

APPENDIX O
NOISE ANALYSIS

MEMORANDUM

To: Mark Goss and Ken Ehrlich, Broad Beach GHAD

From: Chris Webb and Tonia McMahon

Date: June 13, 2014

Subject: Broad Beach – Analysis of Noise Impacts from Extended Trucking Schedule

M&N Job No.: 6935-03

The Broad Beach Geologic Hazard Abatement District (BBGHAD) as project applicant for the Broad Beach Dune and Beach Restoration Project ("Project") seeks to extend its construction schedule from the originally proposed 7:00 a.m. to 6:00 p.m. to 7:00 a.m. to 9:00 p.m. This three hour extension would allow the trucking and stockpiling side of operations to continue to 9:00 p.m. Construction related activities that would occur between the hours of 6:00 p.m. and 9:00 p.m. would be truck ingress and egress to the Zuma parking lot 12, deposition of sand onto grizzlies and sand moving activities in the project staging area in the parking lot and the sand stockpile areas on the beach immediately seaward of the parking lot. The BBGHAD does not propose to conduct any construction activities on the beach west of Trancas Creek after 6:00 p.m. The BBGHAD will monitor noise levels at the staging area, and work with neighbors and the City to ensure minimal disturbance.

Local Noise Ordinance

Malibu Municipal Code (M.M.C.), Title 8, Chapter 8.24 (Noise). M.M.C. Section 8.24.050 (Prohibited Acts), which limits construction noise by placing restriction on the hours of construction operations, also regulates noise from construction activities. Construction activities are not permitted outside the hours of 7:00 a.m. and 7:00 p.m. Monday through Friday or 8:00 a.m. and 5:00 p.m. on Saturday. No construction activities would be permitted to take place at any time on Sundays or City-designated holidays, except for emergency work permitted by the City (M.M.C. Sections 8.24.050(G) and 8.24.060(D)).

City of Malibu, General Plan Noise Element (1995). The General Plan Noise (N) Element applies the state's Community Noise and Land Use Compatibility standards and sets conditionally acceptable standards for land uses for interior noise levels. For example, the maximum allowable noise level for outdoor activity areas of new hotel uses (transient housing) exposed to transportation noise sources is 60-dBA¹ L_{dn}². A maximum noise exposure to transportation noise sources for indoor spaces for such

¹ Noise levels are measured and expressed in decibels (dB). Noise levels weighted to the A noise scale to filter out frequencies not audible to the human ear are written dBA. (Ocean SCoup MND, 2005)

transient housing is not to exceed 45-dBA L_{dn} . The Noise Element also establishes maximum noise exposure limit (L_{max}) standards for noise-sensitive land uses for both non-transportation and transportation-related noise sources presented in Tables 1 and 2.

Table 1. Maximum Exterior Noise Limits from Non-Transportation Sources

Receiving Land Use Category	General Plan Land Use Districts	Time Period	Noise Level (dBA)	
			L_{eq}	L_{max}
Rural	All RR Zones and PRF, CR, MH, OS	7:00 A.M. – 7:00 P.M.	55	75
		7:00 P.M. – 10:00 P.M.	50	65
		10:00 P.M. – 7:00 A.M.	40	55
Other Residential	All SFR, MFR and MFBB Zones	7:00 A.M. – 7:00 P.M.	55	75
		7:00 P.M. – 10:00 P.M.	50	65
		10:00 P.M. – 7:00 A.M.	45	60
Commercial, Institutional	CN, CC, CV, CG and I Zones	7:00 A.M. – 7:00 P.M.	65	85
		7:00 P.M. – 7:00 P.M.	60	70

Notes: RR – Rural Residential; PRF – Private Recreational Facilities; CR – Commercial Recreational; MH – Mobile Home Residential; OS – Open Space; SFR – Single-Family Residential; MFR – Multi-Family Residential; MFBB – Multi-Family Beach Front CN – Commercial Neighborhood; CC – Community Commercial; CV – Commercial Visitor Serving; CG – Commercial General; I – Institutional.

