

Exhibit A - Additional Information

Lonnie,

As discussed last week and on behalf of Mr. Woods, we wish to present information to the City regarding noise levels generated by vacuums at the proposed carwash facility. According to our meeting with the City several weeks ago, vacuum noise was the primary concern related to the proposed use. Attached to this email are several exhibits. The first attachment shows the distance from the edge of the nearest residence to the north edge of the vac islands; i.e., ~60-ft. The second attachment contains noise generation levels from the specific vacuum manufacturer intended for this site. Looking at the second page of the manufacturer's literature, the noise level at the 60 feet distance is in the range of 59.5-62.5 decibels. Keep in mind the proposed vegetation and site-obscuring fence along the property line will buffer noise levels *even further* for nearby residents.

The 3rd and 4th attachments give ranges of decibel levels for varying noises. The ~60 dB range is the equivalent of a "normal conversation" and "background music." Existing road noise from traffic on 57th Street S clearly presents much higher decibel levels than the vacuums. As an example, "jake" brakes on semis have noise levels in the range 100 dB.

In summary, the vacuums proposed for this site will create less noise than existing conditions and should not be cause for concern at the proposed locations. With this email, we respectfully request City support for the previously submitted CUP, including a 5-ft landscape buffer along the north property line.

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LANDSCAPING (PER 17.44.3.030)

- REQUIRES 15% OF GROSS PROPERTY AREA

- LOT SIZE = 0.336 AC (14,654 SF)

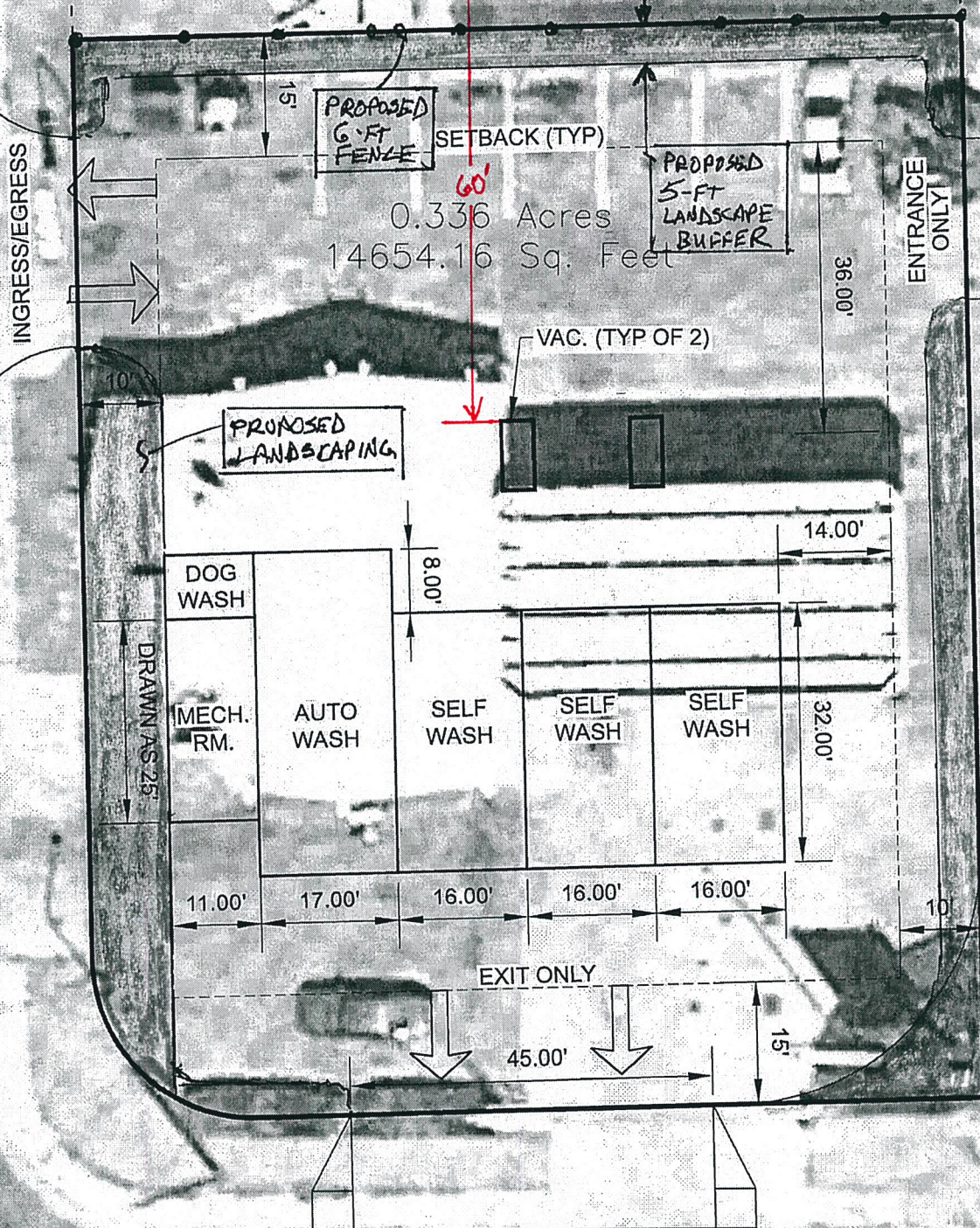
- LANDSCAPING REQUIRED =
 $0.15 \times 14,654 = 2,198$ SF

