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March 15, 2024 00135.00006.000

Adam Hoch, PE QSD
City of Oceanside, Water Utilities Department
300 North Coast Highway
Oceanside, CA 92054

Subject: **Noise Letter Report for the La Salina Wastewater Treatment Plant Flow Diversion and Buccaneer Lift Station and Force Main Project**

Dear Mr. Hoch:

This letter presents the results of a noise letter report prepared by HELIX Environmental Planning, Inc. (HELIX) for the La Salina Wastewater Treatment Plant (LSWWTP) Flow Diversion and Buccaneer Lift Station and Force Main Project (project) located within the City of Oceanside (City), San Diego County, California. The proposed project involves several improvements to the City's wastewater and stormwater systems, including constructing new (and upgraded) wastewater conveyance facilities (including the Buccaneer Lift Station and Force Main) and upgrading existing stormwater treatment facilities, in addition to other site improvements.

This letter report is intended to summarize anticipated noise generated during construction and operation of the proposed project and provide an analysis of the proposed impacts in accordance with the California Environmental Quality Act (CEQA) and applicable federal, state, and local policy.

INTRODUCTION

Project Location

The project is located in the City of Oceanside in northwestern San Diego County. The LSWWTP site, within which the proposed Buccaneer Lift Station would be located, is located at 1330 Tait Street, one block east of the Pacific Ocean. The proposed Buccaneer Force Main is generally located along Oceanside Boulevard, to both the east and west of Interstate (I-)5. In addition, an alternative force main alignment is located along Garrison Street (Garrison Alternative) and a potential staging area is situated east of the intersection of Oceanside Boulevard and El Camino Real.

Project Description

The proposed project primarily involves the diversion of wastewater flows from the existing LSWWTP at 1330 Tait Street in Oceanside, which is past its useful life. Flows would be diverted to the San Luis Rey Water Reclamation Facility (SLRWRF) via the new Buccaneer Lift Station and Force Main. Several other improvements to the City's wastewater and stormwater system are necessary at the LSWWTP site and are included as part of the proposed project, including rehabilitation of the existing ultraviolet (UV) stormwater treatment facility, the relocation of the existing ocean outfall meter and bypass vault, and the relocation of a brine line. Other LSWWTP site improvements would also occur, including the provision a public parking lot, a bike path, site access, solid waste storage bins, walls/fencing, and landscaping, as well as the removal of overhead electric lines and power poles from the site.

Noise Terminology and Metrics

All noise-level and sound-level values presented herein are expressed in terms of decibels (dB), with A weighting (dBA) to approximate the hearing sensitivity of humans. Time-averaged noise levels of one hour are expressed by the symbol "L_{EQ}" unless a different period is specified. Some of the data also may be presented as octave-band-filtered and/or A octave-band-filtered data, which are a series of sound spectra centered on each stated frequency, with half of the bandwidth above, and half of the bandwidth below, the stated frequency. These data are typically used for machinery noise analysis and barrier-effectiveness calculations.

Noise emission data are often provided based on the industry standard format of sound power (noted by S_{WL}), which is the total acoustic power radiated from a given sound source as related to a reference power level. Sound power differs from sound pressure (if notation is needed, the abbreviation is SPL), which measures the fluctuations in air pressure caused by the presence of sound waves and is generally the format that describes noise levels as heard by the receiver. Sound pressure is the actual noise experienced by a human or registered by a sound level instrument. When sound pressure is used to describe a noise source, it must specify the distance from the noise source to provide complete information. Sound power is a specialized analytical method to provide information without the distance requirement, but it may be used to calculate the sound pressure at any desired distance.

REGULATORY FRAMEWORK

City of Oceanside Municipal Code Noise Ordinances

Section 38.12 – General Sound Level Limits

1. Except for exempted activities and sounds as provided in this chapter or exempted properties, it shall be unlawful for any person to cause or allow the creation of any noise to the extent that the one-hour average sound level, at any point on or beyond the boundaries of the property in the applicable base district zone on which the sound is produced, exceeds the applicable limits set forth below (provided as Table 1, *Noise Ordinance Sound Level Limits [dBA]*).

Table 1
NOISE ORDINANCE SOUND LEVEL LIMITS (dBA)

Base District Zone	7:00 a.m. to 9:59 p.m.	10:00 p.m. to 6:59 a.m.
(1) Residential Districts:		
RE (Residential Estate)	50	45
RS (Single-Family)	50	45
RM (Medium Density)	50	45
RH (High Density)	55	50
RT (Residential Tourist)	55	50
(2) C (Commercial)	65	60
(3) I (Industrial)	70	65
(4) D (Downtown)	65	55
(5) A (Agricultural)	50	45
(6) OS (Open Space)	50	45

Source: Oceanside Municipal Code, Chapter 38
dBA = A-weighted decibel

Section 38.13 – Noncompliance with sound level limits; extensions; variations

If the noise resulting from any activity, event, or enterprise in any nonresidential base district zone shall exceed the applicable area sound level limit prescribed in Section 38.12 on three (3) or more days during any thirty-day period, the code enforcement division shall serve a notice of noncompliance on the owner of the property which produces the noise. Service shall be in the manner prescribed by Section 38.27. Such notice shall indicate the applicable sound level limit for the area, identify when and where excessive sound level measurements were taken, and report the sound level measured during each such measurement.

