26 October 2016

Ref: 151151/6798

BUPA Care Services
c/- Jackson Teece
744 Hunter Street
Newcastle West NSW 2302

RE: RESPONSE TO COUNCIL – WARNERS BAY AGED CARE

This letter presents a response to issues raised by Lake Macquarie City Council regarding our acoustic assessment for an aged care facility at 64-72 Warners Bay Road, Warners Bay NSW. Council's issues are reproduced below.

"Acoustic Impact - A review of the acoustic report prepared by Spectrum Acoustics, project No. 151151, dated June 2016 has identified the following further assessments is required to demonstrate compliance with applicable noise criteria.
Carpark and turning zone loading bay noise within sections 4.2 & 4.3 of the report has been assessed against the sleep disturbance criteria only. Further assessment is required to demonstrate all noise associated with these activities shall comply with the project noise levels (Leq(15 min) dB(A)) for for all hours of operation the noise sources occur.
The descriptions of mechanical plant in section 4.4 of the report does not appear to align with the revised plans. The revised plans identify a mechanical plant enclosure on the roof top. Clarification should be sought on the location of mechanical plant & equipment and corresponding assessment."

CARPARK NOISE

Spectrum acoustics has previously conducted noise measurements in carparks and the data has been archived for use in assessment of potential carpark noise impacts for other projects. The sound power level of a typical carpark is 73 dB(A),$L_{eq(15minute)}$ for the arrival and departure of five vehicles. Our report from June 2016 considered sleep disturbance impacts at receivers 5m east of the carpark and 10m west of the carpark. Acoustic barriers 2.2m and 1,8m high, respectively, we found to be required. Based on these distances and barriers, the predicted noise levels are as follows, and compared with the night time criterion.

Sound power	Distance (boundary)	Distance loss	Barrier loss	Received noise	Criterion
73 dB(A)	5m (east)	22 dB	23 dB	28 dB(A)	35
73 dB(A)	10m (east)	28 dB	17 dB	28 dB(A)	35

The predicted intrusive noise levels are below the worst case night time noise criterion.

TURNING BAY NOISE

Based on the original acoustic assessment, vehicles with reverse alarms will not be permitted in these areas before 7am. Allowing for a delivery vehicle or bus to be louder than a car, but for there to be only one arrival departure in a 15 minute period as opposed to five arrivals/departures considered above for cars, a sound power level of 73 dB(A),$L_{eq(15minute)}$ will be adopted.

The turning bay will be approximately 10m from the western boundary. With the 1.8m acoustic barrier, the calculated noise level at the western receiver point is 28 dB(A). Since this area will only be used during the day and evening, the limiting criterion is 38 dB(A),$L_{eq(15minute)}$ in the evening. The predicted level is 10 dB lower than this criterion.

ROOFTOP MECHANICAL PLANT

The acoustic assessment of rooftop plant was overlooked in our original report. The rooftop plant platform will be nearest to the western site boundary at a distance of 35m. Based on distance loss and a conservative 15 dB barrier loss from surrounding two-storey buildings on the site, a maximum sound power level of 89 dB(A) for rooftop plant should not be exceeded in order to achieve the night time criterion of 35 dB(A). In order to ensure the cumulative contribution from all assessed noise sources on site do not exceed the criterion, rooftop mechanical plant sound power should not exceed 84 dB(A). Mechanical plant will be reviewed during the project certification stage to confirm compliance with the maximum sound power.

