Appendix H

Noise Assessment

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NOISE ASSESSMENT

VIDAL SOLAR PROJECT

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GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. L_{eq} is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (Ldn): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, Ldn's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F,S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts associated with the development of the proposed Vidal Solar Project located on 21 privately owned parcels totaling approximately 1,220 gross acres. The Project is located approximately 2.5 miles southeast of the unincorporated community of Vidal in the southeastern portion of San Bernardino County, CA. Existing development in the area includes rural access roads and scattered abandoned rural residences. Current land use within the Project site includes one rural residence and several WAPA towers.

Construction

Based on the adjacent land uses, the vacant parcels surrounding the project are considered sensitive. However, short-term construction related impacts are not expected since the parcels will not be occupied at the time of construction. The nearest occupied sensitive receptor is the existing residence located over 1,600 feet to the north along Old Parker Road. Noise levels from construction equipment have the potential to exceed 80 dBA at a distance of 80 feet. At over 1,600 feet to the nearest residence, noise levels due to construction would be reduced a minimum of 30 dBA and would not contribute to the overall ambient noise levels. Project construction noise levels are considered exempt if activities occur within the hours specified in the County of San Bernardino Development Code, Section 83.01.080 of 7:00 a.m. to 7:00 p.m., except Sundays and Federal holidays. At the time of this analysis, no Project construction activity is planned outside these hours. Therefore, no impacts are anticipated and no mitigation is required during construction of the proposed Project. Additionally, all equipment should be properly fitted with mufflers and all staging and maintenance should be conducted as far away as possible from the existing residence.

Operations

Based on the empirical data as referenced in Section 3, the manufacturer specifications, and distances to the property lines the cumulative noise levels from the proposed battery energy storage systems, transformers, and inverters were found to meet the most restrictive nighttime property line standard of 45 dBA at the nearest property lines. Additionally, all daytime activities (i.e., panel washing) will meet the daytime property line standard of 55 dBA at the nearest property lines. Although the adjacent property lines are currently vacant, it is considered sensitive as they have the potential of becoming occupied during the life of the project and must be analyzed. Currently, the nearest occupied sensitive receptor is the existing residence located over 1,600 feet to the north along Old Parker Road. Therefore, no impacts at the adjacent property lines and the existing residence are anticipated and no mitigation measures are required.

1.0 INTRODUCTION

This noise study was completed to determine the noise impacts associated with the development of the proposed Vidal Solar Project. The Project is generally located at 34° 5′ 35″ N and 114° 27′ 50″ W, approximately 2.5 miles southeast of the unincorporated community of Vidal in southeastern San Bernardino County. The general location of the Project is shown on the Vicinity Map, Figure 1-A.

