3.8 - Noise

This section describes the potential noise effects from project implementation on the project site and its surrounding area. In part, descriptions and analysis in this section are based on the results of Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM) and onsite noise monitoring, both conducted by FirstCarbon Solutions. The RCNM results and the noise monitoring readings are included in this Draft EIR as Appendix G.

3.8.1 - Fundamentals of Noise and Vibration

Noise Fundamentals

Noise is defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Sound is produced by the vibration of sound pressure waves in the air. Sound pressure levels are used to measure the intensity of sound and are described in terms of decibels. The decibel (dB) is a logarithmic unit, which expresses the ratio of the sound pressure level being measured to a standard reference level. A-weighted decibels (dBA) approximate the subjective response of the human ear to a broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies that are audible to the human ear.

Noise Descriptors

Noise equivalent sound levels are not measured directly, but are calculated from sound pressure levels typically measured in dBA. The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. The peak traffic hour L_{eq} is the noise metric used by California Department of Transportation (Caltrans) for all traffic noise impact analyses.

The Day-Night Average Sound Level (L_{dn}) is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time-of-day corrections require the addition of ten decibels to sound levels at night between 10 p.m. and 7 a.m. While the Community Noise Equivalent Level (CNEL) is similar to the L_{dn}, except that it has another addition of 4.77 dB to sound levels during the evening hours between 7 p.m. and 10 p.m. These additions are made to the sound levels at these times because during the evening and nighttime hours, when compared to daytime hours, there is a decrease in the ambient noise levels, which creates an increased sensitivity to sounds. For this reason the sound is perceived to be louder in the evening and nighttime hours and is weighted accordingly. Many cities rely on the CNEL noise standard to assess transportation-related impacts on noise sensitive land uses.

Another noise descriptor that is used primarily for the assessment of aircraft noise impacts is the Sound Exposure Level, which is also called the Single Event Level (SEL). The SEL descriptor

represents the acoustic energy of a single event (i.e., an aircraft overflight) normalized to one-second event duration. This is useful for comparing the acoustical energy of different events involving different durations of the noise sources. The SEL is based on an integration of the noise during the period when the noise first rises within 10 dBA of its maximum value and last falls below 10 dBA of its maximum value. The SEL is often 10 dBA greater, or more, than the LMAX since the SEL logarithmetically adds the L_{eq} for each second of the duration of the noise. Noise levels of typical noise sources and environments are provided in Table 3.8-1.

Table 3.8-1: Noise Levels of Typical Noise Sources and Environments

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
	—110—	Rock Band
Jet Fly-over at 1000 feet		
	—100—	
Gas Lawnmower at 3 feet		
	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	
		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing
Source: California Department of Transportation, 1998.		

Tone Noise

A pure tone noise is a noise produced at a single frequency and laboratory tests have shown the humans are more perceptible to changes in noise levels of a pure tone. For a noise source to contain a "pure tone," there must be a significantly higher A-weighted sound energy in a given frequency band than in the neighboring bands, thereby causing the noise source to "stand out" against other noise sources. A pure tone occurs if the sound pressure level in the one-third octave band with the tone exceeds the average of the sound pressure levels of the two contagious one-third octave bands by: 5 dB for center frequencies of 500 Hertz (Hz) and above; by 8 dB for center frequencies between 160 and 400 Hz; and by 15 dB for center frequencies of 125 Hz or less.

Noise Propagation

From the noise source to the receiver, noise changes both in level and frequency spectrum. The most obvious is the decrease in noise as the distance from the source increases. The manner in which noise reduces with distance depends on whether the source is a point or line source as well as ground absorption, atmospheric effects and refraction, and shielding by natural and manmade features. Sound from point sources, such as air conditioning condensers, radiate uniformly outward as it travels away from the source in a spherical pattern. The noise drop-off rate associated with this geometric spreading is 6 dBA per each doubling of the distance (dBA/DD). Transportation noise sources—such as roadways—are typically analyzed as "line sources," since at any given moment the receiver may be impacted by noise from multiple vehicles at various locations along the roadway. Because of the geometry of a line source, the noise drop-off rate associated with the geometric spreading of a line source is 3 dBA/DD.

Ground Absorption

The sound drop-off rate is highly dependent on the conditions of the land between the noise source and receiver. To account for this ground-effect attenuation (absorption), two types of site conditions are commonly used in traffic noise models: soft-site and hard-site conditions. Soft-site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. For point sources, a drop-off rate of 7.5 dBA/DD is typically observed over soft ground with landscaping, as compared with a 6.0 dBA/DD drop-off rate over hard ground such as asphalt, concrete, stone and very hard packed earth. For line sources a 4.5 dBA/DD is typically observed for soft-site conditions compared to the 3.0 dBA/DD drop-off rate for hard-site conditions. To be conservative, hard-site conditions were used in this analysis.

Traffic Noise Prediction

The level of traffic noise depends on the three primary factors: (1) the volume of the traffic, (2) the speed of the traffic, and (3) the number of trucks in the flow of traffic. Generally, the loudness of traffic noise is increased by heavier traffic volumes, higher speeds, and greater number of trucks. Vehicle noise is a combination of the noise produced by the engine, exhaust, and tires. Because of the logarithmic nature of traffic noise levels, a doubling of the traffic volume—assuming that the

speed and truck mix do not change—results in a noise level increase of 3 dBA. Based on the FHWA community noise assessment criteria, this change is "barely perceptible," for reference a doubling of perceived noise levels would require an increase of approximately 10 dBA. However, the 1992 findings of Federal Interagency Committee on Noise (FICON), which assessed changes in ambient noise levels resulting from aircraft operations, found that noise increases as low as 1.5 dB can cause annoyance, when the existing noise levels are already greater than 65 dB. The truck mix on a given roadway also has an effect on community noise levels. As the number of heavy trucks increases and becomes a larger percentage of the vehicle mix, adjacent noise levels increase.

Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. For a noise barrier to work, it must be high enough and long enough to block the view of a road. A noise barrier is most effective when placed close to the noise source or receiver. A noise barrier can achieve a 5-dBA noise level reduction when it is tall enough to break the line-of-sight. When the noise barrier is a berm instead of a wall, the noise attenuation can be increased by another 3 dBA.

Vibration Fundamentals

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may consist of the rattling of windows or dishes on shelves.

Vibration Descriptors

Several different methods are used to quantify vibration amplitude such as the maximum instantaneous peak in the vibrations velocity, which is known as the peak particle velocity (PPV) or the root mean square (RMS) amplitude of the vibration velocity. Because of the typically small amplitudes of vibrations, vibration velocity is often expressed in decibels; it is denoted as LV. LV is based on the RMS velocity amplitude. A commonly used abbreviation is VdB, which in this text, is when LV is based on the reference quantity of 1 microinch per second.

Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Offsite sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce

perceptible groundborne noise or vibration. Acceptable vibration levels for an office environment would be 84 VdB and 78 VdB for residential uses during the day.

Vibration Propagation

The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform median, while groundborne vibrations travel through the earth, which may contain significant geological differences. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil; but has been shown to be effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

Construction-Related Vibration Level Prediction

There are no federal, State, or local regulatory standards for groundborne vibration. However, various accepted criteria have been established to assist in the evaluation of vibration impacts. For instance, Caltrans has developed vibration criteria based on potential structural damage risks and human annoyance. Caltrans criteria for the evaluation of groundborne vibration levels, with regard to structural damage and human annoyance, are provided in Table 3.8-2 and Table 3.8-3, respectively. The criteria differentiate between transient and continuous/frequent sources. Transient sources of groundborne vibration include intermittent events, such as blasting. Continuous and frequent events include the operations of equipment, including construction equipment, and vehicle traffic on roadways.

