flatwater		Pool	
	Mean Width (ft.)	Mean Depth (ft.)	Mean Width (ft.)	Mean Depth (ft.)	Mean Width (ft.)	Mean Depth (ft.)
Smith Creek	4.0	0.2	5.2	0.6	6.8	1.0

There are two summaries of watercourse conditions in table format. Examples from the Aquatic Habitat Assessment of THP 1-15-107 MEN:

Table 3. Class I Watercourse conditions for Smith Creek, (2015).

Stream	Smith Creek
Channel Type	F4
Class	I
Gravel Embeddedness	Moderate/Heavy
Pool Filling	Minimal/Moderate
Aggradation	Minimal/Moderate
Bank Cutting	Minimal/Moderate
Bank Mass Wasting	Minimal
Down Cutting	Minimal
Scouring	None
LWD Accumulation	Moderate/Heavy
Canopy Reduction	Minimal
Recent Flooding	None

Table 5. Positive and negative factors affecting upper Smith Creek and Unnamed Tributary A associated with the Dutchman West THP, 2015.

Positive Factors	Negative Factors
Ideal canopy values in Smith Creek and Unnamed Tributary A	Some high Embeddedness Values in Smith Creek and in Unnamed Tributary A
Good pool complexities and depths in Smith Creek and good complexities in Unnamed Tributary A	Shallow pool depths in Unnamed Tributary A
LWD loading meets NMFS standards in Smith Creek and Unnamed Tributary A	No salmonids observed in Unnamed Tribuary A
Ideal stream temperatures in upper Smith Creek	

Similar tables are found in, or incorporated by reference in, the Aquatic Habitat Assessments of other THPs from 2007-2015 in the Pilot Project Planning Watershed.

- Graphs – Some Aquatic Habitat Assessments provided bar graphs and pie charts of the same information covered in the narrative. Examples from THP 1-15-107 MEN:

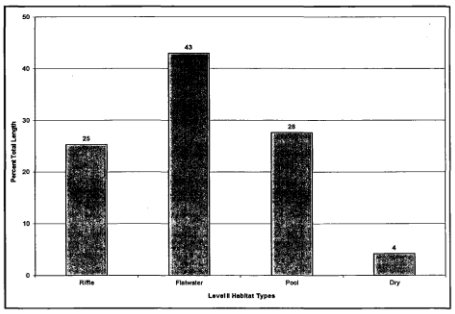


Figure 1: Level II habitat types by percent total length in Smith Creek adjacent to the Dutchman West THP, 2015.

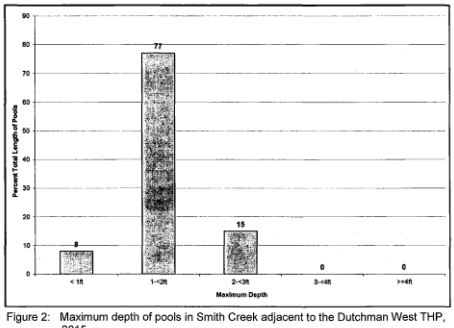


Figure 2: Maximum depth of pools in Smith Creek adjacent to the Dutchman West THP, 2015.

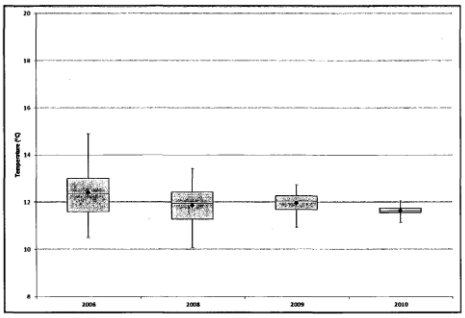


Figure 7: Boxplot interquartile distributions for the seven-day rolling average temperatures for SFT41 in Smith Creek (2006, 2008, 2009 & 2010) downstream of the Dutchman West THP, 2015. Black diamonds indicate averages and lines indicate medians.

