Republic Services
Attn: Eric Anderson
1855 E. Deer Valley Road
Phoenix, AZ 85024

April 22, 2021

Dear Mr. Anderson:

ACS has been asked to assess the potential noise impact from the proposed WestWing Recycling & Transfer Facility to two different residential areas: the closest residential properties approximately 2000' south of the site (across Loop 303) and the closest residential properties of the Corte Bella subdivision (across Loop 303).

TECHNICAL TERMS:

Decibel - A unit for measuring the intensity of sound. The human hearing range is from 0 dB (the theoretical threshold of audibility) to 130 dB (the average pain threshold). {The sound pressure level in decibels is equal to 10 times the logarithm (to the base 10) of the ratio between the pressure squared divided by the reference pressure squared. The reference pressure used in acoustics is 20 microPascals.}

dBA - Sound pressure level expressed in decibels, filtered or weighted at the various frequencies to approximate the response of the human ear.

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Almost imperceptible
3	Barely noticeable
5	Clearly noticeable
10	Twice (or half) as loud

Leq - The equivalent sound level (Leq) measures the average acoustic energy over a period of time to take account of the cumulative effect of multiple noise events.

NOISE STANDARDS:

Neither Sun City/West or Maricopa County have quantifiable noise level limits. The City of Peoria is the closest municipality with quantifiable noise level limits. The daytime (6am – 10pm) residential noise level limit per the City of Peoria's noise ordinance is 65 dBA. The City of Peoria's nighttime (10pm – 6am) residential noise limit is 55 dBA.

FINDINGS:

Ambient Noise Levels

ACS took ambient noise level measurements at the closest residential properties of the two areas examined. Additionally, a 3rd location was selected to examine the freeway traffic noise at the gap in the freeway wall for the off-ramp. See attached Ambient Noise Level Measurement Locations exhibit. The results were as follows:

Location 1: Closest Residential Properties to the Site

Date	Time	Noise Level		
		Minimum	"Average" Leq (10)	Maximum
Monday 3/22/21	~11:30am	41.1 dBA	50.6 Leq	60.4 dBA
Tuesday 3/23/21	~7:30am	47.3 dBA	54.2 Leq	59.5 dBA
Saturday 3/27/21	~12:00pm	45.2 dBA	56.0 Leq	64.9 dBA
NOTE: The ambient noise level results at this location were exclusively due to the Loop 303 traffic.				

Location 2: Closest Residential Properties of the Corte Bella Subdivision

Date	Time	Noise Level		
		Minimum	"Average" Leq (10)	Maximum
Monday 4/05/21	~12:00pm	41.5 dBA	58.4 Leq	77.3 dBA
Tuesday 4/06/21	~7:30am	51.4 dBA	63.6 Leq	78.9 dBA
Saturday 4/03/21	~11:30am	43.6 dBA	58.5 Leq	75.3 dBA
NOTE: The ambient noise level results at this location were mostly due to El Mirage traffic.				

Location 3: Corte Bella Homes Near Ramp Opening in the Freeway Wall

Date	Time	Noise Level		
		Minimum	"Average" Leq (10)	Maximum
Tuesday 4/06/21	~7:30am	44.9 dBA	50.0 Leq	57.9 dBA
NOTE: The ambient noise level results at this location were almost exclusively due to the Loop 303 traffic.				

The average ambient noise level at the closest residential properties was 50 dBA (or higher). Additionally, the Loop 303 daily traffic is projected to increase by 25% (over 10,000 additional vehicles) by 2040.

Noise Source
Source level measurements were performed during peak operation hours at two existing transfer stations:

Cave Creek TS: 1855 E Deer Valley Rd, Phoenix, AZ 85024
Mesa TS: 6711 S Mountain Rd, Mesa, AZ 85212

ACS was informed that the Cave Creek transfer station is approximately 5 times busier than the proposed WestWing transfer facility will be. However, the maximum noise levels from the Cave Creek station were used as the potential baseline for the new station.

Projected Noise Impact –
Based on the maximum measurements taken during peak operation hours (at the Cave Creek facility), the maximum noise level at the 2nd floor of the closest homes to the south of the proposed site would be 46.2 dBA. However, the proposed building is enclosed on three sides, with the only open side facing north, away from the homes. Thus, all of the louder noise producing activity will occur within or in front (the opposite direction of the homes) of the building. Based on the orientation of the building, the building itself will block 20 decibels at a minimum. This will reduce the noise impact at the homes to 26.2 dBA.

Based on the maximum source measurements, the maximum noise level at the Corte Bella residential properties is 49.3 dBA without the benefit of the freeway wall. As can be seen in the attached Ambient Noise Level Measurement Locations exhibit, the existing freeway wall will help to block the noise from the proposed station to the Corte Bella home. However, because of the break in the freeway wall, no barrier wall attenuation was included for these calculations. Again, the building will block a minimum of 20 decibels. This would reduce the noise impact at the Corte Bella homes to 29.3 dBA.