Table 3.8-2: Damage Potential to Buildings at Various Groundborne Vibration Levels

Structure and Condition	Vibration Level (in/sec ppv)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely Fragile Historic Buildings, Ruins, Ancient Monuments	0.12	0.08
Fragile Buildings	0.2	0.1
Historic and Some Old Buildings	0.5	0.25
Older Residential Structures	0.5	0.3
New Residential Structures	1.0	0.5
Modern Industrial/Commercial Buildings	2.0	0.5

Note:
Transient sources create a single isolated vibration event, such as blasting. Intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, and vibratory compaction equipment.
Source: California Department of Transportation, 2004.

Table 3.8-3: Annoyance Potential to People at Various Groundborne Vibration Levels

Human Response	Vibration Level (in/sec ppv)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely Perceptible	0.04	0.01
Distinctly Perceptible	0.25	0.04
Strongly Perceptible	0.9	0.10
Severe	2.0	0.4

Notes:
Transient sources create a single isolated vibration event, such as blasting or drop balls. Intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, and vibratory compaction equipment.
Source: California Department of Transportation, 2004.

The groundborne vibration criteria recommended by Caltrans for evaluation of potential structural damage is based on building classifications, which take into account the age and condition of the building. For residential structures and newer buildings, Caltrans considers a minimum peak-particle velocity (ppv) threshold of 0.25 inches per second (in/sec) for transient sources and 0.04 in/sec for continuous/frequent sources to be sufficient to protect against building damage. Continuous ground-borne vibration levels below approximately 0.02 in/sec ppv are unlikely to cause damage to any structure.

ground vibration. Short periods of ground vibration in excess of 2.0 in/sec ppv can be expected to result in severe annoyance to people. Short periods of ground vibration in excess of 0.1 in/sec ppv (0.2 in/sec ppv within buildings) are considered barely perceptible and the minimum level at which annoyance would be anticipated to occur.

3.8.2 - Existing Conditions

According to the City of Beaumont General Plan, noise sources in the City fall into five basic categories, including: (1) freeways, (2) local roads, (3) airports and heliports, (4) railroads, and (5) stationary sources. The City's General Plan identifies noise-sensitive receptors as including residences and schools, while the City's Municipal Code extends this list to include public parks and public facility such as any church, court, library, hospital, or health care facility.

The County of Riverside General Plan found that noise within the County is generated by numerous sources found near places where people live and work. These sources are of particular concern when the noise they generate reaches levels above the prevailing background noise. There are many different types of noise, including mobile, stationary, and construction-related, that affect noise-sensitive receptors such as residences, schools, and hospitals.

Noise Monitoring

Noise monitoring was performed using an Extech Model 407780 Type 2 integrating sound level meter. The Extech meter was programmed in "fast" mode to record the sound pressure level at one-second intervals for an A-weighted form at 15-minute intervals. The sound level meter and microphone were mounted approximately five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before monitoring using an Extech calibrator, Model 407766. The noise level measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA).

The noise monitoring locations were specifically selected to obtain noise measurements of the current noise sources that presently impact the project site and the surrounding area, and to provide a baseline for any potential noise impacts that may be created by the proposed project.

The noise monitoring was conducted between 9:35 a.m. and 12:13 p.m. on Wednesday, March 13, 2013. At the start of the noise monitoring, the temperature was 72°F, the sky was clear, and winds were low (3 to 5 mph). The noise measurements were taken at six locations throughout the project area, including on and adjacent to the project sites and nearby noise-sensitive receptors (Exhibit 3.8-1). The results of the noise measurements are provided below in Table 3.8-4.

Table 3.8-4: Existing Noise Level Measurements

Location	Description	L_{eq}	L_{MAX}	L_{MIN}
Location 1	On the southeastern portion of the recharge facility site, approximately 20 feet from the southern project boundary.	51.3	60.0	44.6
Location 2	On the cul-de-sac south of Beaumont Sports Park parking lot, northwest of the Orchard Park Apartments multi-family residential complex, and east of Beaumont Avenue.	61.5	70.3	48.5
Location 3	On the undeveloped parcel, south of Brookside Avenue and west of Mountain View Channel, approximately 80 feet from the eastern boundary of the Brookside Elementary campus.	48.5	61.6	41.0
Location 4	On the northern portion of the offsite triangular parcel, adjacent to Beaumont High School's southern driveway.	59.1	76.5	44.1
Location 5	On the northeastern corner of Beaumont Avenue and Orchard Street.	62.2	76.5	43.5
Location 6	On the Riverside County Flood Control District and Water Conservation's right-of-way along Orchard Street at the Mountain View Channel crossing.	59.6	76.2	41.0

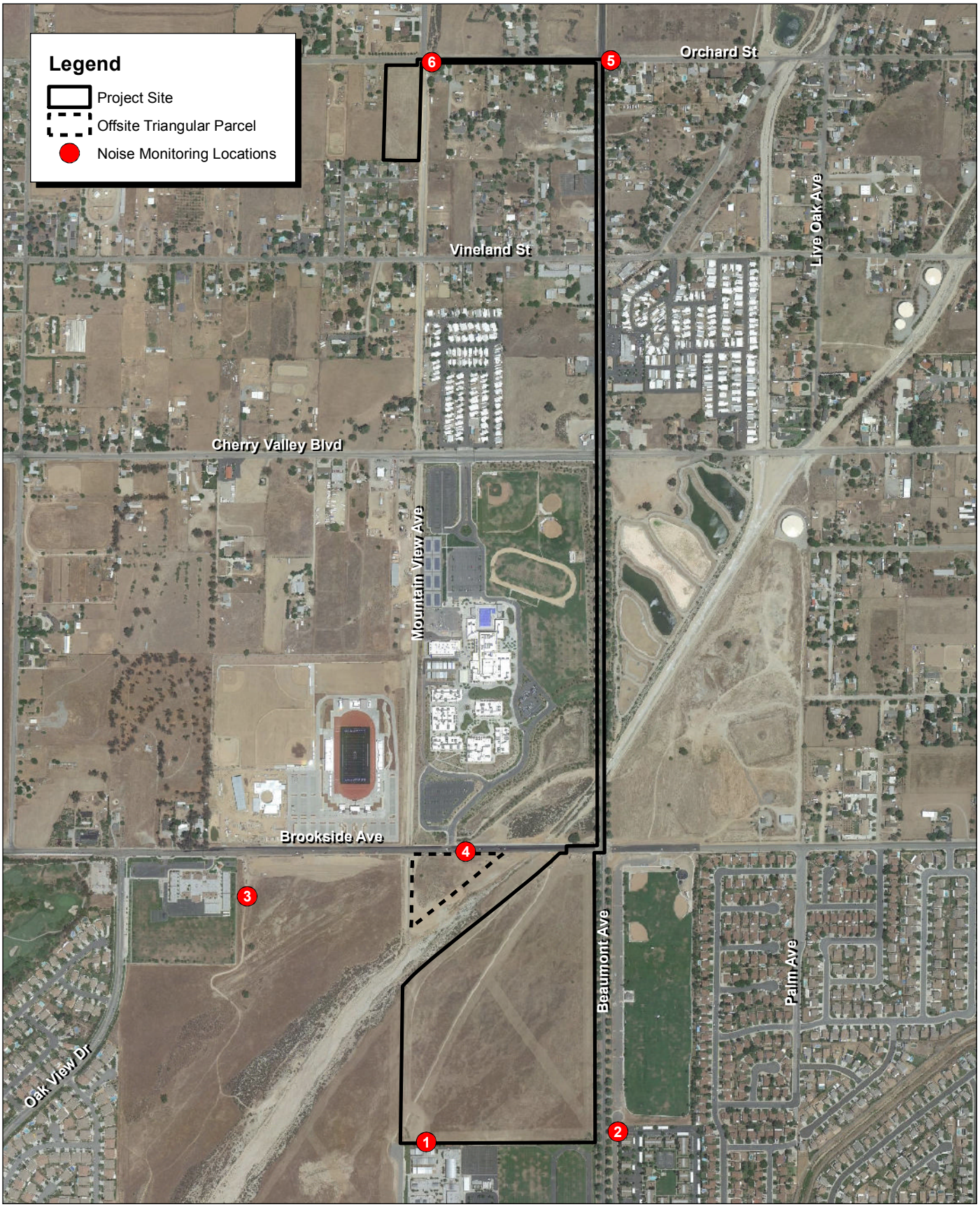
Notes: Noise monitoring readouts are included in Appendix G of this Draft EIR.
Source: FirstCarbon Solutions, 2013.