Section 38.15 – Exemptions for construction, maintenance or other public improvement activities by government agencies or public utilities

Notwithstanding anything in this chapter to the contrary, the city manager, or the manager's designee, on a case-by-case basis, may authorize construction, maintenance or other public improvement activities by a government agency or a public utility, that exceed the noise, duration or hour of work limits established by this chapter, upon a determination that the authorization furthers the public interest.

Section 38.16 – General prohibition

It shall be unlawful for any person to make, continue, or cause to be made or continued, within the limits of the City of Oceanside, any disturbing, excessive, or offensive noise which causes discomfort or annoyance to reasonable persons of normal sensitivity.

The following characteristics and conditions shall be considered in determining whether there exists a violation of the general prohibition of this section:

1. The level of noise;
2. Whether the nature of the noise is usual or unusual;
3. The level of background noise;
4. The time of day or night the noise occurs;
5. The duration of the noise; and
6. Whether the noise is recurrent, intermittent, or constant.

It shall be rebuttably presumed that any noise which complies with the area sound level limits prescribed by section 38.12 is not in violation of the general prohibition of this section.

Section 38.17 – Specific noises prohibited

Notwithstanding the rebuttable presumption referenced in Section 38.16, the following acts are declared to cause disturbing, excessive, or offense noises in violation of this article although such enumeration shall not be deemed to be exclusive:

(F) Exhausts. The noises emanating into the open air of the noise from the exhaust of any stationary internal-combustion engine, motorboat, or motor vehicle except through a muffler or other device which will effectively prevent loud or explosive noises therefrom.

(H) Pile drivers, hammers, etc. The operation between the hours of 10:00 p.m. and 7:00 a.m. of any pneumatic or air hammer, pile driver, steam shovel, derrick, steam, or electric hoist, parking lot cleaning equipment or other appliance, the use of which is attended by loud or unusual noise.

Construction work may be exempt from the noise level limits established in Table 1 by the City Manager upon a determination that the authorization furthers the public interest. However, Section 38.17 specifically prohibits the operation of any pneumatic or air hammer, pile driver, steam shovel, derrick, steam, or electric hoist, parking lot cleaning equipment or other appliance, the use of which is attended by loud or unusual noise, between the hours of 10:00 p.m. and 7:00 a.m.

Section 38.18 – Emergency work

The provisions of this chapter shall not apply to any emergency work as defined herein, provided that the city has been notified as soon as practical and any vehicle, device, apparatus or equipment used with the emergency work is designed, modified, or equipped to reduce sounds produced to the lowest possible level consistent with effective operation of such vehicle, device, apparatus, or equipment.

City of Oceanside General Plan Noise Element

The City's General Plan Noise Element establishes acceptable noise levels within the City's jurisdiction. The Noise Element establishes the following noise level regulations for construction related noise:

1. It should be unlawful for any person within any residential zone of 500' therefrom to operate any pile driver, power shovel, pneumatic, power hoist, or other construction equipment between 8:00 PM and 7:00 AM generating an ambient noise level of 50 dBA at any property line, unless an emergency exists.

2. It should be unlawful for any person to operate any construction equipment at a level in excess of 85 dBA at 100 feet from the source.

3. It should be unlawful for any person to engage in construction activities between 6:00 PM and 7:00 AM when such activities exceed the ambient noise level by 5 dBA. A special permit may be granted by the Director of Public Works if extenuating circumstances exist.

Sensitive Avian Species

The coastal California gnatcatcher (*Polioptila californica californica*; CAGN) is provided specific noise control requirements for the breeding season of March 1 to August 15. Specifically, it is required that noise levels do not exceed an hourly limit of 60 dBA L_{EQ} at the edge of occupied habitat during the breeding season for CAGN. If the existing ambient noise level is above 60 dBA L_{EQ}, the allowable noise level increase over ambient conditions is restricted to 3 dBA or less in habitat determined/assumed to be occupied during the breeding season for the species.

METHODOLOGY

Modeling of the non-traffic outdoor noise environment was accomplished using Computer-Aided Noise Abatement (CadnaA) Version 2019, which allows the prediction of noise impacts for a wide variety of conditions. Specifically, the CadnaA model assists in the calculation, presentation, assessment, and mitigation of noise exposure, and includes the consideration of effects from a number of variables such as noise source, intervening structures, and topography in estimating sound levels at a particular location.

