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John Laird, Secretary
California Natural Resources Agency
1416 Ninth Street, Sacramento

Re: Significant Scientific Concerns Regarding Proposed Golf Course Project, Upper Truckee River, South Lake Tahoe

Dear Secretary Laird,

We are environmental scientists (fluvial geomorphology and aquatic ecology) who have over three decades of experience in river processes and river restoration globally, with experience in the Lake Tahoe basin (including the Upper Truckee River) going back to 1989. We would like to draw your attention to some concerns we expressed about the proposed Golf Course Reconfiguration project in comments on to the California Department of Parks and Recreation (DPR). We understand that this project is being strongly promoted by DPR and has the support of some other agencies, but we emphasize that there are significant weaknesses in the scientific justification for the project and its implementation. Here we mention a few.

We support the goals of moving the golf course away from the Upper Truckee River, but the alternative being promoted is not the best for the river ecosystem nor for the goal of reducing sediment delivery to Lake Tahoe. The golf course was established long before our current understanding of natural processes within the Lake Tahoe basin and development of the current land-use capability system. Unfortunately, the golf course is simply in the wrong place. If proposed today, such a land use would not be permitted on the sensitive riparian lands along the Upper Truckee River, the lake's most important tributary and largest source of fine sediment and other pollutants. Reconfiguration of the golf course could provide an excellent opportunity to significantly reduce the golf course footprint and impact on the sensitive riparian zone, but alternatives (including a 9-hole course) that could have significantly reduced the golf course footprint were rejected earlier in the review process in favor of a proposed reconfigured 18-hole course, with a footprint slightly *larger* than the existing course.¹

The proposed project would involve very large-scale earth moving, with the cut volume equivalent to about 4500-6300 dump truck loads and the fill volume equivalent to about 6,500-11,300 dump truck loads. However, it is difficult for a technically trained reviewer to assess details of the proposal because of deficiencies in the document. For example, the preferred alternative 2B, which differs in many dimensions from the 2012 alternatives 2 and 2A, is reported (in the PAEEA and EIR/EIS/EIS) to have *exactly* the same volumes of cut and fill as were reported for alternatives 2 and 2A. There is no explanation for this implausible equivalency, which raises troubling questions about the adequacy of the analysis and project planning.

To evaluate potential impacts from a massive regrading project along this reach of the Upper Truckee River, it is essential to draw lessons from the experience of similar projects on the river, notably the recent project on "Reach

¹ Although the PAEEA and Draft EIR/EIS/EIS repeatedly refer to the preferred alternative as having a 'reduced footprint', the proposed reconfigured golf course would actually have a slightly larger footprint than the existing one (p.2-1).

5” 1.5 km downstream. The available evidence indicates that shortly after its completion, the Reach 5 project began eroding severely in the storms of 2016-2017 flow season. Turbidity data collected above and below the project by the US Forest Service indicate a nearly four-fold increase in turbidity (from a peak of about 45 NTUs to about 165 NTUs) as the river flowed through the newly constructed project in the October 2016 storm. Our field inspection of the project in summer 2017 revealed multiple areas of fresh erosion, including deep and extensive erosion from the construction access road, which functioned as a secondary channel during floods. Rather than a net sediment sink, available evidence strongly indicates that the Reach 5 project has been a significant sediment source to Lake Tahoe, contributing to the decline in lake clarity observed in 2017. While the Reach 5 project was certainly well intentioned, any massive regrading of a natural river runs a big risk.

The Reach 5 experience is cautionary but is nowhere reflected in the planning documents for the Golf Course Reconfiguration project, whose access roads and staging areas would remain exposed and highly vulnerable to erosion by high flows for a construction period of up to five years. But the PAAEA and EIR/EIS/EIS do not assess the potential for such erosion nor provide information that would reassure a technically trained reviewer that such erosion risk would be adequately managed.

Another important lesson from the Reach 5 project concerns the fate of western pearlshell mussels who were thriving in the pre-project channel. Reach 5 supported at least 20,000 mussels, by far the largest such population in the region. The success of the attempt to relocate these mussels is still not publicly known, as we await a report from the US Forest Service. However, of the initial 925 mussels transplanted, only 71% survived their first year, and survival rates of the other 19,000+ mussels relocated were likely lower because some were in more marginal habitats and most were exposed to the high 2016-2017 flows with little time to establish. While the presence of the mussels in the reach was already well known from Forest Service surveys and peer-reviewed literature, the planning for Reach 5 did not adequately account for the mussels, and project proponents were not prepared for the size of the mussel population present.

While the Golf Course Reconfiguration project document acknowledges that mussels may occur in the reach, the document promises only (under Mitigation Measure 3.5-1B Alt 2) that DPR will survey for mussels, and if they are found, will include “specific measures” in a “capture and translocation plan.” This vague assurance makes no mention of learning from the tragic loss of at least 6,000 western pearlshell mussels from Reach 5 (applying the survival rate of the initial transplants to the entire population), and does not inspire confidence that impacts on mussels have been carefully thought out and mitigation budgeted for. Our field reconnaissance suggests the Golf Course reach likely has a smaller concentration of mussels than were present in Reach 5, but the failure of the proposed Golf Course regrading project to adequately acknowledge and plan for this important species is problematic. Moreover, there are important concentrations of mussels immediately downstream of the Golf Course Reach, which are highly vulnerable to the impacts of increased erosion from the proposed DPR regrading project, but this impact is not addressed in the project documents.

We would be happy to discuss our concerns with you, and we urge that an independent scientific review be conducted before this project is undertaken, to avoid damage to the riverine ecosystem and quality of Lake Tahoe.

Sincerely yours,



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University of California Berkeley



Michael Limm
Assistant Professor of Biology
Holy Names University, Oakland

cc: Governor Edmund Brown
Lt Governor Gavin Newson
Senator Diane Feinstein
Senator Ted Gaines
Assembly Member Frank Bigelow
Lisa Mangat, Director California State Parks
California State Park and Recreation Commission