Sensitive Receptors

Land uses with higher sensitivity to noise include residences, schools, hospitals, retirement homes, and places of worship. The nearest noise-sensitive receptors to the project sites include:

Recharge Facility Site

- The Beaumont High School campus located north of both Noble Creek and Brookside Avenue is approximately 350 feet from the recharge facility site.
- The Orchard Park Apartments property located on the northeastern corner of Beaumont Avenue and Cougar Way is approximately 140 feet from the recharge facility site.
- The Mountain View Middle School campus located directly south of the recharge facility site abuts the site. An approximately 250-foot buffer area would separate the southernmost portion of the recharge facility/maintenance road from the middle school's northern property line.
- Planning Area 1 of the Noble Creek Specific Plan located north of Noble Creek, east of the Brookside Elementary School campus, and south of Brookside Avenue is approximately 300 feet from the site. Future single-family residences are planned for this area.



Source: Google Earth Pro. MBA Field Survey and GIS Data, 2013.

Michael Brandman Associates

NORTH

900 450 0 900

Feet

Exhibit 3.8-1
Noise Monitoring Locations

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SAN GORGONIO PASS WATER AGENCY
BEAUMONT AVENUE RECHARGE FACILITY AND PIPELINE PROJECT
ENVIRONMENTAL IMPACT REPORT

- The Brookside Elementary School campus located on the southeast corner of Brookside Avenue and Oak View Drive is approximately 1,200 feet from the recharge facility site.
- Planning Area 7 of the Noble Creek Vistas Specific Plan located directly adjacent and west of the recharge facility site, southeast of Noble Creek, and north of the existing terminus of Mountain View Avenue abuts the site. Future single-family residences are planned for this area.

Pipeline Alignment

- The Beaumont High School campus is located approximately 60 feet from the pipeline alignment along both Brookside Avenue between the Noble Creek Bridge and Beaumont Avenue and Beaumont Avenue between Brookside Avenue and Cherry Valley Boulevard.
- The Cherry Valley Brethren Church and Preschool campus on the southwestern corner of Beaumont Avenue and Vineland Street is located approximately 33 feet from the pipeline alignment.
- Several single-family residential properties fronting both Beaumont Avenue and Orchard Street is located approximately 30 feet from the pipeline alignment.

Jack and Bore Locations

- The Beaumont High School campus is located approximately 60 feet from the Beaumont Avenue jack and bore location.
- The single-family residential property located on the southeastern corner of Orchard Street and Mountain View Channel is approximately 20 feet from the Orchard Street jack and bore location.

Service Connection Site

- The single-family residential property located across Orchard Street and north of the service connection site is approximately 85 feet from the site.
- The single-family residential property located directly across Mountain View Channel and east of the service connection site is approximately 65 feet from the site.
- The single-family residential property located directly adjacent and west of the service connection site abuts the site.

Offsite Triangular Parcel

- The Beaumont High School campus is located approximately 60 feet from the offsite triangular parcel.

- Planning Area 1 of the Noble Creek Specific Plan is located approximately 45 feet from the offsite triangular parcel.
- The Brookside Elementary School campus is located approximately 1,150 feet from the offsite triangular parcel.

3.8.3 - Regulatory Setting

Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Promulgating noise emission standards for interstate commerce.
- Assisting state and local abatement efforts.
- Promoting noise education and research.

The Federal Office of Noise Abatement and Control (ONAC) was initially tasked with implementing the Noise Control Act. However, the ONAC has since been eliminated, leaving the development of federal noise policies and programs to other federal agencies and interagency committees. For example, the Occupational Safety and Health Administration (OSHA) agency limits noise exposure of workers to 90 dB L_{eq} or less for 8 continuous hours or 105 dB L_{eq} or less for 1 continuous hour. The Department of Transportation (DOT) assumed a significant role in noise control through its various operating agencies. The Federal Aviation Administration (FAA) regulates noise of aircraft and airports. Surface transportation system noise is regulated by a host of agencies, including the Federal Transit Administration (FTA). Transit noise is regulated by the federal Urban Mass Transit Administration (UMTA), while freeways that are part of the interstate highway system are regulated by the Federal Highway Administration (FHWA). Finally, the federal government actively advocates that local jurisdictions use their land use regulatory authority to arrange new development in such a way that "noise sensitive" uses are either prohibited from being sited adjacent to a highway or, alternately that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation sources, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model, which is shown in Table 3.8-6, is the "Land Use Compatibility for

Community Noise Environments Matrix," which allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

Title 24, Chapter 1, Article 4 of the California Administrative Code (California Noise Insulation Standards) requires noise insulation in new hotels, motels, apartment houses, and dwellings (other than single-family detached housing) that provides an annual average noise level of no more than 45 dBA CNEL. When such structures are located within a 60-dBA CNEL (or greater) noise contour, an acoustical analysis is required to ensure that interior levels do not exceed the 45-dBA CNEL annual threshold. In addition, Title 21, Chapter 6, Article 1 of the California Administrative Code requires that all habitable rooms, hospitals, convalescent homes, and places of worship shall have an interior CNEL of 45 dB or less due to aircraft noise.

Government Code Section 65302 mandates that the legislative body of each county and city in California adopt a noise element as part of its comprehensive general plan. The local noise element must recognize the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable.

Local Regulations

As discussed previously in Section 1, Introduction, of this Draft EIR, the SGPWA is exempt from local land use policies and ordinances in accordance with California Government Code Sections 53091(d) and 53091(e). Although exempt for the proposed project, SGPWA has chosen to provide a discussion of the local land use policies and ordinances.

City of Beaumont General Plan

The City of Beaumont General Plan contains the following goals and policies that address noise.

Safety Element

Goal 6. The City of Beaumont will strive to control the adverse effects of noise in the environment.

> **Policy 24.** The City of Beaumont will protect public health and welfare by eliminating existing noise problems and by preventing significant degradation of the future acoustic environment.
>
> **Policy 25.** The City of Beaumont will incorporate noise considerations into land use planning decisions.
>
> **Policy 26.** The City of Beaumont shall require the inclusion of noise mitigation measures, as may be necessary to meet standards, in the design of new roadway projects in Beaumont.
>
> **Policy 27.** The City of Beaumont shall promote the effective enforcement of City, State and Federal noise standards by all appropriate City divisions.

The Safety Element also includes the following compatibility standards, as provided in Table 3.8-5, which indicates the range of acceptable noise levels for various land uses in the City. The noise level ranges shown serve as guidelines with respect to the placement of land uses in the City.