- LANDSCAPING WILL BE PLACED ALONG THE NORTH, EAST, & WEST SIDES OF PROPERTY WITHIN SET BACK AREAS & IN BOULEVARD AS NECESSARY TO FULFILL THE CITY REQUIREMENTS.

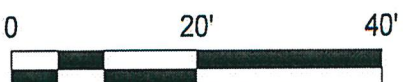
- A BUFFER BETWEEN THE PROPERTY & THE RESIDENTIAL USE TO THE NORTH WILL BE PROVIDED USING A SITE OBSCURING 6-FT FENCE AND/OR A LANDSCAPE BUFFER W/ BERM.

PARKING (PER 17.36.2.010)

- THE MINIMUM NUMBER OF PARKING SPACES ARGUABLY DOES NOT APPLY TO CARWASH FACILITIES; HOWEVER, A CONSERVATIVE INTERPRETATION WOULD CONSIDER THIS A VEHICLE MAINTENANCE/SERVICE SHOP REQUIRING 2 SPACES PER WORK BAY PLUS 1 PER EMPLOYEE PER SHIFT. EACH BAY PROVIDES PARKING, AS DOES THE QUEUING ON THE NORTH SIDE OF EACH BAY. THE ONE EMPLOYEE PARKING SPACE CAN BE PROVIDED SOUTH OF THE MECHANICAL ROOM.



56th St S





Sound Power and Narrow Band Report

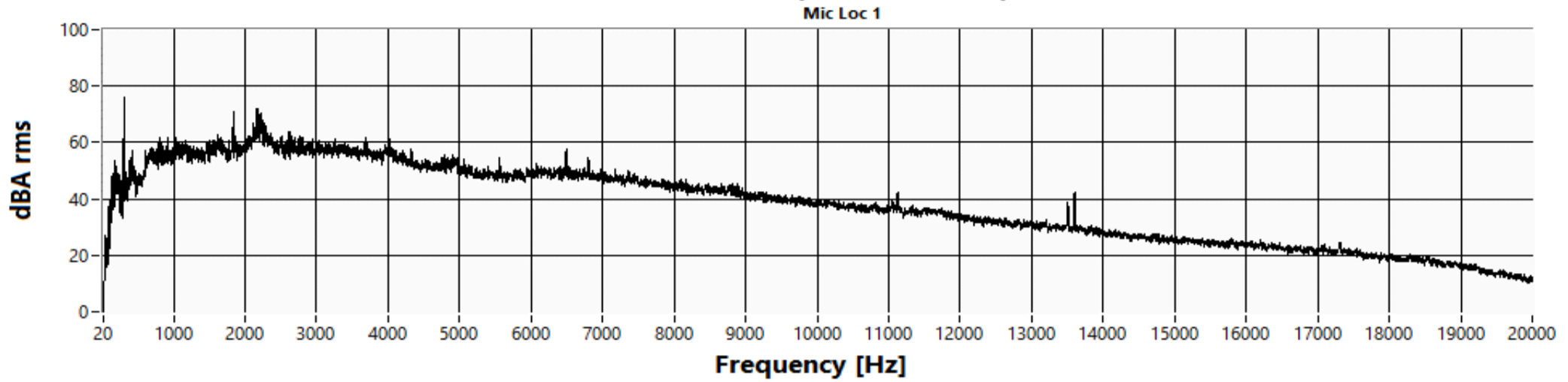
Test Condition:

Customer: JE Adams
 Date: 5/10/2019
 Mtr Model Q6600-092T (2 mtrs)
 Unit: 9235-2

Volts 120
 Frequency 60 Hz
 By: Jonathan Johnson
 Test Method: ASTM F1334

JE Adams Unit 9235
 2 Motor Unit with Q6600-092T Motors.
 Large Steel Dome With Foam
 Inlet In Room Open Nozzle

FFT Data (Sound Pressure)



