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July 12, 2017

VIA EMAIL

David Murillo, Regional Director
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Brooke Rachel White
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Bureau of Reclamation
Bay Delta Office
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Sacramento CA, 95814-2536

Re: Comments on BDCP / CWF FEIR/S regarding need to recirculate environmental documents due to inadequate evaluation of noise impacts

Dear Mr. Murillo, Ms. White,
and responsible DWR and USBR Officials
copied by email:

These comments are submitted on behalf of Save the California Delta Alliance. Please find attached the review of the FEIR/S noise section conducted by Charles M. Salter Associates, a world-renowned acoustical engineering firm.

The succinct review finds that the noise analysis conducted for the FEIR/S is so inadequate as to rise to the level of professional negligence.

Contrary to the FEIR/S, noise levels at the Clarksburg Marina, for example, could reach 80 dBA or more and the noise level at the Hood Supply Company could reach 83 dBA or more.

Please address the issues raised in the Salter review, and our previous comments on noise, in a re-circulated FEIR/S.

Sincerely,

Michael A. Brodsky

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Attachment: Salter FEIR/S Noise Section Review

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12 July 2017

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Subject: **Bay Delta Conservation Plan/California WaterFix**
FEIR/S Review Comments
Salter Project: 17-0416

Dear Michael:

As requested, we reviewed Chapter 23 Noise of the Final Environmental Impact Report/Statement (FEIR/S) for the proposed Bay Delta Conservation Plan (BDCP)/California WaterFix Project. It would consist of new water intake, conveyance, and associated facilities to transport water from the Sacramento River. This letter summarizes our review and comments.

EXECUTIVE SUMMARY

In our opinion, the FEIR/S does not sufficiently address potential noise impacts. Our comments focus on the following issues:

1. The noise impact significance analysis virtually ignores expected increases to ambient noise levels at neighboring sensitive land-uses. As such, CEQA Guidelines and the thresholds of significance are also ignored. Therefore, the FEIR/S is incomplete.

2. No ambient noise measurements were performed to study the baseline noise environment. For a project of this scale, it is our opinion that conducting no measurements and relying only on broad estimates of existing environmental conditions is below the standard of care for such an impact analysis with nearby noise-sensitive receivers.

3. Construction noise levels are likely underestimated in some areas, by as much as 10 dB to 15 dB or more, as the analysis assumed excess attenuation rates for sound propagation from the construction sites and failed to account for the potential variation and cumulative effects of several pile drivers operating concurrently.

4. The FEIR/S does not include sufficient evidence to demonstrate that adequate noise reduction can be feasibly achieved by the proposed mitigation measures (see MM NOI-1a), particularly noise barrier walls along the River that would have to shield tall equipment, such as pile drivers. If the proposed mitigation is not feasible, appropriate mitigation should be identified or the impact should be concluded as significant/adverse.

5. Construction noise is expected to significantly interfere with the activities at certain recreational facilities or businesses available for community enjoyment, such as the Clarksburg Marina and the Hood Supply Company (restaurant).

INTRODUCTION

The proposed BDCP/Waterfix Project would include the construction of several water intake facilities along the Sacramento River along with conveyance and associated facilities. The primary and most significant sources of construction noise would be the pile/pier installation and related excavation, blasting, and trucking activities along with the muck haul activities associated with the tunnel boring. The surrounding area is largely rural and agricultural land, but there are several noise sensitive land-uses in the area, including residences, communities, and recreational areas/facilities.

COMMENTS ON THE FEIR/S

Potential Increases in Ambient Noise Levels are Virtually Ignored

CEQA, via Appendix G, directs a study of environmental impact to evaluate whether a project could result in an "increase in ambient noise levels in the project vicinity above levels existing without the project." This direction is incorporated into the FEIR/S (see Page 23-26). However, the FEIR/S virtually ignored this area of required analysis with respect to construction noise sources. Therefore, the noise impact analysis is inadequate. The concern of construction noise impacts is particularly important since these activities would occur over such a long period of time, several years.

In Section 23.3.3, significance thresholds for increases in ambient noise are offered as a 5 dB increase in the community noise levels, but only if noise would increase beyond a 60 dBA L_{eq} daytime threshold (or 50 dBA L_{eq} at night). Thus, the FEIR/S implies that any noise level increase up to 60 dBA would not be significant. However, this conflicts with 1) common practice and 2) research offered in the FEIR/S.

1) On Page 23.23 the FEIR/S states that, "To assess increases in noise levels due to construction of the project, a baseline of 40 dBA is used to describe the existing ambient noise level in the study area." However, the FEIR/S fails to conclude that allowing ambient noise levels to increase from 40 dBA to 60 dBA would be a significant increase. A 20-dB noise increase would be equivalent to a four-fold increase in perceived loudness. This would be a significant increase that should be appropriately addressed in the EIR.