Table 3.8-5: Noise and Land Use Compatibility Standards

Noise and Land Use Compatibility Standards (Ambient Exterior Noise Exposure)		
Land Use	Desired Maximum	Maximum Acceptable
Single-family Residential	55 dBA	65 dBA
Multiple-Family Residential	60 dBA	65 dBA
6th Street Corridor Overlay	65 dBA	70 dBA
Public Facilities (including Schools)	60 dBA	70 dBA
All Commercial and Mixed-Use	65 dBA	75 dBA
Industrial	70 dBA	75 dBA
Source: City of Beaumont, City of Beaumont General Plan, Safety Element, 2007.		

Beaumont Municipal Code

The Beaumont Municipal Code establishes the following noise provisions that are relevant to the project.

Chapter 9.02 Noise Control

Section 9.02.030 Prohibited Noise in Residential Zones

Notwithstanding any other provision of this Code, and in addition thereto, it shall be unlawful, and it is hereby declared a public nuisance, for any person to make, suffer, permit, continue, or cause to be made or continued, any loud noise, commotion, gathering or event, which disturbs the peace or quiet of the neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivity. Further, it shall be unlawful for any person to make, or permit the making of, noise related to landscape maintenance or construction, including the erection, excavation, demolition, alteration or repair of any structure or improvement, which disturbs the peace or quiet of the neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitivity, between the hours of 8:00 p.m. in the evening and 6:00 a.m.

Section 9.02.040 Prohibited Noise in Public Places

Notwithstanding any other provision of this Code, and in addition thereto, it shall be unlawful, and it is hereby declared a public nuisance, for any person to make, suffer, permit, continue, or cause to be made or continued, any loud noise, commotion, gathering or event, which disturbs the peace or quiet of a public park or other public facility, including any school, church, court, library, hospital or health

care facility, or which causes discomfort or annoyance to any reasonable person of normal sensitivity within such park or facility. (Ord. No. 914, § 1, 7-3-07)

9.02.060 Prohibited Noise-Exemptions

The following activities and noise sources shall be exempt from the provisions of this Chapter:

A. Activities conducted on the grounds of any public or private school during regular hours of operation;
B. Outdoor gatherings, public dances, shows, sporting and entertainment events authorized by permit issued by the City;
C. Warning devices necessary for public safety including, but not limited to, police, fire and ambulance sirens, train horns and other sounds used for the purpose of alerting persons to the existence of a danger or emergency;
D. The following construction, repair or excavation activities:
    i. Such activities necessary for the immediate preservation of life or property;
    ii. Such activities performed in connection with public works projects, public service projects and public utilities services;
    iii. Such activities performed on private property pursuant to a permit issued by the City;
    iv. Any activity to the extent regulated by state or federal law or by permit issued by the City;
    v. Noise generated in retail, commercial and industrial zones that are necessary and incidental to the uses permitted therein, provided that such noise does not disturb the peace and quiet of adjacent residential zones. (Ord. No. 914, § 1,7-3-07)

County of Riverside General Plan

The County of Riverside General Plan contains the following policies that address noise.

Noise Element

According to the Noise Element, for the County's Land Use Plan to be successful, land uses producing noise must be compatible with adjacent land uses. If existing land uses generate noise above a certain level, they are not compatible with one another, and therefore noise attenuation devices must be used to mitigate the noise to acceptable levels. For new development, the placement of noise-sensitive land uses is integral to a successful community. Table 3.8-6, Land Use Compatibility for Community Noise Exposure, provides the noise acceptability levels for different land uses.

> **Policy N 1.1.** Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or blockwalls shall be used.

Policy N 1.2. Guide noise-tolerant land uses into areas irrevocably committed to land uses that are noise-producing, such as transportation corridors or within the projected noise contours of any adjacent airports.

Policy N 1.3. Consider the following uses noise-sensitive and discourage these uses in areas in excess of 65 CNEL:

- Schools;
- Hospitals;
- Rest Homes;
- Long Term Care Facilities;
- Mental Care Facilities;
- Residential Uses;
- Libraries;
- Passive Recreation Uses; and
- Places of worship

According to the State of California Office of Planning and Research General Plan Guidelines, an acoustical study may be required in cases where these noise-sensitive land uses are located in an area of 60 CNEL or greater. Any land use that is exposed to levels higher than 65 CNEL will require noise attenuation measures.

Areas around airports may have different noise standards than those cited above. Each Area Plan affected by a public-use airport includes one or more Airport Influence Areas, one for each airport. The applicable noise compatibility criteria are fully set forth in Appendix L and summarized in the Policy Area section of the affected Area Plan.

Policy N 1.4. Determine if existing land uses will present noise compatibility issues with proposed projects by undertaking site surveys.

Policy N 1.5. Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.

Policy N 1.6. Minimize noise spillover or encroachment from commercial and industrial land uses into adjoining residential neighborhoods or noise-sensitive uses.

Policy N 1.7. Require proposed land uses, affected by unacceptably high noise levels, to have an acoustical specialist prepare a study of the noise problems and recommend structural and site design features that will adequately mitigate the noise problem.

Policy N 1.8. Limit the maximum permitted noise levels that cross property lines and impact adjacent land uses, except when dealing with noise emissions from wind turbines. Please see the Wind Energy Conversion Systems section for more information.

Table 3.8-6: Land Use Compatibility Chart for Community Noise Exposure

Land Use Category	Community Noise Exposure L_{dn} or CNEL, dB[1]			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single Family, Duplex, Mobile Homes	50 to 60	55 to 70	70 to 75	75 to 85
Residential - Multiple Family	50 to 65	60 to 70	70 to 75	75 to 85
Transient Lodging - Motel, Hotels	50 to 65	60 to 70	70 to 80	80 to 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 to 70	60 to 70	70 to 80	80 to 85
Auditoriums, Concert Halls, Amphitheaters	N/A	50 to 70	N/A	65 to 85
Sports Arenas, Outdoor Spectator Sports	N/A	50 to 75	N/A	70 to 85
Playgrounds, Neighborhood Parks	50 to 70	N/A	67.5 to 75	72.5 to 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 to 75	N/A	70 to 80	80 to 85
Office Buildings, Business Commercial and Professional	50 to 70	67.5 to 77.5	75 to 85	N/A
Industrial, Manufacturing, Utilities, Agriculture	50 to 75	70 to 80	75 to 85	N/A

Notes:
N/A = not applicable.
Normally Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
Normally Unacceptable: New Construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.
Clearly Unacceptable: New construction or development should generally not be undertaken.
[1] Source: County of Riverside Noise Element, 2008.
Source: FirstCarbon Solutions, 2013.

According to the Noise Element, the noise emitted from a land use must be mitigated to acceptable levels indoors and outdoors in order for other, more noise-sensitive land uses to locate in proximity to these noise producers. There are a number of ways to mitigate noise and the following policies suggest some possible solutions to noise problems.

Policy N 2.1. Create a County Noise Inventory to identify major noise generators and noise-sensitive land uses, and to establish appropriate noise mitigation strategies.

Policy N 2.2. Require a qualified acoustical specialist to prepare acoustical studies for proposed noise-sensitive projects within noise impacted areas to mitigate existing noise.

Policy N 2.3. Mitigate exterior and interior noises to the levels listed in the table below to the extent feasible, for stationary sources:

Table 3.8-7: Stationary Source Land Use Noise Standards

Land Use	Interior Standards	Exterior Standards
Residential 10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	 40 L_{eq} (10 minute) 55 L_{eq} (10 minute)	 45 L_{eq} (10 minute) 65 L_{eq} (10 minute)
Source: County of Riverside Noise Element, 2008.		

Riverside County Code of Ordinances

The Riverside County Code of Ordinances establishes the following noise provisions that are relevant to the project.