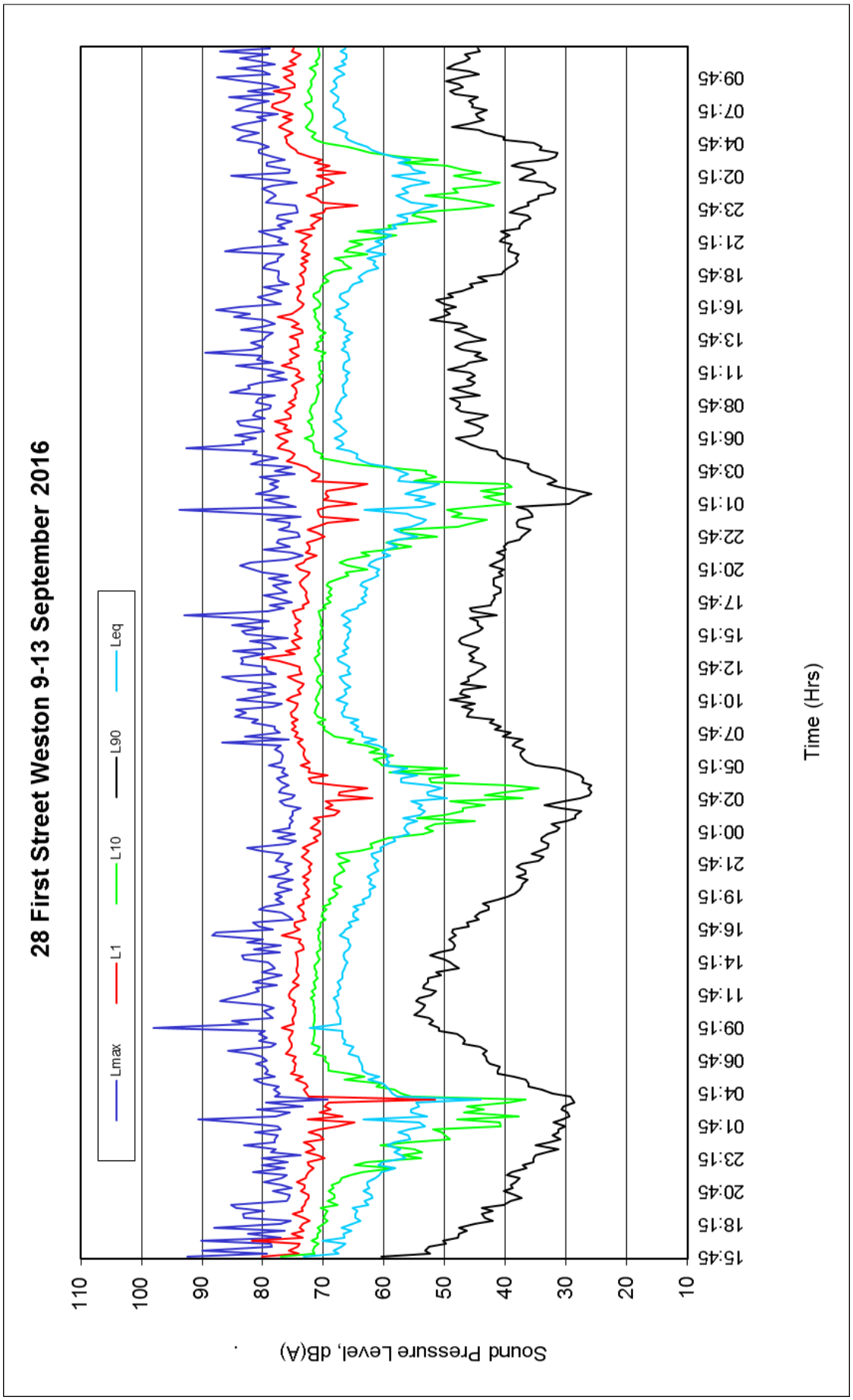
We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 49542276.

SPECTRUM ACOUSTICS PTY LIMITED

Neil Pennington
B.Sc., B.Math. (Hons), MAAS, MASA
Principal/Director

APPENDIX A

NOISE LOGGER DATA CHART


28 First Street Weston 9-13 September 2016
Lmax
L1
L10
L90
Leq
Sound Pressure Level, dB(A)
110
100
90
80
70
60
50
40
30
20
10
Time (Hrs)
15:45
18:15
20:45
23:15
01:45
04:15
06:45
09:15
11:45
14:15
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19:15
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