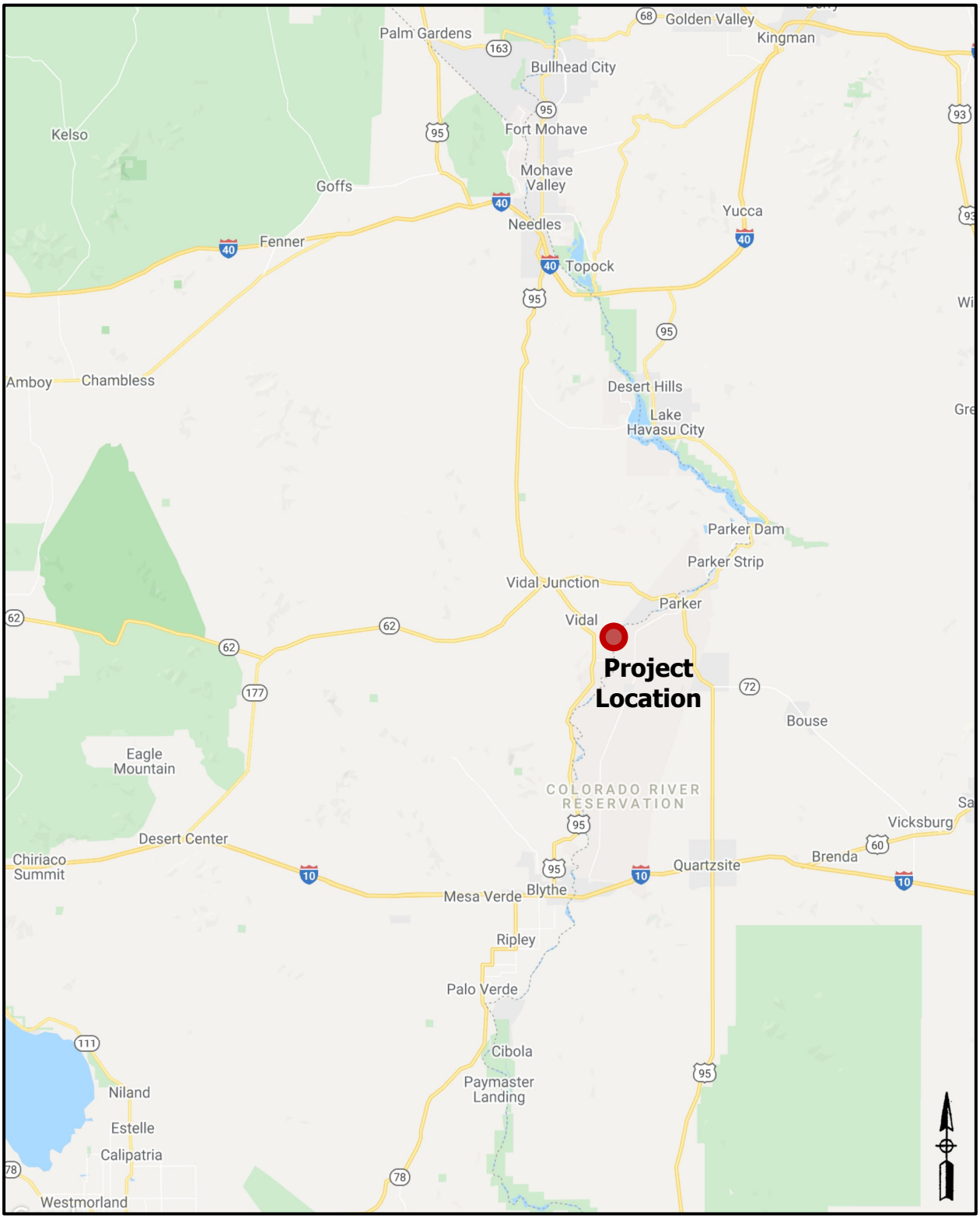
1.1 Project Description

The Vidal Solar Project (Proposed Project) site is located approximately 2.5 miles southeast of Vidal, an unincorporated area of San Bernardino County (County) that is located just east of U.S. Route 95, just north of the Riverside County border, and just west of the Colorado River (see Figure 1-A). The Project site encompasses 1,220 acres within 21 privately-owned parcels (in their entirety and portions of) that are in the process of lease acquisition by CORE (Project proponent). The owned parcels encompass approximately 783 acres, property pending ownership covers approximately 120 acres, and properties for sub-lease cover approximately 317 acres. The owned parcels are located on the western side of the Project site and the sub-lease area is located adjacent to the Colorado River Indian Reservation on the eastern side of the Project site.

The proposed Project includes the construction and operation of a 1,220 acre photovoltaic (PV) and battery energy storage system (BESS) facility to generate renewable energy. The Project will provide 160 megawatts of alternating current (MW-AC) of renewable energy, up to 640 MWh of energy storage capacity rate, and would be supported by the existing, adjacent Western Area Power Administration (WAPA) 161 kV overhead transmission corridor. The facility would include the construction of one on-site substation facility which would collect and convert the power generated onsite for transmission in an overhead or underground line to the WAPA transmission system and interconnection location. The Project's permanent facilities would include PV panels, BESS, fencing, service roads, a power collection system, communication cables, overhead and underground transmission lines, electrical switchyards, a Project substation, and operations and maintenance facilities. The Project Development Plan is shown on Figure 1-B of this report.