Chapter 9.52 Noise Regulation

Section 9.52.020 Exemptions

Sound emanating from the following sources is exempt from the provisions of this chapter:

A. Facilities owned or operated by or for a governmental agency;
B. Capital improvement projects of a governmental agency;
C. The maintenance or repair of public properties;
D. Public safety personnel in the course of executing their official duties, including, but not limited to, sworn peace officers, emergency personnel and public utility personnel. This exemption includes, without limitation, sound emanating from all equipment used by such personnel, whether stationary or mobile. (Ord. 847 § 2, 2006)

Section 9.52.040 General Sound Level Standards

No person shall create any sound, or allow the creation of any sound, on any property that causes the exterior sound level on any other occupied property to exceed the sound level standards set forth in Table 3.8-8.

Table 3.8-8: Sound Level Standards (Db L_{max})

General Plan Foundation Component	General Plan Land Use Designation	General Plan Land Use Designation Name	Density[1]	Maximum Decibel Level	
				7 AM - 10 PM	10 PM - 7 AM
Community Development	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
	MDR	Medium Density Residential	2—5	55	45
	MHDR	Medium High Density Residential	5—8	55	45
	HDR	High Density Residential	8—14	55	45
	VHDR	Very High Density Residential	14—20	55	45
	H'TDR	Highest Density Residential	20+	55	45
	CR	Retail Commercial		65	55
	CO	Office Commercial		65	55
	CT	Tourist Commercial		65	55
	CC	Community Center		65	55
	LI	Light Industrial		75	55
	HI	Heavy Industrial		75	75
	BP	Business Park		65	45
	PF	Public Facility		65	45
	SP	Specific Plan-Residential		55	45
		Specific Plan-Commercial		65	55
		Specific Plan-Light Industrial		75	55
		Specific Plan-Heavy Industrial		75	75
Rural Community	EDR	Estate Density Residential	2 AC	55	45
	VLDR	Very Low Density Residential	1 AC	55	45
	LDR	Low Density Residential	1/2 AC	55	45
Rural	RR	Rural Residential	5 AC	45	45
	RM	Rural Mountainous	10 AC	45	45
	RD	Rural Desert	10 AC	45	45

Table 3.8-8 (cont.): Sound Level Standards (Db L_{max})

General Plan Foundation Component	General Plan Land Use Designation	General Plan Land Use Designation Name	Density[1]	Maximum Decibel Level	
				7 AM - 10 PM	10 PM - 7 AM
Agriculture	AG	Agriculture	10 AC	45	45
Open Space	C	Conservation		45	45
	CH	Conservation Habitat		45	45
	REC	Recreation		45	45
	RUR	Rural	20 AC	45	45
	W	Watershed		45	45
	MR	Mineral Resources		75	45

[1] Density for residential uses are units per acre or units per number of acres identified.
Source: Riverside County Code of Ordinances, Chapter 9.52, Noise Regulation, Section 9.52.040

3.8.4 - Thresholds of Significance

According to the CEQA Guidelines' Appendix G Environmental Checklist, to determine whether noise impacts are significant environmental effects, the following questions are analyzed and evaluated. Would the project result in:

a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? (See Noise Levels in Excess of Standards Impact NOI-1.)

b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? (See Excessive Groundborne Vibration Impact NOI-2.)

c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? (See Permanent Increase in Ambient Noise Levels Impact NOI-3.)

d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? (See Temporary or Periodic Increase in Ambient Noise Levels Impact NOI-4.)

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? (See Section 6.12.1, Public Airport Noise Levels)

f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? (See Section 6.12.2, Private Airstrip Noise Levels)

3.8.5 - Project Impact Analysis and Mitigation Measures

This section discusses potential impacts associated with the proposed project and provides mitigation measures where necessary.

Noise Levels in Excess of Standards

Impact NOI-1	**The project would not result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.**

Impact Analysis

Per Sections 53091(d) and 53091(e) of the California Government Code, SGWPA is not bound by the provisions contained in either Chapter 9.02, Noise Control, of the Beaumont Municipal Code, or Chapter 9.52, Noise Regulation, of the Riverside County Code of Ordinances (refer to Section 6.10.2 of this Draft EIR). However, while not bound to the aforementioned noise ordinances, because of the close proximity of various noise-sensitive receptors to the project sites, project construction and operations would still comply with both the noise standards established by the City of Beaumont and County of Riverside.

For project construction occurring within the jurisdiction of the City of Beaumont, it is assumed that project construction would occur between 6:00 a.m. and 8:00 p.m., which is the permitted time period as determined by Chapter 9.02, Noise Control, of the City of Beaumont Municipal Code. For project construction occurring within the jurisdiction of the County of Riverside, it is assumed that project construction would occur between 7:00 a.m. and 10:00 p.m. Based on information provided by the project engineer, project construction can be divided into six primary scenarios, as described below. For each scenario, an analysis has been conducted based on a "worst-case" combination of construction equipment operating simultaneously at the same located on the project site. The assumed equipment combination for each scenario is also described below:

Scenario 1: This scenario involves site preparation and grading activities within the recharge facility's footprint, along with construction of the recharge basins and installation of the associated above and below ground infrastructure. It is anticipated that construction equipment required for this scenario would include a dozer, grader, scraper, and water truck.

Scenario 2: This scenario involves earthwork activities within the approximately 250-foot buffer area between the southernmost portion of the recharge basin/maintenance road and Mountain View Middle School's northern property line. Construction activities within the buffer area would be limited to the movement of soil from the northern portion of the

recharge facility site towards the southern half of the site to gradually increase elevation on this portion of the site. It is anticipated that construction equipment required for this scenario would include a dozer and scraper.

Scenario 3: This scenario involves the drilling of the proposed irrigation well on the recharge facility site. The specific location for the proposed irrigation well is not known at this time, and thus, as a worst-case evaluation. the construction and operation of the well could occur anywhere within the recharge facility site where there is adequate room to construct a well and subsequently operate an irrigation pump. As such, the worst-case scenario is to assume that drilling of the irrigation well could occur along the project site's southern boundary (directly adjacent to the Mountain View Middle School campus), along the western site boundary (immediately adjacent to Noble Creek Vistas Specific Plan's Planning Area 7), along the site's eastern boundary (140 feet from the Orchard Park Apartments property), or on the northeastern site corner (550 feet from the Beaumont High School campus). Construction activities associated with the drilling of the irrigation well include a continuous 24-hour operation over approximately two days. It is anticipated that construction equipment required for this scenario would include a drill rig.

Scenario 4: This scenario involves excavation and shoring activities along the pipeline alignment, followed by pipeline installation, trench backfilling, and street restoration. It is anticipated that construction equipment required for this scenario would include an auger machine, backhoe, compactor, crane, dump truck, excavator, generator, hydraulic jack, loader, paver, water truck, and welding truck.

Scenario 5: This scenario involves jack and bore activities under Noble Creek at Beaumont Avenue and under Mountain View Channel at Orchard Street. It is anticipated that construction equipment required for this scenario would include a bore/drill rig, excavator, handling equipment/side boom, and hydraulic jack.

Scenario 6: This scenario involves site preparation and grading activities on the service connection site, along with construction of the service connection facility and installation of the associated above- and belowground infrastructure. It is anticipated that construction equipment required for this scenario would include a backhoe, excavator, and water truck.

Scenario 7: This scenario involves the ingress and egress of construction equipment and vehicles to and from the service connection site, the movement of equipment and vehicles on the northern half of the connection site, and the deposit and movement of exported soils (via excavation of the pipeline alignment) on the northern portion of the site. It is anticipated that construction equipment required for this scenario would include a backhoe and a haul truck.