2) In Section 23.3.2 Determination of Effects, the FEIR/S references research by Schultz (1978) stating that, "increases in ambient noise levels that are readily perceptible and sustained over long periods of time have been shown to result in a higher probability of adverse community reaction when ambient noise levels increase by 10 to 20 dB. An increase of this magnitude has been shown to result in a community reaction characterized by "several threats of legal action" and "vigorous action" according to social surveys and case studies of community reaction to noise." However, in determining the project's noise impact, this research is ignored. As stated above, the FEIR/S fails to identify potential noise increases of 20 dB as significant. No mitigation or discussion is offered to address the potential ambient noise increase from 40 dBA to 60 dBA.

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No Ambient Noise Measurements were Conducted to Study the Existing Environment

As acknowledged in the FEIR/S, no ambient noise measurements were performed at any noise sensitive receptors in the study area, such as neighboring residential or recreational areas. Such information is needed for the appropriate evaluation of project noise impact on the surrounding community. Relying solely on broad estimates of community noise (see Pages 23-8 through 23-12) is not sufficient in this case. In particular, measurements at representative sensitive receptor locations are important to account for effects of distance and terrain from major noise source in the area (e.g., local highways). Daytime and, particularly, nighttime noise levels may not equal the broad assumptions made. Thus, the evaluation of potential noise impact could be understated. Without these data, the required CEQA analysis cannot be appropriately performed. Furthermore, in our experience, such a noise survey is common practice and would not be overly burdensome for a lead agency.

Construction Noise Levels are likely Underestimated in Some Areas

The FEIR/S states that predicted noise levels from construction activities were calculated using the Federal Transit Administration method found in the Transit Noise and Vibration Impact Assessment document (FTA, 2006). This method accounts for excess attenuation from "topography and ground effects." In our opinion, this 2-dB excess attenuation may not be realized where construction noise travels over hard ground with minimal vegetation or over water, the River, or where the noise source is rather tall, such as a pile-driving rig. Further explanation is provided below.

The nominal attenuation rate for fixed noise sources is 6 dB per doubling of distance. The FEIR/S calculations assume that construction activity noise would be attenuated by 8 dB per doubling of distance. The additional 2 dB attenuation relates to the FEIR/S assumption that noise is propagated over "'soft' (i.e., acoustically absorptive)" ground. Over short distances, this assumption of excess attenuation would have little effect. But over longer distances, the assumption has a significant effect on the predicted noise levels. For example, the Clarksburg Marina is located approximately 1,800 feet away from certain construction areas. A summary of estimated noise levels using the two different noise attenuation rates is provided in the table below.

Table 1: Noise Attenuation Study Clarksburg Marina	**Typical Construction (See FEIR/S Table 23-59)**	**Pile Driving (See FEIR/S Table 23-60)**
Source Noise Level (at 50 feet)	96	102
FEIR/S Predicted Noise Level at 1,800 feet (**8 dB** per doubling of distance attenuation)	55	61
Estimated Noise Level at 1,800 feet with **6 dB** per doubling of distance attenuation	65	71
Difference	**+10 dB**	**+10 dB**

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The actual noise levels during construction could also vary from those predicted in the FEIR/S (and those listed in Table 1) by 4 dB or more. The Caltrans guidance manual for the assessment of construction noise effects on bats lists an estimated range of noise from impact pile drivers up to 106 dBA at 50 feet[1] (as compared to the FEIR/S assumption of 102 dB). This is further supported by information published by the EPA.[2] In addition, information published in association with the FEIR/S states that up to 4 pile drivers could be in concurrent use at each "feature" or facility/intake with up to 90,000 pile strikes per day at each facility. Over a 12 to 15-hour work day, that would result in over 100 pile strikes per minute, and perhaps several per second. Pile strikes will certainly occur in rapid succession, sometimes simultaneously, resulting in a cumulative increase in noise levels by another 3 dB to 5 dB. Across the entire project site, we understand that one to two dozen or more pile drivers could be in concurrent operation. Thus, across the project site, pile impacts could occur 300 to 600 times per minute, or 5 to 10 per second. The FEIR/S does not appear to address these conditions.

In summary, it is very likely that the FEIR/S predicted construction noise levels are underestimated in areas where the assumption of excess noise attenuation due to terrain shielding and ground absorption may not be realized. As cumulative noise varies, noise levels could also be further increased. The above table and considerations demonstrate that the noise levels could be underestimated by approximately 10 dB to 15 dB or more, which is significant. The FEIR/S noise predictions may not be realistic for those conditions described above. A more appropriate, detailed, and site-specific noise analysis should take these factors into account to avoid underestimating construction noise levels at noise-sensitive receptors.