ACS has been informed that the public hours would be 6am to 4pm (M-F) and 6am to 12pm (Sat). Therefore, Peoria's daytime limits (65 dBA) would apply (if this site were subject to them). However, ACS has been informed that there could be infrequent activity at the site as early as 5am and as late as 6pm. For the potential activity between 5am and 6pm, Peoria's "nighttime" limits (55 dBA) would apply. However, the source level measurements performed during peak activity (used for the calculations above) would likely not represent (overstate) the potential noise level of the minimum activity before 6am. Even using the potentially overstated source levels for the activity between 5am and 6am, the projected maximum noise level is substantially below Peoria's residential daytime and nighttime noise level limits.

CONCLUSIONS:
The projected potential maximum noise impact to the residential properties is less than 30 decibels. This is substantially below the average existing ambient traffic noise. Although not subject to a quantifiable noise ordinance, the projected potential maximum noise impact to the residential properties is substantially below Peoria's residential daytime and nighttime noise level limits.

Please contact me if you have any questions or need additional information.

Respectfully,

Tony Sola
Acoustical Consulting Services

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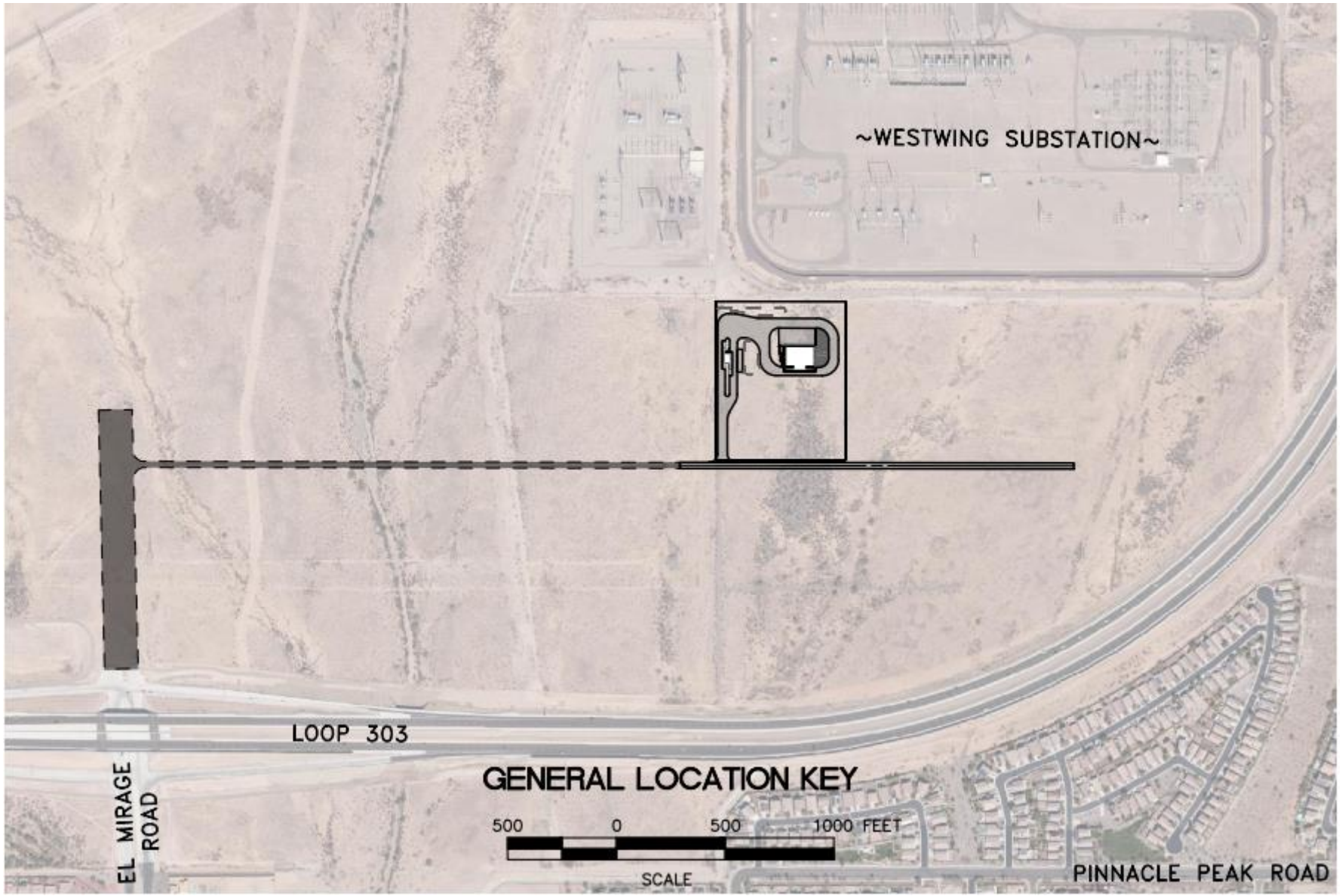
Site Plan



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Ambient Noise Level Measurement Locations

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