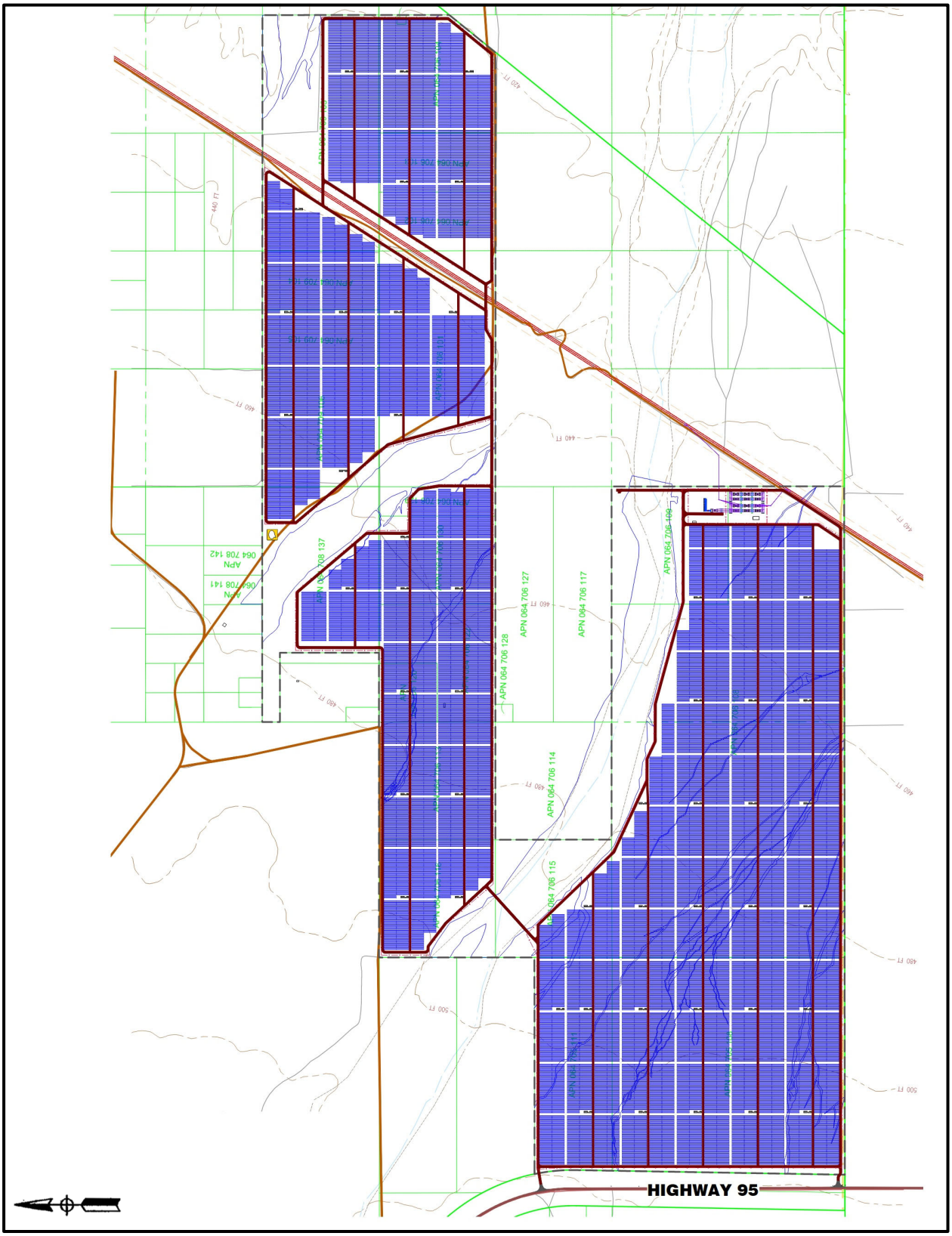
The Project site is located within the Desert Region's East Desert Fundamental Community planning area of the County. The County's Zoning Map identifies the zoning of the Project site as Resource Conservation (RC; County Zoning Map). The RC land use zoning district provides sites for open space and recreational activities, single-family homes on very large parcels, and similar and compatible uses. Commercial renewable energy facilities are an allowable land use within the RC land use zoning district (County Development Code 2007). Existing development in the area includes rural access roads and scattered abandoned rural residences. Current land use within the Project site includes one rural residence and several WAPA towers.

Figure 1-A: Project Vicinity Map



Source: Google Maps, 2021

Figure 1-B: Overall Project Layout



Source: Core Development Group, 2021

Solar Generator and Power Conversion Stations (Inverters)

The Project would utilize up to 160 MW-AC PV system blocks to convert solar energy directly to electrical power for export to the electrical grid. The total BESS capacity for the PV site is 640 megawatt hours (MWh). Solar power is generated through PV modules converting sunlight striking the modules directly to low-voltage direct-current (DC) power, which is subsequently transformed to alternating-current (AC) power via an inverter that is placed on site. The Project would develop modules utilizing either fixed tilt or tracker technology. Trackers tilt the panels to follow the course of the sun, optimizing the incident angle of sunlight on their surface. The PV panel modules are mounted on steel support posts that are pile driven into the ground. The arrays are typically placed on an aluminum rail, such that with a maximum tilt of 52 degrees, the top of the array would be a maximum of 18 feet above grade at the tallest point and approximately 2 feet above the grade at the lowest point.

The PV modules are made of semiconductor material encapsulated in glass in which the PV effect converts light (photons) into electrical current. PV is best known as a method for generating electric power by using solar cells to convert energy from the sun into electricity. Energy from the sun is transmitted to the Earth as photons, which contain different levels of energy corresponding to different frequencies of the solar spectrum. When a photon is absorbed by a PV cell, the energy of the photon is transferred to an electron in an atom within the PV cell. This added energy allows the electron to escape from the atom to become part of the current in an electrical circuit.

