WRITTEN DIRECT TESTIMONY OF YOICHI EBISU

1. **Please state your name and business address for the record.**

Yoichi Ebisu

Y. Ebisu & Associates

1126 12th Avenue, Room 305

Honolulu, Hawaii 96816

2. **What is your current occupation?**

Principal and owner of Y. Ebisu & Associates, Acoustical and Electronic Engineers.

3. **How long have you been specializing in acoustics and noise impacts?**

Almost 50 years.

4. **Is Petitioner's Exhibit 20 a true and correct copy of your resume?**

Yes.

5. **Please briefly describe your educational background.**

B.S. in Electrical Engineering, University of Hawaii, 1965.

M.S. in Electrical Engineering, University of Hawaii, 1969.

6. **Do you specialize in any particular areas?**

Yes, I specialize in acoustical engineering, particularly with respect to noise impacts.

7. **To what professional organizations do you belong?**

National Society of Professional Engineers.

8. **What additional training or certification do you have?**

Registered Professional Engineer, State of Hawaii, 1977.

9. **What does an acoustical engineer do?**

Research, assess, and model noise impacts related to airport, highway, industrial, and building noise sources.

10. **Please describe the type of work you perform at Y. Ebisu & Associates.**

The services we provide includes airport noise studies and highway traffic noise studies, noise impact assessments, recommendations and design calculations on architectural projects, modeling and design calculations for air conditioning and mechanical equipment noise

abatement, computer model simulation of airport, highway, stationary sources, and combined source noise contours, expert witness testimony, design of sound reinforcement and intercom systems, and design of electronic and video systems.

11. **Have you ever been qualified as an expert witness in noise impacts before the Land Use Commission?**

Yes. I have been qualified to testify as an expert in the field of acoustics and noise impacts on more than seven previous occasions.

12. **Are you familiar with the proposed Pu'unene Heavy Industrial Subdivision ("Project") and the Petition Area?**

Yes. I understand that the Project located within the approximately 86 acre Petition Area located in Pulehunui, Wailuku, Maui, at tax map key no. (2) 3-8-008: 019, is proposed to be developed as a heavy industrial subdivision.

13. **How did you familiarize yourself with the Project?**

My firm, Y. Ebisu & Associates, was retained by Petitioner CMBY 2011 Investment, LLC to prepare an acoustic study for the proposed heavy industrial Project. The study I prepared is titled "Acoustic Study for the Puunene Heavy Industrial Subdivision, Puunene, Maui, Hawaii" dated November 2011 ("**Acoustic Study**"). A copy of the Acoustic Study was included as Appendix G of the Environmental Assessment that was prepared by Chris Hart & Partners, which I understand was filed a Petitioner's Exhibit 1.

14. **Did you rely on any other studies or consultations in drawing your conclusions and making your assessment of the Project?**

Yes, the studies and other materials relied on are listed as References in Appendix A of the Acoustic Study. Among the studies I relied on is the Traffic Impact Analysis Report for Puunene Heavy Industrial Subdivision, prepared by Phillip Rowell and Associates (Sept. 2011) ("**TIAR**").

15. **Please summarize the scope of the Acoustic Study.**

The primary objective of the Acoustic Study was to describe the existing and future traffic noise environment in the environs of the proposed Project. Traffic forecasts for 2015 were used,

and the anticipated increase to traffic noise levels due to the proposed Project was determined for the Petition Area and the public roadways outside of the Petition Area that are expected to service the Project traffic. Noise impacts from on-site activities and short term construction noise at the Petition Area were also included as objectives under the Acoustic Study.

16. **Please describe the methodology used to conduct the study.**

Existing traffic noise levels were measured in October 2011 at four locations all located outside of the Petition Area. The four sites are: (i) 96 feet from the centerline of Mokulele Highway at the Maui Humane Society, (ii) 196 feet from the centerline of Mokulele Highway at the Maui Humane Society, (iii) 50 feet from the centerline of Kamaaina Road, and (iv) 44 feet from the centerline of Firebreak Road. I used the Federal Highway Administration (FHWA) Traffic Noise Model, and the traffic projections in the TIAR, to determine traffic noise calculations for existing conditions as well as noise predictions for the Year 2015 along the roadways in the vicinity of the Petition Area. Noise calculations were made assuming shielding from natural terrain and manmade features, and also without the benefit of those shielding influences.

Evaluations of potential noise impacts from on-site noise sources were performed by predicting the noise levels from on-site noise sources at the closest residential developments in Kihei (2.3 miles), Pukalani (6.4 miles), and Kahului (4.0 miles). These predictions assumed that each of the 28 developable lots within the proposed Project would emit a sound level of 70 dBA, which is the maximum allowed for industrial properties by the State Department of Health noise regulations.

Calculations of average exterior and interior noise levels from construction activities were performed for typical naturally ventilated and air conditioned buildings. Predicted noise levels were compared with existing background ambient noise levels, and the potential for noise impacts was assessed.

17. **Are the methodologies that you used consistent with generally accepted industry standards?**

Yes.