Sound Power dBA 1/3 Octave Band			1/3 Octave Band Sound Pressure (RAW) dBA							
FREQUENCY BAND (HZ)	Center Freq (Hz)	Sound Power:	RSS Corr. Factor	Avg Sound Pressure	Mic Location					
					1	2	3	4	5	6
20000	25	12.4	6.9	5.5	4.6	3.4	4.1	9.1	4.4	4.4
16000	31.5	14.4	-5.0	19.4	22.7	13.7	17.3	21.1	19.5	16.4
12500	40	21.1	4.4	16.7	14.9	18.1	16.5	17.0	16.9	16.2
10000	50	31.9	3.7	28.2	13.5	27.6	29.5	16.5	32.7	27.6
8000	63	36.6	9.7	26.9	24.6	27.7	28.1	25.2	25.4	28.8
6300	80	37.0	7.7	29.3	21.7	30.7	29.5	20.3	32.6	29.7
5000	100	44.0	2.0	42.0	42.4	42.0	40.7	41.0	41.6	43.5
4000	125	55.4	5.4	50.0	52.1	49.9	47.8	49.9	50.3	48.8
3150	160	58.5	2.2	56.3	56.8	56.5	55.6	54.5	54.6	58.7
2500	200	60.7	0.8	59.9	58.2	59.1	60.2	59.3	62.0	59.4
2000	250	60.3	1.1	59.2	60.4	58.0	58.5	56.8	59.9	60.4
1600	315	77.3	0.6	76.7	77.1	71.7	76.5	70.7	78.1	79.7
1250	400	67.0	0.3	66.7	68.1	66.9	67.3	64.1	67.6	65.0
1000	500	65.4	1.7	63.7	65.1	64.5	63.6	63.4	62.4	62.5
800	630	72.1	1.3	70.8	70.9	71.7	70.5	71.6	69.4	70.1
630	800	74.6	0.4	74.2	73.8	75.1	74.3	73.6	73.9	74.5
500	1000	76.3	0.3	76.0	76.1	76.4	75.0	75.5	76.8	75.8
400	1250	78.0	1.2	76.7	77.3	76.5	76.0	77.4	76.1	77.0
315	1600	80.8	1.5	79.3	79.4	79.0	79.5	79.5	79.5	78.9
250	2000	85.3	1.2	84.1	84.3	83.3	83.9	84.0	84.7	84.4
200	2500	85.5	2.3	83.1	82.7	82.8	83.1	83.4	83.5	83.4
160	3150	84.4	2.7	81.7	81.8	81.5	81.8	81.5	81.8	81.8
125	4000	83.0	2.7	80.3	80.3	80.3	80.0	80.3	80.2	80.4
100	5000	80.3	3.6	76.7	76.7	76.9	76.8	76.3	76.8	76.5
80	6300	80.3	4.7	75.6	75.4	75.8	75.5	75.4	75.4	75.7
63	8000	79.7	6.4	73.3	73.3	73.4	73.7	73.3	73.2	73.1
50	10000	75.6	7.5	68.1	68.2	68.0	68.9	68.1	67.7	67.8
40	12500	72.0	9.8	62.1	62.2	62.6	61.8	61.2	62.4	62.5
31.5	16000	68.5	13.2	55.3	55.0	55.5	55.7	54.4	55.7	55.5
25	20000	64.0	17.7	46.3	46.4	46.5	46.6	45.4	46.3	46.6

Overall Sound Power dBA: 92.7

(Sound Power = Total Sound Pressure + Reference Sound Source (RSS) Correction Factor)

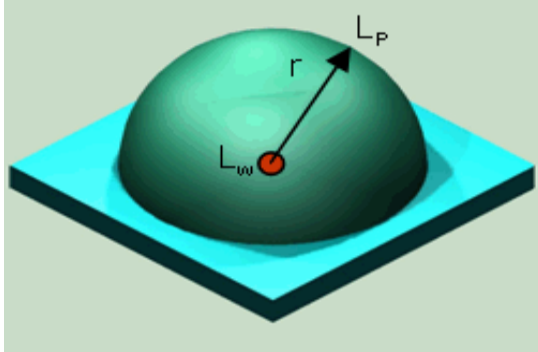
Customer: JE Adams
 Date: 5/10/2019
 Mtr Model Q6600-092T (2 mtrs)
 Unit: 9235-2

Volts 120
 Frequency 60 Hz
 By: Jonathan Johnson
 Test Method: ASTM F1334

Test Condition:

JE Adams Unit 9235
 2 Motor Unit with Q6600-092T Motors.
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Sound Pressure At Distances From Unit (Sound Treated as Point Source)