Within the proposed solar arrays located across the Project site would be power conversion stations (PCS), also known as inverters that would contain at a minimum one inverter and one transformer. Inverters are usually housed within an enclosed structure, which helps to reduce the resulting operational noise levels. In addition, PCS would also be anticipated to include an exhaust fan, as well as a heating, ventilation, and air conditioning (HVAC) system, which is typically mounted to the exterior of the enclosure. Noise levels generated by PCS would be associated with operation of the inverters, transformer, exhaust fans, and HVAC systems.

Battery Storage

The Project would include a BESS with a capacity of 640 MWh. The BESS would likely consist of containers housing batteries connected in strings and mounted on racks. The container would likely include a transformer, monitoring equipment, and lighting and cooling equipment. However, some BESS equipment (e.g., inverters, auxiliary transformer to control the HVAC system) may be adjacent to the container instead of located within the container. The Project would utilize up to 47 containers (depending on container dimensions). Each container would be up to 80 feet long by 8 feet wide and 8 feet tall.

There are two different locations and methods of storage proposed for BESS, these include: (1) all BESS containers consolidated within the Project substation area; or (2) BESS equipment distributed throughout the Project's solar arrays by co-locating a single BESS container with each of the Project's block inverters with the BESS and the inverter housed in or near the same container. Method 1, if fully employed, would require approximately 7.1 acres within the Project substation area to house the BESS containers. Using Method 2, the BESS containers would contain batteries only and the inverters would remain central to the solar array blocks. Batteries would be co-located with PV arrays and DC coupled and would share the PV inverters and transformers and have their own DC/DC converter that would either be on its own foundation, on the same skid as the inverters, or in the container with the batteries; this is dependent on the design.

The Project design includes shielded and motion-activated lighting and safety features within each container. The containers are equipped with a door on each end and include fire detection and fire suppression systems. Cables and cooling pipes would pass through the container floor. The container would have unobtrusive external painting that would blend in with the natural terrain and landscape.

Access and Maintenance Roads

Primary access to the Project from the regional transportation system would be gained by exiting U.S Route 95 (US 95) directly onto a Project-controlled, dirt access road on the west side of the Project site. While existing roads would be utilized to the greatest extent possible, potential new unpaved roads may need to be constructed off site to serve as access roads from the existing road network to the Project. Any new road surrounding the Project site would be a minimum of 20 feet wide for fire department and emergency vehicles. Additional internal maintenance roads would be located throughout the Project site. Spacing between each row would depend on final panel type, orientation, and any County regulations. Internal access roads would be up to 20 feet wide and would be cleared and compacted for equipment and emergency vehicle travel and access to the solar blocks. These Project site access roads would remain in place for ongoing operations and maintenance activities after construction is completed.

1.2 Environmental Settings & Existing Conditions

The Project site is located within the Desert Region's East Desert Fundamental Community planning area of the County. The County's Zoning Map identifies the zoning of the Project site as Resource Conservation (RC; County Zoning Map). The RC land use zoning district provides sites for open space and recreational activities, single-family homes on very large parcels, and similar and compatible uses. Commercial renewable energy facilities are an allowable land use within the RC land use zoning district (County Development Code 2007). Existing development in the area

includes rural access roads and scattered rural residences. Current land use within the Project site includes one rural residence and several WAPA towers. US Route 95 (US 95) borders the Project to the west and is classified as a Major Highway in the County of San Bernardino's Circulation Element. Existing noise occurs mainly from onsite and nearby agricultural activities and minor background noise from vehicular traffic traveling on US Route 95 to the west.

Existing Ambient Noise Environment

Noise sources at the site consist primarily of traffic along US Route 95 and State Route 62. Since there have been no ambient noise measurements either at the Proposed Project site or the nearest land uses, estimates were made utilizing the traffic volumes identified in the 2020 Traffic Data and Truck Volumes on a State Highway by the California Department of Transportation (Caltrans). Based on traffic data, that segment of US Route 95 north of State Route 62 has a traffic volume of 2,900 Average Daily Traffic (ADT) and a posted speed limit of 55 MPH. Truck traffic makes up approximately 25 percent of the ADT. At distances of 50 feet to from US Route 95, using soft propagation, the ambient noise would be approximately 70 dBA and at a distance of 200 feet would drop to 61 dBA CNEL (Community Noise Equivalent Level). Conservatively, the noise levels during the nighttime hours could be 10 decibels lower.

1.3 Methodology

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs and when the noise occurs. Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as L_{eq} represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The CNEL is the 24 hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 dB to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 dB to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic

noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having grade changes, landscaped areas and vegetation. On the other hand, fixed/point sources radiate outward uniformly as it travels away from the source and the sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source, blocking the noise transmission with barriers or relocating the receiver. Any or all of these methods could be required to reduce noise levels to an acceptable level.