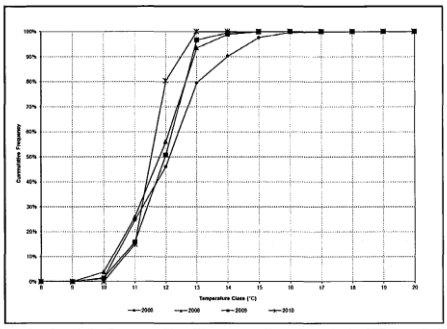


Figure 8: Cumulative Frequency Plot of Temperature Exceedence for the SFT41 monitoring site in Smith Creek (2006, 2008, 2009 & 2010) downstream of the Dutchman West THP, 2015.

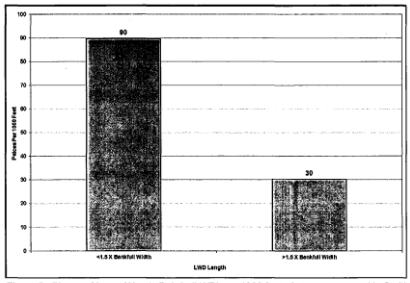


Figure 5: Pieces of Large Woody Debris (LWD) per 1000 feet of stream surveyed in Smith Creek adjacent to the Dutchman West THP, 2015.

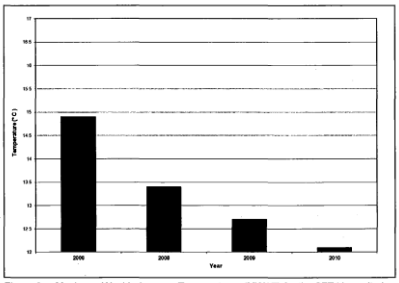


Figure 6: Maximum Weekly Average Temperatures (MWAT) for the SFT41 monitoring site in Smith Creek (2006, 2008, 2009 & 2010) downstream of the Dutchman West THP, 2015.

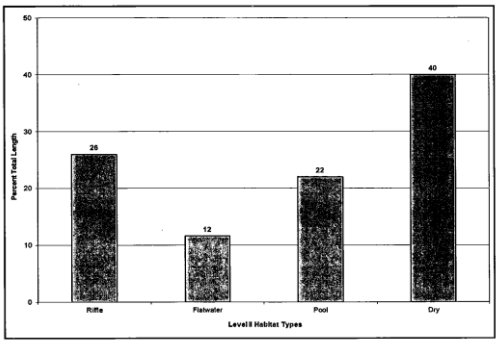


Figure 9: Level II habitat types by percent total length in Unnamed Tributary A downstream of the Dutchman West THP, 2015.

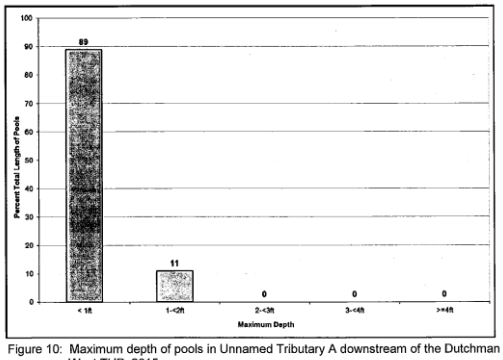


Figure 10: Maximum depth of pools in Unnamed Tributary A downstream of the Dutchman West THP, 2015.

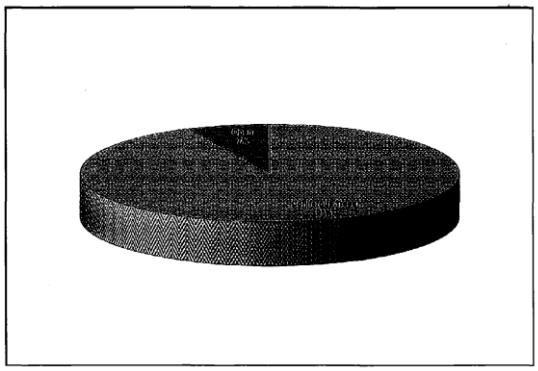


Figure 11: Riparian canopy structure for Unnamed Tributary A downstream of the Dutchman West THP, 2015.