No Evidence is Provided to Support the Efficacy of Mitigation Measure NOI-1a

Mitigation Measure NOI-1a is offered in the EIR to address predicted significant construction noise impacts. However, the EIR only lists certain "best practices." However, the FEIR/S provides no information to demonstrate that the proposed measures would in fact reduce long-term construction noise to a less-than-significant level.

In particular, the FEIR/S should describe how mitigating noise barriers can feasibly be constructed in situations where the noise sources are rather tall (e.g., pile drivers) or located on the water front and the receptors are located along the opposite side of the river. An appropriate noise impact analysis would delve into this issue, which is reasonable to study, rather than only relying on future noise complaints to trigger the implementation of appropriate noise mitigation measures. If complaints occur, construction noise is found to be excessive, and mitigation measures are found to be infeasible, the noise sensitive community, including residences and recreational facilities, would have very few options available to redress the objectionable noise. An appropriate evaluation of the mitigation measures should be performed now, not after complaints occur. Therefore, the impact and mitigation measure analysis is incomplete.

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[1] See the Caltrans *Technical Guidance for the Assessment and Mitigation of the Effects of Traffic Noise and Road Construction on Bats* (July 2016), Table 5, Page 10.

[2] See the U.S. Environmental Protection Agency document titled *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances* (December 1971), Figure 1, Page 11.

The exploration of noise mitigation options also seems limited. For example, minimum setbacks for such noisy construction activities could be determined based on a more detailed analysis of the project noise. Alternative and quieter construction methods could be implemented, as needed, within those setbacks.

In addition, the proposed mitigation measures certainly do not address the predicted ambient noise increases of 20 dB or more (i.e., 40 dBA assumed ambient noise level increasing to 60 dBA or louder). Effective and feasible construction noise mitigation measures should be developed and sufficient information should be provided for public review to reasonably demonstrate that construction noise impacts can, in fact, be adequately reduced.

Long-Term Construction Noise is Expected to Interfere with Recreational Facilities

In the example described above (see the Table 1), at the Clarksburg Marina, construction noise levels of 65 dBA to 71 dBA would be expected to significantly interfere with recreational activities and enjoyment of the facilities. In particular, typical face-to-face conversation voice levels are approximately 60 dBA. Thus, intruding construction noise at such elevated levels would be expected to interfere considerably with speech communication, requiring people to raise their voices. Interference with such a basic activity as speech is likely to have a significant impact on the community's use and enjoyment of the facility.

A similar analysis could be performed to address receptors in Hood, such as the Hood Supply Company, a local restaurant (see Tables 2 and 3 below). The Restaurant is located approximately 1,200 feet away from a potential intake construction site and approximately 500 feet away from a heavy equipment construction yard.

Table 2: Noise Attenuation Study Hood Supply Company	**Pile Driving (See FEIR/S Table 23-60)**
Source Noise Level (at 50 feet)	102
FEIR/S Predicted Noise Level at 1,200 feet (**8 dB** per doubling of distance attenuation)	66
Estimated Noise Level at 1,200 feet with **6 dB** per doubling of distance attenuation	74
Difference	**+8 dB**

Table 3: Noise Attenuation Study Hood Supply Company	**Typical Construction (See FEIR/S Table 23-59)**
Source Noise Level (at 50 feet)	96
FEIR/S Predicted Noise Level at 500 feet (**8 dB** per doubling of distance attenuation)	70
Estimated Noise Level at 500 feet with **6 dB** per doubling of distance attenuation	76
Difference	**+6 dB**

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Based on Tables 2 and 3 above, we estimate that noise from simultaneous pile driving and typical construction activities could reach 78 dBA (i.e., sum of 74 dBA and 76 dBA) at the Hood Supply Company. Such long-term construction noise levels would certainly be expected to have a significant impact on the use of such a facility. Outdoors, construction noise would have a considerable impact on speech communication. Construction noise transmitted indoors might be between 55 dBA and 65 dBA, which would also impact typical face-to-face speech communication. With variation in pile driving noise levels and concurrent operation, these noise levels could be even higher – by 5 dB or more (see discussion of underestimation above).

Such examples of noise impact at noise sensitive recreation areas should be specifically addressed in the project EIR and appropriate noise mitigation developed to address the expected adverse effect on such noise-sensitive community facilities.

* * *

This concludes our comments. Should you have any questions please call.

Sincerely,

CHARLES M. SALTER ASSOCIATES

Jeremy L. Decker, PE
Vice President

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