Source: City of Malibu 1995; note that schools are considered sensitive receptors, but their institutional zoning designations allow for higher levels of noise exposure than for other sensitive receptors such as residential uses.

City standards indicate that outdoor activity area sound levels should not exceed 50 dB CNEL³ at the property line for residential uses; however, a maximum noise exposure for most sensitive receptors from transportation sources is not to exceed 60 dB CNEL, as provided in Table 2 (City of Malibu 1995).

² Day Night Sound Level (L_{dn}): Representing the Day/Night sound level, this measurement is 1 24-hour average sound level where 10dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10dB “Penalty” for night time noise. Typically L_{dn} ’s are measured using A weighting.

³ Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10dB.

**Table 2. Maximum Allowable Noise Exposure
 Due To Transportation Noise Sources**

Land Use	Outdoor Activity Areas ¹		Indoor Spaces	
	L _{dn} /CNEL, dB	L _{dn} /CNEL, dB	L _{dn} /CNEL, dB	L _{eq} /dB ²
Residential	50 ³	45	-	-
Transient housing (i.e., hotels)	60 ³	45	-	-
Churches and meeting halls	60 ³	-	-	40
Office buildings	60 ³	-	-	45
Schools, libraries and museums, and child care	60 ³	-	-	45
Playgrounds and neighborhood parks	70	-	-	-

¹ Where the location of outdoor activity areas is unknown, the exterior noise level standard shall be applied to the property line of the receiving land use.

² As determined for a typical worst-case hour during periods of use.

³ Where it is not possible to reduce noise in outdoor activity areas to 50 dB L_{dn}/CNEL or less using practical application of the best-available noise reduction measures, an exterior noise level of up to 65 dB L_{dn}/CNEL may be allowed provided that available exterior noise level reduction measures have been implemented and interior noise levels are in compliance with this table.
 Source: City of Malibu 1995.

BBGHAD Request for Modification from City of Malibu Noise Control Ordinance

AMM N-1b in the original Analysis of Public Trust Resources (APTR) calls for limiting hours of construction pursuant to the Noise Control Ordinance of the city of Malibu, Section 8.24.050G, ‘construction activities shall be prohibited during the hours between 7:00 p.m. and 7:00 a.m. during the weekdays and any time on Sundays or holidays’. The BBGHAD is holding discussions with the City of Malibu to determine the feasibility of securing a City Manager's modification of the applicability of the ordinance to allow trucking and sand moving to occur at the Zuma parking lot 12 and adjacent sand stockpile areas between 7 p.m. and 9 p.m.

Findings of Previous Analysis of Public Trust Resources (APTR)

Comparing the Project with the 2011 EIR/EA for the SANDAG 2012 project, the first APTR (which analyzed a dredging based and not a trucking based project) assumed a maximum 1-hour average noise level of 80 dBA L_{eq}⁴ at 50 feet from the center of construction activities would occur during the Project. The dominant existing noise at Broad Beach is ocean wave noise, and ambient wave noise levels can be expected to range from 63 to 71 dBA.

The APTR stated that noise experienced in the Project area is also generated from traffic along Pacific Coast Highway, which is located approximately 40 to 60 feet above and 200 to 300 feet from much of the Project area. A noise study conducted in 1992 for the city of Malibu General Plan identified a L_{eq}

⁴ Equivalent Sound Level (L_{eq}): the true equivalent sound level measured over the run time. L_{eq} is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

level of 70 dBA at the intersection of Trancas Canyon Road with Pacific Coast Highway at the eastern end of the Project area. A peak construction noise event would include a diesel engine under load while sounding a back up alarm in proximity to a receptor. The APTR found that construction equipment noise levels would occasionally exceed 85 dBA for a few minutes in a given hour. At other times, construction noise would be below 85 dBA, but still above ambient noise levels. As the receptor moves away from the construction activity, noise levels for the receptor would decrease with distance. At 200 feet, a decrease of 12 dBA would be anticipated. The APTR analysis states that at distances greater than 200 feet, maximum construction noise levels would attenuate to 73 dBA L_{max} or less and average noise levels 68 dBA L_{eq} or less (SANDAG 2011). Given background noise levels, equipment, with the possible exception of backup alarms, is not anticipated to be highly noticeable to beachgoers who are more than 300 feet from construction activity. The APTR identified avoidance and mitigation measure AMM N-1a for noise impacts which states *'To the maximum extent feasible, equipment and trucks used for Project construction shall utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, wherever feasible)'*. It is anticipated that AMM N-1a would be implemented.

