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These comments are referenced by rule section and page number as shown in the 90 Day Notice Plead published Dec 23 2011. FPC and Staff edits to date in Track change format, staff revision July 2013.

923.1(G),(3),(4),(5) Pg 29 : This is the "find it and fix" language that requires the proposed THP to disclose existing and potential erosion sites. Earlier versions of the plead included a requirement to provide a schedule regarding when the "fixes" would be completed. At the meeting where this was discussed, there was a lot of concern from industry about being tied to a completion schedule with firm dates. After talking with Dave Fowler at the NCQCB and Mark Moore, retired DFW Environmental Scientist, they reported that a schedule is required as part of the Water Boards Erosion Control Plan (part of the timber waiver process) while DFW includes expected completion dates for erosion control installations as part of the 1600 permit process. My point in bringing this up is that a published schedule will enable the public to measure progress. Another question involves situations where there is no erosion control plan requirement or 1600 permit. Does the road rule language require that repair of the existing and potential erosion sites be completed before the THP completion report is accepted by CAL Fire?

923.1 (b) Pg 26: This section requires a road to be no closer than 100 feet to a class II water course on slopes greater than 30 %. Was the intent here that on slopes less than 30% the road could be closer to the water course, potentially adjacent to the Class II WLPZ? Based on the latest Class II-S plead, the width of the WLPZ (core zone and inner zone) for slopes less than 30% is 50'. Does this mean that the road could be adjacent to the WLPZ which would result in a stream to road distance of 50'? I am concerned that this is too close. For Class II-L's, WLPZ width is 100' which is consistent with the Drew Coe/Pete Cafferata report of May 4, 2010 that observes that a 100 ft buffer is probably sufficient unless the flow from the road cross drains are not dispersed and flow into a gully. If this situation occurs, the sediment travel distances can increase by a factor of 2.4-2.5.

923.12, (d) Pg 78,79,86,88: The allowable slope on logging road fills and fills at stream crossings is a concern that we have commented on earlier.(See NCCFFF comment letter to Eric Huff dated 3/18/2012) The initial version of the road rules plead allowed a slope of 67% which is too close to the angle repose for many soils. The current version now calls for a 65% maximum slope (1.5:1). Again, this does not provide a sufficient factor of safety. Recall my previous reminders to the FPC that the Public Trust Doctrine, now part of California Law, requires agencies to error on the side of caution by including an appropriate factor of safety. I asked my colleague, Mark Moore, a retired Environmental Scientist with DFW, to comment on the fill slope question. I will attach his letter which he describes problems resulting from using fill slopes using the 1.5:1 (65%) criteria. He also summarizes the standard used by Green Diamond and Humboldt Redwoods in their Habitat Conservation Plan Master agreements which call for the maximum slope to be no greater than 2:1 or 50%.

923.13 (b) (1) Pg 81,82: This section deals with soil stabilization measures on road fill slopes. It specifies that side cast or fill having bare soil extending 20' or more down the hill slope requires soil stabilization. This brings to mind the question of at what point on the road, should the distance of a road to the WTL of a water course be measured? In this example, measuring from the outer edge of the side cast would place the outward edge of the road at 270 ft from the watercourse WTL. (20' side cast width+100 ft road to WLPZ distance (required by 923.2) +100' Class I WLPZ width) which matches the distance recommended by Weaver and Hagans in their Handbook for Forest and Ranch Roads. Another concern we have is concerning side cast control. Weaver and Hagans stated that few slope failures occur on slopes less than 50% and that side casting on slopes greater than 55% should be avoided.

923.10 (f) Pg 74: Earlier versions of this section said that diversion of water down the road from a crossing failure would be addressed, prevented and mitigated. The current plead only requires that this problem be addressed. What is the rationale for this change?

923.11 (d) Pg 74: Methods and calculations used for determining culvert diameter. The thickness gage of the culvert should be specified also. Note that CALTRTRANS requires this as well on their culvert installations. Rusting of culverts (called invert perforation) is very difficult to discover and an appropriate culvert thickness will extend the useful life of the culvert

923.13 (c) Pg 83: This section requires slash mulch to be in contact with the ground on 75% of the bare, exposed soil area. Earlier versions of the plead required that the slash be packed into the ground with a tractor or an equivalent piece of heavy equipment. The current plead has removed the requirement to pack the slash with heavy equipment. Based on our observations during the January 2012 field trip to Jackson State Forest, it appeared that the slash at the abandoned crossing on Dunlap Road was not mechanically packed into the soil and therefore did not contact the exposed soil sufficiently to prevent water from rainfall from flowing across the bare soil. What was the reason for removing the mechanical packing requirement?

923.14 (d) Pg 113: This section requires monitoring and maintenance (if required) at least once per year and after large storm events. This section states that maintenance period for crossings is three years. Does this annual inspection also cover other erosion control structures on the roads leading to the crossing? I.E. ditch drains, cross drains, critical dips, effectiveness of rocking on the approaches to the crossing etc.