2.0 CONSTRUCTION ACTIVITIES

2.1 Guidelines for the Determination of Significance

The County of San Bernardino Development Code has set restrictions to control noise impacts associated with the construction of the proposed Project. According to Section 83.01.080, Project construction noise levels are considered exempt if activities occur within the hours of 7:00 a.m. to 7:00 p.m., except Sundays and Federal holidays.

2.2 Construction Noise Prediction Methodology

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction equipment includes haul trucks, water trucks, graders, dozers, loaders and scrapers can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) has compiled data regarding the noise generating characteristics of specific types of construction equipment. Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor and reduced to 63 dBA at 200 feet from the source.

The project site is generally flat and no significant grading activities are anticipated. Grading activities would be limited to minor grade adjustments required for equipment installation.

2.3 Potential Construction Noise Impacts

Based on the adjacent land uses, the vacant parcels surrounding the project are considered sensitive. However, short-term construction related impacts are not expected since the parcels will not be occupied at the time of construction. The nearest occupied sensitive receptor is the existing residence located over 1,600 feet to the north along Old Parker Road. Noise levels from construction equipment have the potential to exceed 80 dBA at a distance of 80 feet. At over 1,600 feet to the nearest residence, noise levels due to construction would be reduced a minimum of 30 dBA and would not contribute to the overall ambient noise levels. At the time of this analysis, no Project construction activity is planned outside the hours of 7:00 a.m. to 7:00 p.m. and would be considered exempt from County of San Bernardino Development Code. Therefore, no impacts are anticipated and no mitigation is required during construction of the proposed Project. Additionally, all equipment should be properly fitted with mufflers and all staging and maintenance

should be conducted as far away for the existing residence as possible.

3.0 OPERATIONAL ACTIVITIES

3.1 Guidelines for the Determination of Significance

To analyze noise impacts originating from a designated fixed location or private property, stationary-source (operational) noise such as the expected transformers, inverters, BESS, substation, and PV trackers are typically evaluated against standards established under a jurisdiction's Municipal Code. Therefore, to accurately describe the potential Project-related operational noise levels, this analysis presents the appropriate stationary-source noise level standards from the County of San Bernardino County Code, Title 8 Development Code.

The County of San Bernardino County Code, Title 8 Development Code, Section 83.01.080(c) establishes the noise level standards for stationary noise sources. Since the Project's proposed land use will potentially impact adjacent noise-sensitive uses in the Project study area, this noise study relies on the more conservative residential noise level standards to describe potential operational noise impacts. For residential properties, the exterior noise level shall not exceed 55 dBA L_{eq} during the daytime hours (7:00 a.m. to 10:00 p.m.) and 45 dBA L_{eq} during the nighttime hours (10:00 p.m. to 7:00 a.m.). The County of San Bernardino operational noise level standards are shown in Table 3-1 below.

Table 3-1: Noise Standards for Stationary Noise Sources

Affected Land Uses (Receiving Noise)	7:00 a.m. – 10:00 p.m. L_{eq}	10:00 p.m. – 7:00 a.m. L_{eq}
Residential	55 dBA	45 dBA
Professional Services	55 dBA	55 dBA
Other Commercial	60 dBA	60 dBA
Industrial	70 dBA	70 dBA
Source: Section 83.01.080, Table 83-2 of the County of San Bernardino Development Code		

As stated above in Section 1, The Project site is within the Desert Region's East Desert Fundamental Community planning area of San Bernardino County's General Plan. The County's Zoning Map identifies the zoning of the Project site as Resource Conservation (RC; County Zoning Map). The RC land use zoning district provides sites for open space and recreational activities, single-family homes on very large parcels, and similar and compatible uses. Commercial renewable energy facilities are an allowable land use within the RC land use zoning district (County Development Code 2007). Existing development in the area includes rural access roads and scattered rural residences. Current land use within the Project site includes one vacant rural

residence, garage storage areas, and several WAPA towers.

The surrounding land uses are also within the Resource Conversation land use zoning district, therefore are considered noise-sensitive land uses (NSLUs) of single-family residences. The nearest occupied residence is located over 1,600 feet to the north along Old Parker Road. Section 83.01.080 of the County's Development Code sets a most restrictive operational exterior noise limit for residential noise sensitive land uses of 55 dBA L_{eq} for daytime hours of 7 a.m. to 10 p.m. and 45 dBA L_{eq} during the noise sensitive nighttime hours of 10 p.m. to 7 a.m. as shown in Table 3-1 above. Most of the Project components will only operate during the daytime hours but a few may operate during nighttime or early morning hours and therefore the most restrictive and conservative approach is to apply the 45 dBA L_{eq} nighttime standard at the property lines.