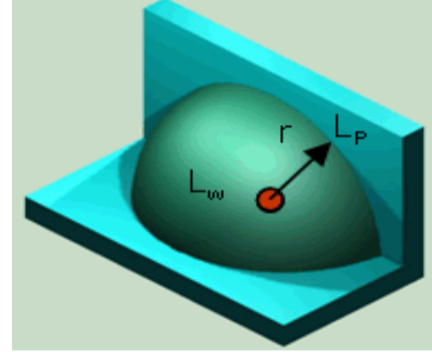


Half Sphere Q = 2

$$L_p = L_w + 10 \log \left(\frac{Q}{4\pi r^2} \right)$$

Lp = Sound Pressure dBA
 Lw = Sound Power
 Q = Directivity Factor
 r = Distance from Source

Sound Power = 92.7



Quarter Sphere Q = 4

Distance		Sound Pressure (dBA)
Feet	Meters	
5	1.5	81.1
10	3.0	75.1
15	4.6	71.5
25	7.6	67.1
30	9.1	65.5
35	10.7	64.2
40	12.2	63.0
45	13.7	62.0
50	15.2	61.1
55	16.8	60.2
60	18.3	59.5
75	22.9	57.6
80	24.4	57.0
85	25.9	56.5
90	27.4	56.0
95	29.0	55.5
100	30.5	55.1

Distance		Sound Pressure (dBA)
Feet	Meters	
5	1.5	84.1
10	3.0	78.1
15	4.6	74.5
25	7.6	70.1
30	9.1	68.5
35	10.7	67.2
40	12.2	66.0
45	13.7	65.0
50	15.2	64.1
55	16.8	63.3
60	18.3	62.5
75	22.9	60.6
80	24.4	60.0
85	25.9	59.5
90	27.4	59.0
95	29.0	58.5
100	30.5	58.1

Noise Sources and Their Effects

Noise Source	Decibel Level	comment
Jet take-off (at 25 meters)	150	Eardrum rupture
Aircraft carrier deck	140	
Military jet aircraft take-off from aircraft carrier with afterburner at 50 ft (130 dB).	130	
Thunderclap, chain saw. Oxygen torch (121 dB).	120	Painful. 32 times as loud as 70 dB.
Steel mill, auto horn at 1 meter. Turbo-fan aircraft at takeoff power at 200 ft (118 dB). Riveting machine (110 dB); live rock music (108 - 114 dB).	110	Average human pain threshold. 16 times as loud as 70 dB.
Jet take-off (at 305 meters), use of outboard motor, power lawn mower, motorcycle, farm tractor, jackhammer, garbage truck. Boeing 707 or DC-8 aircraft at one nautical mile (6080 ft) before landing (106 dB); jet flyover at 1000 feet (103 dB); Bell J-2A helicopter at 100 ft (100 dB).	100	8 times as loud as 70 dB. Serious damage possible in 8 hr exposure
Boeing 737 or DC-9 aircraft at one nautical mile (6080 ft) before landing (97 dB); power mower (96 dB); motorcycle at 25 ft (90 dB). Newspaper press (97 dB).	90	4 times as loud as 70 dB. Likely damage 8 hr exp
Garbage disposal, dishwasher, average factory, freight train (at 15 meters). Car wash at 20 ft (89 dB); propeller plane flyover at 1000 ft (88 dB); diesel truck 40 mph at 50 ft (84 dB); diesel train at 45 mph at 100 ft (83 dB). Food blender (88 dB); milling machine (85 dB); garbage disposal (80 dB).	80	2 times as loud as 70 dB. Possible damage in 8 h exposure.
Passenger car at 65 mph at 25 ft (77 dB); freeway at 50 ft from pavement edge 10 a.m. (76 dB). Living room music (76 dB); radio or TV-audio, vacuum cleaner (70 dB).	70	Arbitrary base of comparison. Upper 70s are annoyingly loud to some people.

Conversation in restaurant, office, background music, Air conditioning unit at 100 ft	60	Half as loud as 70 dB. Fairly quiet
Quiet suburb, conversation at home. Large electrical transformers at 100 ft	50	One-fourth as loud as 70 dB.
Library, bird calls (44 dB); lowest limit of urban ambient sound	40	One-eighth as loud as 70 dB.
Quiet rural area	30	One-sixteenth as loud as 70 dB. Very Quiet
Whisper, rustling leaves	20	
Breathing	10	Barely audible

[modified from <http://www.wenet.net/~hpb/dblevels.html>] on 2/2000. SOURCES: Temple University Department of Civil/Environmental Engineering (www.temple.edu/departments/CETP/enviro10.html), and *Federal Agency Review of Selected Airport Noise Analysis Issues*, Federal Interagency Committee on Noise (August 1992). Source of the information is attributed to *Outdoor Noise and the Metropolitan Environment*, M.C. Branch et al., Department of City Planning, City of Los Angeles, 1970.