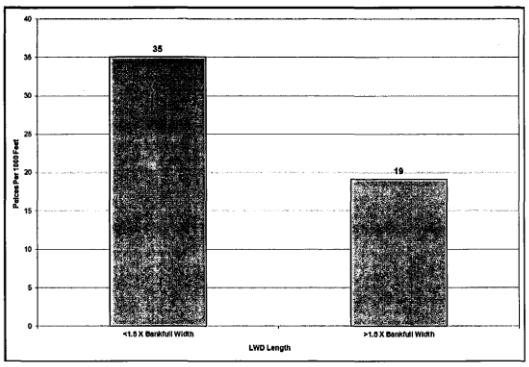


Figure 13: Pieces of Large Woody Debris (LWD) per 1000 feet of stream surveyed in Unnamed Tributary A downstream of the Dutchman West THP, 2015.

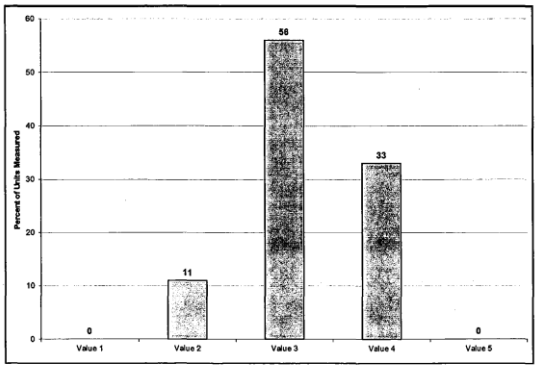


Figure 12: Embeddedness Values in Unnamed Tributary A downstream of the Dutchman West THP, 2015.

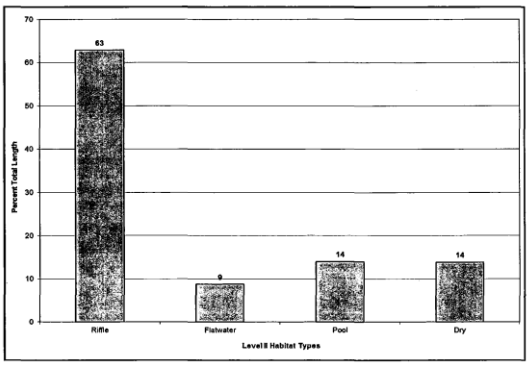


Figure 14: Level II habitat types by percent total length in upper Campbell Creek downstream of the Dutchman West THP, 2015.

Similar charts and graphs are found in the Aquatic Habitat Assessments or attachments to those assessments (i.e., the CDFW Stream Survey Reports in THP 1-14-126 MEN) in Section V of other THPs in the Pilot Project Planning Watershed (from 2007-2015), or in the Aquatic Habitat Assessments/attachments incorporated by reference (i.e., THP 1-15-094 MEN incorporated by reference the Aquatic Habitat Assessment from THP 1-14-126 MEN and THP 1-09-022 MEN did the same the Aquatic Habitat Assessment from THP 1-08-015 MEN).

- Maps - The mapped location of spawning and rearing habitat for anadromous salmonids are found at the end of the Aquatic Habitat Assessments for in Section V (Supplemental Information) of all but one of the THPs reviewed (2007-2015). For every THP except THP 1-10-033 MEN the maps are clearly labeled and identify the spawning and rearing habitat in the map legend. The Aquatic Habitat Assessment in THP 1-10-033 MEN has an "Overview Map" that identifies "Anadromous Fish Habitat" at it is found near the front of the Aquatic Habitat Assessment instead of the back.

  The rule does not specify where in the THP/NTMP the mapped locations of spawning and rearing habitat should be placed. It does not specify the formatting. In a Planning Watershed with a wider variety of landowners and RPFs preparing the plans it might require examining many maps found throughout the plan to find the ones that have the location of spawning and rearing habitat.