18. **Are there government regulatory guidelines applicable to your studies?**

Yes. I referenced the Federal Interagency Committee on Urban Noise's "Guidelines for Considering Noise in Land Use Planning and Control," the U.S. Department of Housing and Urban Development's "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B," and the Hawaii State Department of Health's administrative rules in Title 11, Hawaii Administrative Rules, Chapter 46, Community Noise Control.

19. **Are your methodologies consistent with those regulatory guidelines?**

Yes.

20. **What is the existing acoustical environment within the Petition Area?**

The existing ambient noise level within the Petition Area is relatively low; less than 50 dBA. That level rises when heavy motor vehicles drive along the local service roads, and when aircraft operating at Kahului Airport flyby. Traffic along Mokulele Highway does not affect the background noise levels at the Petition Are due to the approximately 1 mile distance between the Petition Area and Mokulele Highway.

21. **What is the existing acoustical environment in areas in the vicinity of the Petition Area?**

Existing traffic noise levels in the vicinity of the Petition Area are at acceptable levels for the type of uses in those areas. Existing traffic noise levels along Mokulele Highway's Rights-of-Way are approximately 70 to 71 DNL, which is considered acceptable for industrial land uses. Existing traffic noise levels at the Maui Humane Society building closest to Mokulele Highway are approximately 65 to 66 DNL, which is considered to be acceptable for office buildings. Existing traffic noise levels at the Maui Army National Guard Puunene Armory is approximately 56 DNL, which is also considered to be acceptable for office buildings. Existing traffic noise levels at the industrial subdivision south of Waihee Road intersection with Mokulele Highway range from approximately 55 DNL to 71 DNL, which is also considered to be acceptable for industrial land uses.

22. **What changes do you expect to the current noise environment in the vicinity of the Petition Area without the development of the Project?**

The main source of traffic noise in the vicinity of the Project will continue to be traffic along Mokulele Highway. Without the development of the proposed Project, traffic noise along Mokulele Highway is expected to increase 1.0 DNL by 2015. Along the Project access roads between Mokulele Highway and the Petition Area no increases to traffic noise are expected without development of the Project.

23. **What is your assessment of future noise impacts due to the development of the Project?**

With the Project, the noise level along Mokulele Highway is expected to increase by an insignificant level of 0.3 to 0.4 DNL. Along the Project access roads between Mokulele Highway and the Petition Area, with the development of the Project, traffic noise levels are expected to increase by 3.7 to 6.4 DNL. In light of these anticipated changes, no mitigation measures should be required.

Within the Petition Area, assuming 28 lots are continually emitting noise at a level not to exceed 70 DNL, which is the maximum acceptable by the State Department of Health, the combined level of sound experienced at a location 4,900 feet from the center of the Petition Area would be 45 dBA. That level is considered acceptable under State and federal law for residential land uses. In this case, because no residential or other noise sensitive developments are within 4,900 feet of the Petition Area, the noise impacts from the Project will be insignificant.

During construction of the Project, no adverse noise impacts are anticipated due to the absence of noise-sensitive development in the vicinity, as well as the physical separation and distance between the Petition Area and the nearest residential areas.

There will be some audible construction noise during the project construction period, however, risks of adverse noise impacts from construction activity on the Petition Area are expected to be very low. Adverse noise impacts may occur following completion of initial site preparation and infrastructure construction activities by initial subdivision tenants who are exposed to building construction noise from neighboring or nearby lots within the Project.

24. **What measures do you recommend to mitigate any Project related noise impacts?**

I do not recommend any mitigation measures for traffic noise.

For construction activities, the Project will be subject to the State Department of Health construction noise limits and curfew times under Title 11, Chapter 46, Hawaii Administrative Rules, which prohibit noisy construction activities on Sundays and holidays, during the early morning, and during the late evening and night.

Noise mitigation measures that limit the noise from fixed mechanical equipment to those allowed by the State Department of Health should be required of all tenants within the Project.

25. **In your professional opinion, will the development of the Project have an adverse effect on current or future noise levels in the vicinity of the Project?**

No. The development of the Project will have an insignificant effect on traffic noises along Mokulele Highway, and a negligible effect on any residential or other sensitive land uses. The roadways between Mokulele Highway and the Petition Area will experience an increase in traffic noise due to the development of the Project. However, there are no noise sensitive land uses within the vicinity of the Petition Area that will be impacted by that increase.

Within the Project, individual lot owners will have to comply with the Department Health noise regulations, which limit the acceptable times for noisy construction activities.

The applicable federal regulations limit commercial, industrial and other non-sensitive land uses to an exterior noise level of 75 DNL. State Department of Health regulations similarly limit the acceptable sound levels for industrial land uses to approximately 76 DNL. With those regulatory limitations mandated by law, even assuming "worst case scenario" constant, high levels of noise from each of the proposed 28 lots, the noise level at areas located 4,900 feet from the center of the Petition Area will be 45 dBA, which is unconditionally acceptable for residential land uses.

DATED: Honolulu, Hawaii, August 13, 2013.

Respectfully submitted,

YOICHI EBISU