Scenario 8: This scenario involves the ingress and egress of construction equipment and vehicles to and from the offsite triangular parcel, should portions of this area be used for the deposit and movement of exported soils (via excavation of the pipeline alignment). It is anticipated that construction equipment required for this scenario would include a backhoe and a haul truck.

Based on the assumptions described above, analyses were conducted to estimate the noise levels for each scenario at the noise-sensitive receptors nearest to the recharge facility site, the pipeline alignment, and the service connection site. Modeling for project construction noise was performed using the Federal Highway Administration's (FHWA) Roadway Construction Noise Model (RCNM). The RCNM is the FHWA model used to predict construction-related noise for a variety of types of construction projects of varying complexity. The RCNM includes an extensive compilation of built-in reference noise levels for dozens of types of construction-related equipment based on manufacturer and actual monitored sources. Table 3.8-9 shows the noise level analyses for each construction scenario.

Table 3.8-9: Estimated Construction Equipment Noise Levels

Scenario	Nearest Noise-Sensitive Receptor	Distance from Construction Activities to Receptor[1] (feet)	Local Noise Threshold[2] (dBA L_{eq})	Individual Construction Equipment Noise Levels at Receptor[3] (dBA L_{eq})	"Worst-Case" Scenario Noise Levels at Receptor[4] (dBA L_{eq})
1	Mountain View Middle School	250	Exempt	56.3 to 67.0	70.6
2	Mountain View Middle School	<10	Exempt	91.7 to 93.6	95.7
3	Mountain View Middle School	<10	Exempt (Daytime)/Prohibited (Nighttime)	91.3	91.3
	Noble Creek Specific Plan's Planning Area 7 (Future)	<10	Exempt (Daytime)/Prohibited (Nighttime)	91.3	91.3
	Orchard Park Apartments	140	Exempt (Daytime)/Prohibited (Nighttime)	68.4	68.4
	Beaumont High School	550	Exempt (Daytime)/Prohibited (Nighttime)	56.5	56.5

Table 3.8-9 (cont.): Estimated Construction Equipment Noise Levels

Scenario	Nearest Noise-Sensitive Receptor	Distance from Construction Activities to Receptor[1] (feet)	Local Noise Threshold[2] (dBA L_{eq})	Individual Construction Equipment Noise Levels at Receptor[3] (dBA L_{eq})	"Worst-Case" Scenario Noise Levels at Receptor[4] (dBA L_{eq})
4	Residence at southeastern corner of Beaumont Avenue and Orchard Street	30	Exempt	74.5 to 82.1	90.2
5	Residence at southeastern corner of Orchard Street and Mountain View Channel	20	Exempt	77.0 to 81.8	86.5
6	Residence at southeastern corner of Orchard Street and Mountain View Channel	65	Exempt	68.0 to 74.5	76.8
7	Residence west of the Service Connection Site	<10	Exempt	84.3 to 87.6	89.2
8	Beaumont High School	60	Exempt	68.7 to 72.0	73.7

Notes:
1 The distance from the project site boundary to the receptor's nearest property line.
2 The City of Beaumont Municipal Code, Noise Control, Section 9.02.060 and the Noise Regulations of the County of Riverside Code of Ordinances, Section 9.52.020 exempt construction noise for the proposed project; however, the City of Beaumont also prohibits construction noise between the hours of 8 p.m. and 6 a.m.
3 Noise levels were estimated using the FHWA's RCNM. RCNM readouts are included in Appendix G.
4 "Worst-case" event assumes that all construction equipment would be operated simultaneously in the same location on the project site, and does not take into account the attenuation effects from sound walls, berms, and landscaping.
Source: FirstCarbon Solutions, 2013.

As shown in Table 3.8-9, short-term, intermittent construction noise levels are expected to range from 56.3 dBA L_{eq} to 95.7 dBA L_{eq} at the nearest noise-sensitive receptors to the various construction scenarios. RCNM modeling represents a "worst-case" event, as modeling assumes that all construction equipment would be operated simultaneously in the same location on the project site, and did not take into account the attenuation effects from sound walls, berms, and landscaping. In addition, these estimated noise levels represent levels that would be expected when construction equipment is operated along the edges of the project sites nearest to the noise-sensitive receptors. A more realistic assumption has the construction equipment operating within a 5-acre area each day,

which would result in substantial fluctuations in noise levels as the equipment moves throughout the sites.

Based on a review of the noise standards established by both the City of Beaumont and the County of Riverside, construction noise levels associated with the proposed project are exempt during the daytime hours (between 6 a.m. and 8 p.m.) in the City of Beaumont and all times within the County of Riverside. As such, the construction activities associated with the project that will occur during the daytime hours will not exceed either the City of Beaumont or County of Riverside noise standards. In addition, the City of Beaumont prohibits construction noise between the hours of 8 p.m. and 6 a.m. Although the City of Beaumont prohibits construction noise during the evening and nighttime hours (i.e., between 8 pm and 6 am), the SGPWA has chosen not to use the City's evening and nightitme construction noise level standard as a threshold for determining the project's noise impact during construction of the irrigation well, which will be required to occur during a continuous 24-hour period over approximately two days. As discussed in Section 1, Introduction, of this Draft EIR, the proposed project is exempt from building and zoning ordinances of a county or city in accordance with Sections 53091(d) and 53091(e) of the California Government Code.

Regardless, the estimated construction noise levels shown in Table 3.8-9 exceed the applicable noise standards as established by both the City of Beaumont or the County of Riverside for nonexempt activities. However, both the City and County include provisions in their respective noise ordinances that exempt the project from complying with these noise requirements. Section 9.02.060, Prohibited Noise-Exemptions, of the Beaumont Municipal Code exempts activities performed in connection with public works projects, public service projects, and public utilities services from the provisions of the City's noise ordinance. Section 9.52.020, Exemptions, of the Riverside County Code of Ordinances exempts sound emanating from capital improvement projects of a governmental agency, such as SGPWA, from the provisions of the County's noise standards.

Based on exemptions contained within both the Beaumont Municipal Code and the Riverside County Code of Ordinances and the exemption contained in Sections 53091(d) and 53091(e) of the California Government Code, the construction activities associated with the proposed project will not exceed applicable noise standards, and therefore, the proposed project would result in a less than significant construction noise impact.

Refer to Impact NOI-4 for a discussion regarding the project's potential to temporarily exceed existing ambient noise levels in the project area. This discussion provides an evaluation of whether the project's temporary activities (i.e., construction) will expose humans to harmful noise levels.

Long-Term Operational Impacts

Recharge Facility Site

Once operational, periodic maintenance activities of the recharge facility would be required. Each recharge basin may require servicing on an annual basis. Maintenance activities would involve temporarily taking an individual basin out of commission, allowing the basin to thoroughly dry over several weeks, re-grading and ripping the basin bottom with a dozer, and, if necessary, re-grading and tracking the basin slopes, although this final step is not expected to be regularly required. Each basin would take approximately one day to grade, rip, and track.

Use of a dozer during basin maintenance activities and operation of an irrigation groundwater pump would be the primary sources of operational noise on the recharge facility. As shown in Table 3.8-10, noise levels expected at the Mountain View Middle School campus as a result of these temporary annual maintenance activities would be 63.7 dBA. These noise levels would be experienced along the northernmost portion of the middle school campus and only when basin maintenance activities are occurring within the southernmost basin. Regardless, the basin maintenance noise levels would not exceed the 70 dBA "maximum acceptable" threshold for school uses as established by the City of Beaumont General Plan.