3.2 Potential Operational Noise Impacts

This section examines the potential stationary noise source impacts associated with the operation of the proposed Vidal Solar Project. Specifically, noise levels from the proposed transformers, inverters, BESS, substation, and PV tracking motors. Panels would be electrically connected into panel strings using wiring attached to the racking. Panel strings would be electrically connected to each other via underground wiring. Wire depths would be in accordance with local, State, and Federal codes. Gathering lines would connect individual panel strings to one or more inverters/transformers and combiner boxes distributed throughout the facility. Wiring from the panel strings are connected to combiner boxes. The electrical current is then transferred to the inverters, which convert the Direct Current (DC) produced by the PV solar panels into Alternating Current (AC). A pad-mounted transformer next to the inverter would increase the voltage. The AC would then travel through underground gathering lines to the Project Substation.

Each inverter station would contain at a minimum one inverter and one transformer. This equipment would be installed on concrete pads. Central inverters would be utilized for the Proposed Project. Central Inverters are generally clustered in 2 to 3 MWac equipment pads. Each inverter station would be equipped with a step-up transformer to convert the power output from the inverters from 550–400 V AC on the "low side" to 34.5 kV on the "high side." It is estimated that a total of 48 inverter stations would be required for the Proposed Project. The maximum dimensions of each station would be 21.7 feet by 7 feet, and 7 feet in height. The total number of inverter stations and the overall dimensions of each inverter station depends on the number and capacity of inverters included in each inverter station, which would be determined during final design.

The Project would include a BESS with a capacity of 640 MWh. The BESS would likely consist of containers housing batteries connected in strings and mounted on racks. The container would likely include a transformer, monitoring equipment, and lighting and cooling equipment. However,

some BESS equipment (e.g., inverters, auxiliary transformer to control the HVAC system) may be adjacent to the container instead of located within the container. The Project would utilize up to 47 containers (depending on container dimensions). Each container would be up to 80 feet long by 8 feet wide and 8 feet tall. The location of inverter/transformer stations and BESS units on the site are illustrated on Figure 3-A.

Inverters and Transformers

The single-axis rack system (PV) will be equipped with a tracker motor to rotate the PV panels. The proposed HEM FS3350M Inverters have a noise level rating of 79 dB at 3 feet (Power Electronics). There will be a transformer along with a set of inverters. The proposed transformers have an unshielded noise rating of less than 65 dBA at 1 feet *(Source: National Electric Manufactures Association (NEMA) Publication No. TR 1-1993)*.

The inverter/transformer equipment represents the most substantial noise source in the panel array areas, compared to tracker and substation noise. The distance spacing between inverters/transformers is such that a given point on the Project Site may be exposed to noise from more than a single inverter station. For this reason, property line noise exposure should evaluate the combined noise from the closest inverter stations.

Battery Energy Storage System (BESS)

In order to examine the potential stationary noise source impacts associated with the operation of the proposed BESS, reference noise levels were used for the transformer (*Source: National Electric Manufactures Association (NEMA) Publication No. TR 1-1993).* Additionally, sound level measurements were taken for the proposed battery storage containers.

The proposed battery storage containers were tested and found to have an unshielded noise rating of 75 dBA at 1 meter (3 feet). The Project could potentially use 3,000 kVA transformers with unshielded noise levels anticipated to be 71 dBA at 3 feet (Source: National Electric Manufactures Association (NEMA) Publication No. TR 1-1993).

Substation Transformer

The Project requires the use of a private on-site collector substation that would be located within the southeast portion of the Project site (refer to Figure 2-A). The purpose of the substation is to collect the energy received and increase the voltage from 34.5–138 kV. Once the voltage is stepped up to 138kV, the power would be conveyed through the gen-tie line to the regional substation. The transformer at the on-site substation would be either a 50 MVA or 70 MVA step up transformer. A transformer with 50 MVA or 70 MVA capacity has a noise level rating of 72 dB

at 5 feet (Delta Star 2012 as provided in the certified Soitec PEIR, 2015).