Trucking Related Noise Levels – Other Projects

A noise assessment conducted by Ldn Consulting, Inc. in 2011 for a project located in the City of San Marcos looked at noise levels associated with use of 15 cubic yard capacity haul trucks. The measurements included truck drive-by noise, truck loading/unloading and truck engine noise. Ldn found that the unmitigated noise levels for truck drive-by noise and truck engine noise were measured at between 72.8 dBA and 74.6 dBA at a distance of 25 feet. This analysis concluded that the closest existing residences which were located 135 feet from the travel way of the trucks would experience a noise level of 59.8 dBA L_{eq}. Similarly, it is anticipated that noise levels in the region of 59.8 dBA L_{eq} created by 14 cy capacity loaded trucks traveling at an estimated 15 KM per hour would be experienced at the residences closest to the Zuma parking lot i.e. across PCH from the parking lot. This is below the average hourly noise level of 75 dBA which is the standard used to identify a significant impact and also below the L_{eq} level of 70 dBA at the intersection of Trancas Canyon Road with Pacific Coast Highway identified by a noise study conducted in 1992 for the City of Malibu General Plan.

The Mitigated Negative Declaration (MND) conducted in 2005 for the City of Oceanside Sand Compatibility and Opportunistic Use Program (SCOUP) concluded that for beach fill projects *'Noise will be temporary and of short duration and therefore not considered significant. The project requires mufflers, tuned engines, no idling for extended periods of time'*. Comment 3m of the MND found that when equipment is close to a residence, the short term noise level may exceed 75 dBA and at this level could result in speech interference for residents outside the rear of their homes. Here, Because the equipment will likely move close to a residence and then further away, the noise levels will vary, and the average hourly noise level of 75 dBA which is the standard used to identify a significant impact, would not be anticipated to be exceeded.

Benefits of Extending Trucking Daily Schedule:

- Additional time spent trucking in and stockpiling material will ensure no downtime for beach building equipment and activities due to lack of sand.
- The extended trucking window will buffer any schedule-impacting contingencies and allow the overall trucking schedule to stay on track.
- Potential for the trucking operation window to be shortened.
- Late evening trucking reduces traffic impacts because the schedule shortens, and there fewer trips are made over time during higher-traffic volume periods (daytime peaks).

Conclusions

No permanent impacts from noise will occur as a result of extended the proposed three hour extension to allow trucking and stockpiling side of operations to continue to 9:00 p.m. It may be necessary to secure a waiver from City of Malibu's Noise Ordinance for this extension of trucking hours. It is anticipated that noise levels in the region of 59.8 dBA L_{eq} created by 14 cy capacity loaded trucks traveling at an estimated 15 KM per hour would be experienced at the residences closest to the Zuma parking lot i.e. across PCH from the parking lot. This is below the average hourly noise level of 75 dBA which is the standard used to identify a significant impact and also below the L_{eq} level of 70 dBA at the intersection of Trancas Canyon Road with Pacific Coast Highway identified by a noise study conducted in 1992 for the City of Malibu General Plan. Avoidance and mitigation measures for noise impacts will be enforced.

REFERENCES

Analysis of Public Trust Resources (APTR), Broad Beach Restoration Project, Section 3-09 Noise, AMEC Environment & Infrastructure, Inc., October 2012

General Plan Noise Element, City of Malibu, 1995.

Noise Assessment, City of San Marcos, Ldn Consulting, Inc. 2011.

Oceanside SCoup MND, EDAW Inc., 2005.

Rancho Malibu Draft EIR, AMEC Environment & Infrastructure, Inc., 2013.