In addition to basin maintenance activities, an irrigation pump, which would provide irrigation water for landscaping on the project site, would operate on the project site. The specific location for the proposed irrigation well is not known at this time, and thus, it is assumed that construction and operation of the well could occur anywhere within the recharge facility site where there is adequate room to construct a well and subsequently operate a groundwater pump. As such, as a worst-case situation, the drilling of the irrigation well could occur along the project site's southern boundary (directly adjacent to the Mountain View Middle School campus), along the western site boundary (immediately adjacent to Noble Creek Vistas Specific Plan's Planning Area 7), along the site's eastern boundary (140 feet from the Orchard Park Apartments property), or on the northeastern site corner (550 feet from the Beaumont High School campus). As shown in Table 3.8-10, if the irrigation well pump is constructed and operated along the recharge facility site's boundary, noise levels experienced at the nearest receptor properties would be between 57.1 dBA L_{eq} and 91.9 dBA L_{eq}. Accordingly, noise levels as a result of groundwater pumping and experienced at the Mountain View Middle School campus, Planning Area 7 of the Noble Creek Specific Plan, and the Orchard Park Apartments property would exceed the 70 and 65 dBA "maximum acceptable" threshold for school and residential uses, respectively, as established by the City of Beaumont General Plan. Thus, Mitigation Measures NOI-1 would be required to reduce potential noise impacts associated with operation of the groundwater pump to less than significant.

Table 3.8-10: Estimated Operational Noise Levels

Operational Activity	Nearest Noise-Sensitive Receptor	Distance from Operational Activities to Receptor[1] (feet)	Local Noise Threshold[2] (dBA L_{eq})	Operational Equipment Noise Levels at Receptor[3] (dBA L_{eq})
Annual Maintenance of the Recharge Basins	Mountain View Middle School	250	70	63.7
Irrigation Pump	Beaumont High School	550	70	57.1
	Mountain View Middle School	<10	70	91.9
	Noble Creek Specific Plan's Planning Area 7 (Future)	<10	65	91.9
	Orchard Park Apartments	140	65	69.0

Notes:
1 The distance from the project site boundary to the receptor's nearest property line.
2 Although the proposed project is exempt from building and zoning ordinances of a county or city in accordance with Sections 53091(d) and 53091(e) of the California Government Code as discussed in Section 1 of this Draft EIR, the SGPWA has chosen to use the local operational noise thresholds as thresholds for determining the project's potential noise impacts. Thresholds are taken from Beaumont General Plan Table 5-1.
3 Noise levels were estimated using the FHWA's RCNM. RCNM readouts are included in Appendix G.
Source: FirstCarbon Solutions, 2013.

Ongoing project operations would generate a nominal quantity of additional maintenance truck trips to the project sites. However, these trips would not occur on a daily basis and would not increase the noise levels on the nearby roadways. In addition, the annual maintenance operations associated with the recharge basins may require up to two haul trucks per day for five days.

Pipeline and Service Connection Site

Operation of both the pipeline and the service connection facility would not generate substantial noise levels in excess of noise standards established by the County of Riverside or the City of Beaumont. The pipeline would be located underground and, similar to other water pipelines in the project area, would not produce detectable noise levels above grade. Likewise, the service connection facility would contain mainly pipes, connections, meters, controls, and other associated infrastructure. No pumps are proposed at the service connection site. Some of the improvements at the service connection site would be located underground and within underground vaults, while others will be contained within a precast concrete structure. The service connection site is located within a residential area. As such, noise levels generated by the service connection facility are expected to comply with the 60 dBA "normally acceptable" threshold for residential uses as established by the City of Beaumont General Plan. In addition, the noise level attenuation afforded by the underground and enclosed locations of these improvements would further attenuate operational noise levels

produced by the service connection facility. Therefore, long-term operational impacts associated with the exceedance of standards established in the local general plan or noise ordinance would be less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

MM NOI-1 The pump associated with the proposed irrigation well shall be located a minimum of 150 feet from the southern property line, 250 feet from the western property line, and 110 feet from the eastern property line if the pump has no attenuation. If the irrigation pump is located closer to the existing property lines than identified above, the irrigation pump shall be housed in a structure that adequately attenuates noise levels so that the noise levels do not exceed the City of Beaumont noise regulations.

Level of Significance After Mitigation

Less than significant impact.

The implementation of Mitigation Measure NOI-1 will provide adequate attenuation of the noise levels from the irrigation pump through either the provision of an adequate setback or a structure to enclose the pump. The resultant noise levels will not exceed the City of Beaumont noise regulations.

Excessive Groundborne Vibration

Impact NOI-2	**The project would not result in expose persons to or generation of excessive groundborne vibration or groundborne noise levels.**

Impact Analysis

Short-Term Construction Impacts

Construction of the recharge facility, the pipeline alignment, and the service connection facility would generate lower levels of groundborne vibration. In particular, earthmoving activities on the recharge facility site and excavation activities along the pipeline alignment would generate perceivable levels of groundborne vibration at close range. However, project construction would not require the use of equipment known to generate substantial levels of groundborne vibration such as jackhammers, impact hammers, and pile drivers. The significance of groundborne vibration impacts is primarily dependent on the type and location of construction equipment and activities occurring on a particular project site. Table 3.8-11 provides vibration velocity levels for common types of construction equipment similar to those that would be used during project construction.

Table 3.8-11: Representative Vibration Source Levels for Construction Equipment

Equipment	PPV at 25 Feet (in/sec)[1]	PPV at 50 Feet (in/sec)[1]	PPV at 75 Feet (in/sec)[1]
Large Bulldozer	0.089	0.031	0.017
Caisson Drilling	0.089	0.031	0.017
Loaded Trucks	0.076	0.027	0.015
Small Bulldozer	0.003	0.001	0.000

Notes:
[1] Source: Federal Transit Administration, 2006
Source: FirstCarbon Solutions, 2013.

Groundborne vibration impacts are mainly the result of the proximity of construction equipment to sensitive receptors and structures. Project construction would occur 50 feet or more from any adjacent existing structure and any potentially sensitive receptor contained within. At these distances, expected groundborne vibration levels would fall well below Caltrans's 0.5 PPV damage potential threshold for continuous/frequently intermittent sources (2.0 PPV for transient sources). In terms of human annoyance, groundborne vibration levels would fall below the "distinctly perceptible" perception level identified by Caltrans. In addition, use of construction equipment would occur intermittently throughout the workday, with equipment being operated at different power levels over the course of the day. As a result, no one in the project vicinity would be exposed to continuous vibration impacts. Therefore, short-term construction impacts associated with groundborne vibration would be less than significant.

Long-Term Operational Impacts

Once operational, the recharge facility would require periodic maintenance. Each recharge basin may require servicing on an annual basis. Maintenance activities would involve temporarily taking an individual basin out of commission, allowing the basin to thoroughly dry over several weeks, re-grading and ripping the basin bottom with a dozer, and, if necessary, re-grading and tracking the basin slopes, although this final step in not expected to be regularly required. Each basin would take approximately one day to grade, rip, and track.

Use of a dozer during maintenance activities would be the primary source of operational groundborne vibration on the recharge facility. As shown in Table 3.8-11, as a result of these maintenance activities, groundborne vibration levels expected at the nearest classroom buildings on the Mountain View Middle School campus, which are approximately 180 feet from the nearest proposed basin, would fall well below Caltrans's 0.5 PPV damage potential threshold for continuous/frequently intermittent sources (2.0 PPV for transient sources). In terms of human annoyance, groundborne vibration levels would fall below the "barely perceptible" perception level identified by Caltrans.

Therefore, long-term operational impacts associated with groundborne vibration would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.