Tracker Motors

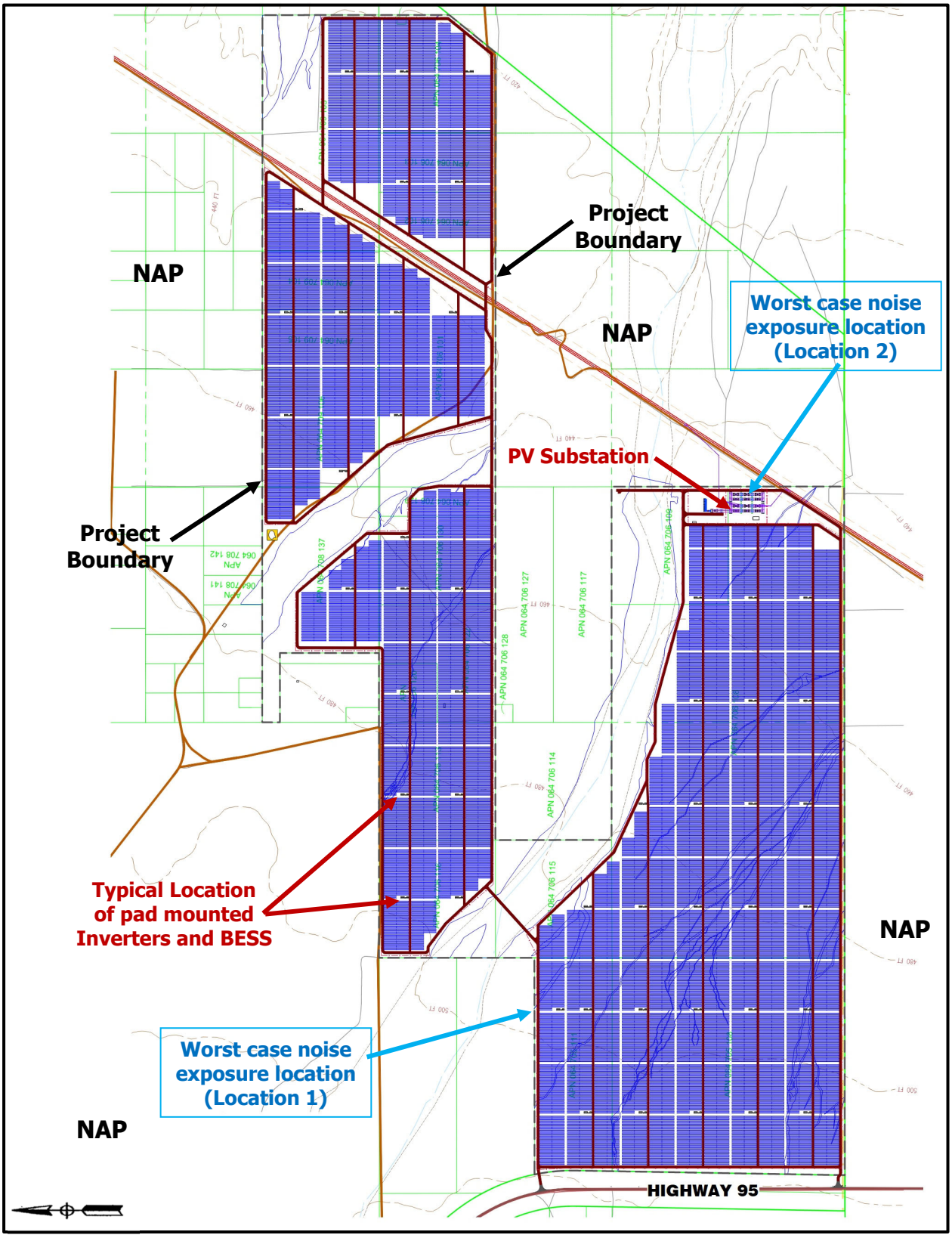
The noise levels from the proposed PV tracker motors combined with the dryers/blowers needed to remove condensation from the panels was found to be 44 dBA at 50 feet *(Source: Empirical data collected for the Rugged Solar Project – AECOM, September 30, 2011).* This noise level would be the hourly level if the equipment were to operate for an entire hour.

Panel Washing

Panel washing is anticipated to occur approximately one time per year and would take approximately 4-8 weeks to complete. Washing of the photovoltaic panels/arrays would generally occur during the daytime hours of 7am -10pm. During panel/array washing times, the Project's power system would still be operational. Therefore, the panel washing activity is addressed cumulatively with other operational noise sources.

Noise exposure from the proposed operation of the solar panel wash station was found to have a reference maximum sound power level of 99 dB at 9 feet. This would equate to a sound pressure level of 67 dBA at 9 feet (Source: Honda Engines, 2011). To reduce the noise level of 67 dBA to the County's most restrictive 55 dBA threshold the wash station would need to be located 35 feet from the nearest property line. At a distance of 80 feet, the panel washing would result in and property line noise level of 48 dBA. Since the paneling washing equipment will not be located near a property line for an hour or more and will be moving farther away from the property line as washing is conducted, no impacts are anticipated and no mitigation measures are required.

Figure 3-A: Proposed Equipment Locations



Cumulative Operational Noise Levels

The nearest occupied sensitive receptor is the existing residence located 1,600 feet to the north along Old Parker Road. However, based on the adjacent land uses, the vacant parcels surrounding the project are considered sensitive since they have the potential of become occupied during the life of the project and therefore, are required to be analyzed. To determine the locations of the worst case noise exposure, the site plan was used to determine the shortest distances to the proposed equipment locations. Based on the distances, the worst case noise exposure would occur at two locations within the southern most subarea of the Project. The remainder of the planned Areas have less equipment and more distance separation from the equipment to the associated property lines. The location and relationship to the worst case property lines are identified in Figure 3-A above.

