MENDOCINO • HUMBOLDT
Redwood Companies

October 28, 2016

Via Electronic Mail

Mr. Matthias St. John, Executive Officer
Mr. James Burke, Supervising Unit Timberland Chief
North Coast Regional Water Quality Control Board
5550 Skylane Blvd. Ste. A
Santa Rosa, CA 95403

Re: HRC Elk River Report of Waste Discharge (ROWD) Amendment re: Sensitive Bedrock Terrain

Dear Mr. Burke

Section 5.4 of the HRC Elk River ROWD (August 28, 2015) discusses specific protective measures for slopes within five Elk River sub-basins underlain by Hookton Formation sediments. The purpose of these measures, in addition to HRC HCP and CFPR protection measures applied throughout HRC's ownership in the watershed, is to reduce the influence timber operations can have on the stability of slopes and soils underlain by this particular geologic formation. Hookton Formation sediments are described by Kilbourne (1985) as "well-to-poorly sorted, gently folded, un-indurated marine to non-marine sand, gravel, and silt."

As we have discussed, there is a sixth sub-basin that should be incorporated into this *Sensitive Bedrock Terrain* (SBT) based on the presence of the same underlying geology. This sub-basin is referred to as the 'Mainstem Elk' and is located immediately north of Clapp Gulch. The published geologic map of the Elk River Watershed (Marshall and Mendes, 2005) identifies Hookton Formation sediments as prevalent throughout HRC's ownership in this sub-basin, and field surveys conducted by HRC staff confirm the presence of these Hookton sediments.

Hookton Formation sediments have been found to be more aerially extensive in the 'Tom Gulch' sub-basin, than noted on currently published geologic maps. Significant deposits were observed by licensed geologists in upland areas of this basin during implementation of road stormproofing activities (personal communications, HRC Forest Science Staff, 2012), THP geologic assessments (SDG, 2004; Oswald Geologic, 2007), and the implementation of daily duties (S. Beach). The composition of this material is analogous to that observed and mapped in the 'Clapp Gulch' and 'Railroad Gulch' sub-basins. Additional field surveys are likely to reveal the presence of Hookton Formation material in the 'McCloud Creek' sub-basin, and potentially that small region of the 'Lower South Fork' (SF) sub-basin situated above the southern bank of the South Fork Elk River. Consequently, these areas were included in the original delineation of the ROWD *Sensitive Bedrock Terrain* (SBT) and subject to the specific prescriptions detailed in Section 5.4 of the ROWD pending further investigation.

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Conversely, the distribution of Hookton Formation deposits in the 'Lower North Fork' (NF) sub-basin is not as extensive as published maps indicate. Although present, they appear to be limited to upland slopes and not as predisposed to mass movements as those deposits located within the boundaries of the SBT identified on the attached figure (THP 1-02-103 HUM [Archers][RPF Disclosure Letter]; THP 1-08-072 HUM [Moss Elk][SDG, 2008]). Based on the site geology, geomorphic environment, and response to past land use activities we did not include these particular deposits in the original SBT delineation, or in this revision. Landslide hazards in these areas are significantly lower than those attributed to deposits present in the 'Clapp Gulch', 'Railroad Gulch' (Railroad Gulch Effectiveness Project), or 'Tom Gulch' sub-basins. Please also note the revised delineation of the SBT, as shown on the attached figure, excludes the portion of the 'Lower SF' sub-basin located north of the South Fork Elk River. Extensive geologic investigation has found no Hookton sediments present in this area.

HRC is submitting this revision (amendment) to its ROWD (Section 5.4) to more accurately reflect on ground geologic conditions warranting special consideration and to assist in the development of site-specific, process-based watershed-wide waste discharge requirements (WWDRs). The net effect of this change is the addition of HRC's entire 320 acre ownership within the 'Mainstem Elk' sub-basin, and the limiting of the Lower SF sub-basin to those areas where Hookton Formation could still be found (307 acres).

Reflecting these changes, the SBT shown on the attached figure totals 3,337 acres, including all of HRC's ownership in the Mainstem Elk, Clapp Gulch, Railroad Gulch, Tom Gulch, and McCloud Creek sub-basins, and all portions of the Lower SF sub-basin located south of the South Fork Elk River.

The HRC Landscape Plan 20 year horizon harvest schedule provided March 11, 2016, remains unchanged (see revised figure 4-3). All acres planned for harvest in the Mainstem Elk sub-basin remain in the first and third 5 year periods, with the first five year period acres associated with approved THP 1-12-110HUM. Planned harvest within portions of the Lower SF sub-basin contained within the revised SBT boundaries includes all acres shown in the first and second periods, with all of period one harvest acres also associated with approved THP 1-12-110HUM. The 24.7 acres planned for harvest in the Lower SF sub-basin in the third period are located north of South Fork Elk River, outside the revised SBT area.

If you have any questions or would like additional information please do not hesitate to contact myself or Shane Beach.

Sincerely

Michael W Miles, RPF 2704
Director Forest Science

Shane Beach, PG 7396
Senior Geologist

Attachment: Sensitive Bedrock Terrain and Geologic Map

References

Kilbourne, R. (1985). “Geology and Geomorphic Features Related to Landsliding, Fields Landing 7.5-Minute Quadrangle, Humboldt County, California.” (OFR 85-4 SF). NR: CDMG.

Marshall, G. J., and Mendes, E. (2005a) “*Geologic and Geomorphic Features Related to Landslides, Elk River Watershed, Humboldt County, California*” California Geologic Survey Watershed Mapping Series.

Oswald Geologic. (2007) *Engineering Geologic Evaluation of the Tom Collins THP, Humboldt County, California*. Unpublished Report Prepared for Mr. Brian Griesbachy RPF. 231pgs.

ScoPac Geology Department. (2008) *Engineering Geologic Evaluation of the McCloud 9 THP, Humboldt County, California*. Unpublished Report Prepared for Shawn Zimmermaker RPF. 27 pgs.

ScoPac Geology Department. (2008) *Engineering Geologic Evaluation of the Moss Elk THP, Humboldt County, California*. Unpublished Report Prepared for Wayne Rice RPF. 29 pgs.