923.15 (a) Pg 86: Removal of crossings requires the restoration of the bank slope of the crossing to its original slope with measures to prevent the soil on the stream bank from sliding down (slumping) into the watercourse. The plead as written defines the maximum slope that can be allowed as 65% (1.5:1) which is too steep. As outlined in Mark Moore's letter of 7/10/2013, he states that he has had the experience of 12 years observing failures that occurred on slopes steeper than 2:1 or 50%. Based on this experience, Mr. Moore stated that DFW negotiated a standard which is now in effect, that requires a pulled crossing slope to be no steeper than 2:1. Green Diamond agreed with this standard and has included this standard in their Habitat Conservation Plan (HCP).

1034 Contents of a plan (gg) (1), (a), (10) Pg 95: The plead in this section states that on crossings in ASP watersheds that do not have the capacity to handle a 100 year flow, including debris and sediment, shall be upgraded to the standards specified in 923.11. During the Jackson State Forest field trip this issue was discussed i.e. how to fix/correct undersized culverts that are still capable of handling flow, debris and sediment but at the 50 year flow level? The question is: should these culverts be reported as potential sources of sediment on the report of potential erosion sites as required by 923.1 (G) and therefore be scheduled for replacement or upgrade?

Folks--Here is the memo from Mark Moore regarding the question of the maximum allowable road and crossing fill slopes. Recall that I made the point that slopes of 65% (1.5:1) were too steep. Mark is recommending 2:1 (50%), which is what the Green Diamond and Humbolt Redwoods Company HCP's have adopted.

Thanks,

Mike Laing

-----Original Message-----

From: Mark Moore <mmoore1229@gmail.com>

To: mwlaing <mwlaing@aol.com>

Sent: Wed, Jul 10, 2013 2:33 pm

Subject: Language from DFW/Green Diamond Master 1602 Agreement for Timber Operations

Mike:

Below is the exact language found in the DFW/Green Diamond Master Agreement for Timber Operations regarding removal of road fill when decommissioning road crossings.

This Agreement is in operation today on about 400,000 acres of Green Diamond timberland. An important (perhaps legally very important) point here is the Master Agreement was found to be consistent with the California Endangered Species Act and minimizes and fully mitigates potential impacts to coho salmon.

Green Diamond has an incidental take permit (ITP) for coho from DFW. So, remember, this is considered the standard necessary to avoid take of coho under CESA. CAL FIRE should not be proposing language in the FPRs that is less protective than this, since in essence they would be allowing take of coho under their their own rules. Requiring a pulled crossing fill slope to be at 2:1 or flatter or at the original slope is a standard BMP DFW has used for over a decade on crossing fill removals under 1602 Agreements. To my knowledge this is still standard language in all DFW 1602s for timber operations.

To my knowledge, no other timber operators in California except Green Diamond and Humboldt Redwood Company have an incidental take permit for coho salmon from DFW. One could argue that the standards for crossing fill removal for those **without** an ITP for coho should be even stricter than the standards required under their Master Agreements for Timber Operations.

When I was with DFW, we negotiated this 2:1 or flatter standard with Green Diamond based on over 12 years of observing their crossings pre- and post removal and seeing failures on pulled slopes steeper than 2:1 unless it was the original ground. Some of these failures were very substantial. This situation was not limited by any means to Green Diamond lands.

Our observations at hundreds of crossings informed us as to the correct finished angle of repose needed to avoid wholesale slumping or significant sheet, rill, or gully erosion of sediment into Class I, II, or III watercourses. Importantly, we required this standard in most if not all timber 1602s for many years prior to completing the Master Agreements with Green Diamond and Humboldt Redwoods, which occurred in about 2009-2010. I don't ever recall any major objections by timber operators regarding the 2:1 or flatter language.

Let me know if you require more information.

A.4 DECOMMISSIONING

1. Green Diamond shall not carry out road decommissioning during the winter operating period (October 16th through May 14th), except that road decommissioning may occur from October 15th through November 15th if "unseasonably dry fall" occurs (less than four inches of cumulative rainfall from September 1st through October 15th) and the following occurs:

- a) Each project site is completed that operational day with erosion control measures installed; or
- b) If a site requires multiple days for completion, a long-range forecast of no rain for the next five days has been issued.

2. Sites that require multiple days for completion shall not be started during the winter period unless there is an emergency situation. A situation is an 'emergency' for the purpose of this section if the elements of Section E of this Agreement are satisfied.

3. Green Diamond shall pull back unstable or potentially unstable road or landing fill identified during the road assessment process and deposit spoil in a stable location where eroded materials shall not have access to watercourses. Appropriate erosion control measures such as seeding and mulching or slash packing shall be utilized to prevent surface erosion at excavated unstable areas.

4. Green Diamond shall perform seeding, mulching and planting, and installation of energy dissipation (rock armor or woody debris) when determined necessary by

qualified and trained personnel for additional erosion control on the decommissioned roads to minimize erosion and prevent sediment from entering watercourses.

5. Green Diamond shall remove the fill from the stream channel on all decommissioned watercourse crossings, including temporary crossings. The excavation shall extend down to the original channel bed, with the excavated channel at least as wide as the original channel. The side slopes shall be sloped back to the original angle or 2:1 or less and spoil material transported to a stable location that can not deliver erodible material to watercourses. Appropriate erosion control measures such as seeding and mulching shall be utilized to prevent surface erosion at excavated crossings.

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Mark Moore

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