  For the purposes of the Pilot Project the spawning and rearing habitat locations from the four most recent THPs (THPs 1-15-107 MEN, 1-15-094 MEN, 1-14-126 MEN and 1-13-031 MEN) were captured and are displayed on the "THP Data Mining: Map" found in the "Analysis" part of the "Ongoing Analysis and Resulting Products" section, under the heading of "Mapping" on the "Campbell Creek Pilot Project" website (https://campbellcreek-calfire-forestry.opendata.arcgis.com/).
- Other – N/A

Code section 14 CCR 916.4(a)(3), 936.4(a)(3), 956.4(a)(3)

> **(a)** The RPF or supervised designee shall conduct a field examination and map all lakes and Class I, II, III, and IV watercourses. …
>
> **(3)** The mapping of conditions identified in subsection (a)(1) and (a)(2) above, and their protective measures, shall be sufficiently clear and detailed to permit the Director and the other review team representatives to evaluate the potential environmental impacts of timber operations, the proposed mitigation measures and the proposed restoration measures.

This part of the rule speaks to the review process, not to the objectives of the Pilot Project. Insufficient mapping and descriptions of protective measures should have been identified by the review team agencies (CAL FIRE, CDFW, NCRWQCB, CGS, etc.) and corrected prior to plan approval. However, the mapping of spawning and rearing habitat was "sufficiently clear and detailed" to permit creation of the "Spawning and Rearing Habitat" layer on the "THP Data Mining Map" found in the "Analysis" part of the "Ongoing Analysis and Resulting Products" section, under the heading of "Mapping" on the "Campbell Creek Pilot Project" website (https://campbellcreek-calfire-forestry.opendata.arcgis.com/).

Code section 14 CCR 916.4(a)(4), 936.4(a)(4), 956.4(a)(4)

> **(a)** The RPF or supervised designee shall conduct a field examination and map all lakes and Class I, II, III, and IV watercourses. …
>
> **(4)** The mapping of conditions identified in subsection (a)(1) and (a)(2) above, and their protective measures, shall be sufficiently clear and detailed to provide direction and clear guidance to the timber operator.

This part of the rule speaks to the review process, not to the objectives of the Pilot Project. Insufficient mapping should have been identified by the review team agencies (CAL FIRE, CDFW, NCRWQCB, CGS, etc.) and corrected prior to plan approval.

Code section 14 CCR 916.4(a)(5), 936.4(a)(5), 956.4(a)(5)

> "(a) The RPF or supervised designee shall conduct a field examination and map all lakes and Class I, II, III, and IV watercourses. …
>
> (5) The mapping of conditions identified in 14 CCR §§ 916.4, 936.4, 956.4 subsections (a)(1) and (a)(2), and their protective and restoration measures, should be done at a scale of 1:2,400. In site-specific cases, the mapping of critical locations of corrective work and logging operation impacts shall be done at a scale of at least 1:240 when the Director determines it is necessary to evaluate the plan."

This part of the rule speaks to the review process, not to the objectives of the Pilot Project. Improper map scale should have been identified by the review team agencies (CAL FIRE, CDFW, NCRWQCB, CGS, etc.) and corrected prior to plan approval.

Code section 14 CCR 916.4(a)(6), 936.4(a)(6), 956.4(a)(6)

> "(a) The RPF or supervised designee shall conduct a field examination and map all lakes and Class I, II, III, and IV watercourses. …
>
> (6) One set of photocopies of recent stereo aerial photographs of the plan area may be required by the Director."

This part of the rule speaks to the review process, not to the objectives of the Pilot Project. Improper map scale should have been identified by the review team agencies (CAL FIRE, CDFW, NCRWQCB, CGS, etc.) prior to plan approval. In none of the THPs submitted in the Pilot Project Planning Watershed between 2007 and 2015 does it appear that the Director requested photocopies of recent stereo aerial photographs of the plan area to facilitate plan review specific to code section 14 CCR 916.4(a), 936.4(a), 956.4(a). No photocopies of recent stereo aerial photographs of the plan area were found in the THPs.