The noise levels of the transformers, inverters, substation, and multiple PV tracker motors were combined and propagated out to the worst case property lines at a common location. The results of the propagated noise levels are shown in Tables 3-2 and 3-3 for Location 1 and Location 2, respectively. The combined noise level at the nearest property lines were projected to be 45 dBA L_{eq} or less based on the proposed site configuration and the proposed equipment as described above. Since not all equipment will be simultaneously operating no impacts are anticipated and the Project will comply with the most restrictive nighttime property line standard of 45 dBA L_{eq} and no mitigation is needed.

Table 3-2: Operational Noise Levels – Location 1

Source	Distance from Source to Measurement Location (Feet)	Sources at that Common Distance	Noise Levels Combined (dBA)	Distance to Nearest Property Line (Feet)	Noise Reduction due to distance (dBA)	Resultant Noise Level @ Property Line (dBA L_{eq})
Transformer	3	1	71	270	-49	32
Inverter	3	1	79	270	-39	40
BESS	3	1	75	320	-41	34
Transformer	1	1	65	270	-49	16
Inverter	3	1	79	270	-39	40
BESS	3	1	75	320	-41	34
Tracker	50	1	44	80	-4	40
Cumulative Noise Level @ Property Line (dBA L_{eq})						**44**

Table 3-3: Operational Noise Levels – Location 2

Source	Distance from Source to Measurement Location (Feet)	Sources at that Common Distance	Noise Levels Combined (dBA)	Distance to Nearest Property Line (Feet)	Noise Reduction due to distance (dBA)	Resultant Noise Level @ Property Line (dBA L_{eq})
Transformer	3	3	71	1240	-52	23
Inverter	3	3	79	1240	-52	31
BESS	3	3	75	1240	-52	27
Substation	5	1	72	340	-37	35
Tracker	50	1	44	80	-4	25
Cumulative Noise Level @ Property Line (dBA L_{eq})						**38**

Cumulatively, the panel washing noise level of 48 dBA combined with the transformer and inverter noise levels (as shown in Tables 3-2 and 3-3 above) would result in an overall cumulative noise level of 50 dBA or less. Since the panel washing equipment would only operate during the daytime hours of 7 am and 10pm, the noise levels would not exceed the County's daytime threshold of 55 dBA. Additionally, the paneling washing will be moving farther away from the property line as washing is conducted. Although the adjacent property lines are currently vacant, it is considered sensitive as they have the potential of becoming occupied during the life of the project and must be analyzed. Currently, the nearest occupied sensitive receptor is the existing residence located over 1,600 feet to the north along Old Parker Road. Therefore, no impacts at the adjacent property lines and the existing residence are anticipated and no mitigation measures are required.

3.3 Conclusions

Based on the empirical data, the manufacturer specifications and distances to the property lines the cumulative noise levels from the proposed battery energy storage systems, transformers, and inverters were found to meet the most restrictive nighttime property line standard of 45 dBA at the nearest property lines. Additionally, all daytime activities (i.e., panel washing) will meet the daytime property line standard of 55 dBA at the nearest property lines. The nearest sensitive receptors are the adjacent property lines. Additionally, the nearest occupied sensitive receptor is the existing residence located over 1,600 feet to the north along Old Parker Road. Therefore, no impacts at the adjacent property lines and the existing residence are anticipated and no mitigation measures are required.

4.0 SUMMARY OF PROJECT IMPACTS, MITIGATION & CONCLUSIONS

- Construction Noise Analysis

  Project construction noise levels are considered exempt if activities occur within the hours specified in the County of San Bernardino Development Code, Section 83.01.080 of 7:00 a.m. to 7:00 p.m., except Sundays and Federal holidays. At the time of this analysis, no Project construction activity is planned outside these hours. Therefore, no impacts are anticipated and no mitigation is required during construction of the proposed Project. Additionally, all equipment should be properly fitted with mufflers and all staging and maintenance should be conducted as far away for the existing residence as possible.

- Operational Noise Analysis

  Based on the empirical data, the manufactures specifications and the distances to the property lines the cumulative noise levels from the proposed battery energy storage systems, transformers, and inverters were found to meet the most restrictive nighttime property line standard of 45 dBA at the nearest property lines. Additionally, all daytime activities (i.e., panel washing) will meet the daytime property line standard of 55 dBA at the nearest property lines. No impacts are anticipated and no additional mitigation is required.