Permanent Increase in Ambient Noise Levels

Impact NOI-3	**The project would not result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.**

Impact Analysis

As addressed in Impact NOI-1, operation of the recharge facility, pipeline, and service connection facility would not generate noise levels in excess of those noise standards established by the City of Beaumont or County of the Riverside General Plan. The City and County established their respective long term noise level regulations to preserve the existing noise environment, avoid land use compatibility issues, and prevent annoyance and harm to nearby receptors. By complying with these long-term noise standards, the project would help preserve the existing noise levels in the project area, while not resulting in a substantial increase in ambient levels over the life of the project.

Once operational, the recharge facility would require periodic maintenance. Each recharge basin may require servicing on an annual basis. Maintenance activities would involve temporarily taking an individual basin out of commission, allowing the basin to thoroughly dry over several weeks, re-grading and ripping the basin bottom with a dozer, and, if necessary, re-grading and tracking the basin slopes, although this final step in not expected to be regularly required. Each basin would take approximately one day to grade, rip, and track.

Use of a dozer during basin maintenance activities and operation of an irrigation pump would be the primary sources of operational noise on the recharge facility. As shown in Table 3.8-10, noise levels expected at the Mountain View Middle School campus as a result of these temporary annual maintenance activities would be 63.7 dBA. These noise levels would be experienced along the northernmost portion of the middle school campus and only when basin maintenance activities are occurring within the southernmost basin. Regardless, the basin maintenance noise levels would not exceed the 70 dBA “maximum acceptable” threshold for school uses as established by the City of Beaumont General Plan.

In addition to basin maintenance activities, an irrigation pump, which would provide irrigation water for landscaping on the project site, would operate on the project site. The specific location for the proposed irrigation well is not known at this time, and thus, it is assumed that construction and operation of the well could occur anywhere within the recharge facility site where there is adequate room to construct a well and subsequently operate a groundwater pump. As such, as a worst-case evaluation, the drilling of the irrigation well could occur along the project site's southern boundary (directly adjacent to the Mountain View Middle School campus), along the western site boundary (immediately adjacent to Noble Creek Vistas Specific Plan's Planning Area 7), along the site's eastern boundary (140 feet from the Orchard Park Apartments property), or on the northeastern site corner (550 feet from the Beaumont High School campus). As shown in Table 3.8-10, if the irrigation pump is constructed and operated along the recharge facility site's boundary, noise levels experienced at the nearest receptor properties would be between 57.1 dBA L_{eq} and 91.9 dBA L_{eq}. Accordingly, noise levels as a result of groundwater pumping and experienced at the Mountain View Middle School campus, Planning Area 7 of the Noble Creek Specific Plan, and the Orchard Park Apartments property would exceed the 70 and 65 dBA "maximum acceptable" threshold for school and residential uses, respectively, as established by the City of Beaumont General Plan. Thus, Mitigation Measure NOI-1 would be required to reduce potential noise impacts associated with operation of the irrigation pump to less than significant.

Level of Significance Before Mitigation

Potentially significant impact.

Mitigation Measures

The implementation of Mitigation Measure NOI-1 is required.

Level of Significance After Mitigation

Less than significant impact.

The implementation of Mitigation Measure NOI-1 would provide adequate attenuation through a setback or a structure to reduce noise levels so that they do not exceed the City of Beaumont regulations.

Temporary or Periodic Increase in Ambient Noise Levels

Impact NOI-4	**The project would not result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.**

Impact Analysis

Based on a review of the noise standards established by both the City of Beaumont and the County of Riverside, construction noise levels associated with the proposed project are exempt during the daytime hours (between 6 a.m. and 8 p.m.) in the City of Beaumont and all times within the County of Riverside. As such, the construction activities associated with the project that will occur during the daytime hours will not exceed either the City of Beaumont or County of Riverside noise standards. In

addition, the City of Beaumont prohibits construction noise between the hours of 8 p.m. and 6 a.m. Although the City of Beaumont prohibits construction noise during the evening and nighttime hours (i.e., between 8 pm and 6 am), the SGPWA has chosen not to use the City's evening and nightitme construction noise level standard as a threshold for determining the project's noise impact during construction of the irrigation well, which will be required to occur during a continuous 24-hour period over approximately two days. As discussed in Section 1, Introduction, of this Draft EIR, the proposed project is exempt from building and zoning ordinances of a county or city in accordance with Sections 53091(d) and 53091(e) of the California Government Code.

However, while both the proposed project's daytime construction activities and nighttime construction activities associated with the drilling of the irrigation well are exempt, construction noise can still result in a temporary or periodic increase in ambient noise levels in the project vicinity. The following provides an evaluation of the potential for noise produced during project construction to cause physical harm to nearby noise-sensitive receptors.

The OSHA has adopted noise exposure thresholds, which establish the highest permissible exposure limit based on periods of exposure. The permissible noise exposure limit increases with shorter periods of exposure. OSHA allows a noise exposure level of 90 dB over an eight-hour exposure period. The highest permissible noise exposure limit increases to 92 dB for a six-hour exposure period, 95 dB for four hours of exposure, 97 dB for a three-hour period, and 105 dB for one hour of exposure. The highest permissible noise exposure level for periods of 15 minutes or less is 115 dB. Exposure to impulsive or impact noise cannot exceed 140 dB peak sound pressure level. It is important to note that these noise exposure limits apply only to employees in the workplace, but are useful in understanding noise exposure levels with regard to potential hearing loss and physiological damage.

As shown in Table 3.8-9, short-term, intermittent construction noise levels are expected to be up to 95.7 dBA L_{eq} at the Mountain View Middle School campus and 90.2 dBA L_{eq} at the residential property on the southeastern corner of Beaumont Avenue and Orchard Street. Construction noise levels at the middle school campus would comply with OHSA exposure thresholds for time periods of three-hour, one-hour, and 15-minutes or less. Students, teachers, and administrators would experience these projected noise levels only when outside of their classroom, whether for recess, lunch, or physical education and standing near the property line. None of these activities are expected to collectively exceed three-hours during a typical school day, and thus, students and educators would not experience noise levels that exceed OSHA exposure thresholds. Similarly, the residential property at Beaumont Avenue and Orchard Street would experience noise levels that would comply with OSHA's 6-hour, 3-hour, 1-hour, and 15-minute or less exposure thresholds. Residents would experience the aforementioned projected noise levels only when outside of their residence. Since these residents would have to be exposed to these projected noise levels for six hours or more during a single construction workday, and since the estimated noise levels represent a "worst-case" scenario

that is unlikely to occur, it is not expected that construction noise levels would exceed exposure limits adopted by OSHA. As a result, project construction would not exceed noise levels recognized as causing harm to nearby receptors. Furthermore, both the City and County include provisions in their respective noise ordinances that exclude the project from complying with these noise requirements. Section 9.02.060, Prohibited Noise-Exemptions, of the Beaumont Municipal Code exempts activities performed in connection with public works projects, public service projects and public utilities services from the provisions of the City's noise ordinance. Section 9.52.020, Exemptions, of the Riverside County Code of Ordinances exempts sound emanating from capital improvement projects of a governmental agency, such as SGPWA, from the provisions of the County's noise standards.

Based on exemptions contained within both the Beaumont Municipal Code and the Riverside County Code of Ordinances for daytime construction noise and the exemption for nighttime construction contained in California Government Code Sections 53091(d) and 53091(e) for the project, noise generated during project construction would be exempt. Furthermore, the temporary increase in noise levels due to construction activities would not expose sensitive receptors (i.e., residents and school attendees) to harmful noise levels as discussed above. Therefore, the temporary or periodic increase in ambient noise levels associated with project construction activities would be less than significant.

Level of Significance Before Mitigation

Less than significant impact.

Mitigation Measures

No mitigation measures are required.

Level of Significance After Mitigation

Less than significant impact.