IMPACT ANALYSIS

Construction

Two primary construction elements are identified, including (1) construction of the Buccaneer Lift Station and (2) construction of the Buccaneer Force Main. Most of the lift station and force main construction would occur concurrently; however, they are analyzed separately within this letter report as they would occur in different areas and at different times of the day. Table 2, *Construction Equipment Data*, provides a list of prominent construction equipment anticipated to be used at the lift station site and along the force main alignment.

Construction noise impact planning is based on the Federal Highway Roadway Construction Noise Model (RCNM) using a 1-second source level (L_{MAX}) to determine the hourly noise impact level L_{EQ} based on the percentage of the hour the equipment is typically in operation. Table 2 provides the planning source level L_{MAX} and hourly percent utilization.

Table 2
CONSTRUCTION EQUIPMENT DATA

Source	Noise Level dBA L_{MAX}	Operation Percentage of Hour
Pile Driver	101.3	20%
Bulldozer	81.7	40%
Cement Truck	78.8	40%
Concrete Saw	89.6	20%
Crane	80.6	16%
Drill Rig/Truck-mounted Augur	79.1	20%
Excavator	80.7	40%
Grader	85.0	40%
Jackhammer	88.9	20%
Skidsteer	75.0	40%
Truck (Dump Truck, Flatbed Truck)	76.5	40%
Water Truck	80.0	20%
Compactor	66.6	10%
Loader	79.1	40%

Lift Station Construction

Construction of the proposed lift station would include operation of both large and small construction equipment. A reasonable maximum noise source analysis assumes the concurrent use of an excavator, a loader, and two dump trucks on the site. Table 3, *Lift Station Construction Equipment Noise Levels*, shows the anticipated noise levels at 50 feet from the construction equipment and the distance from the construction equipment until noise levels are reduced to 75 dBA L_{EQ}. The use of construction equipment to build the lift station is not expected to exceed the 85 dBA 100-foot requirement in the City's General Plan Noise Element for normal daytime construction noise limits, except for during pile driving activities, which would result in noise levels up to 94.3 dBA. Construction would exceed the noise limits in Table 1; however, general construction noise of the proposed lift station would be exempted by the City Manager consistent with the Noise Ordinance. Predicted 45 dBA, 60 dBA, and 75dBA noise contours associated with lift station construction are provided in Figure 1, *Lift Station Construction Noise Contours*.

Table 3
LIFT STATION CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Noise Level at 50 Feet (dBA L_{MAX})	Percentage Operation During Average Hour (%)	Noise Level at 50 Feet (dBA L_{EQ})	Distance to 75 dBA L_{EQ} (feet)	Distance to 60 dBA L_{EQ} (feet)	Distance to 45 dBA L_{EQ} (feet)
All Equipment	N/A	N/A	94.5	471	2646	N/A
Pile Driver	101.3	20	94.3	460	2580	N/A
Excavator	80.7	40	76.7	61	343	1928
Loader	79.1	40	75.1	51	285	1603
Dump Truck	76.5	40	72.5	38	211	1189
Dump Truck	76.5	40	72.5	38	211	1189

Force Main Construction

The reasonable maximum force main construction noise levels are similar to those for the lift station and would have similar distance impacts. However, most of the force main construction would occur at night due to traffic flow constraints. Typically, nighttime construction activities are required to comply with the base district zoning requirements provided in Table 1, which may be as low as 45 dBA at 45 to 50 feet from the centerline of construction (distances are approximate, exact pipeline centerlines may vary depending on final design). Because force main construction is anticipated to occur during the nighttime hours, construction noise impacts are anticipated to exceed the property line noise limits established by the City's Noise Ordinance provided in Table 1 of this letter report. As a result, approval of nighttime force main construction would require an exemption from the City's Noise Ordinance, authorized by the City Manager, or the manager's designee, upon a determination that the authorization furthers the public interest. Predicted 45 dBA, 60 dBA, and 75dBA noise contours associated with force main construction are provided in Figure 2, *Force Main Construction Noise Contours*. As shown, several single-family residences would be temporarily subjected to nighttime noise in excess of 75 dBA.

Operation

Operation of the proposed force main would not create measurable noise and is not anticipated to exceed noise requirements that apply in the City. The proposed lift station would include operational use of several noise source elements (e.g., a generator) and noise levels anticipated in association with these components are discussed below.

The final design and equipment specifications to be used at the proposed lift station are not available; however, noise evaluation within this noise letter report is based on a potential minimum distance of 50 feet from a single-family residential zone. A range of anticipated noise levels at 50 feet is listed in Table 4, *Known and Probable Lift Station Major Noise Sources with Conservative Potential Noise Levels*, and the single-family property line noise level limit per the City's Noise Ordinance is provided in the right-hand column. Equipment listed as "Indoor or Enclosed" in Table 4 would require ventilation and would typically create lower noise levels than listed but noise would still be transmitted through the ventilation systems or building opening.

Table 4
KNOWN AND PROBABLE LIFT STATION MAJOR NOISE SOURCES
WITH CONSERVATIVE POTENTIAL NOISE LEVELS

Source	Noise Range at 50 Feet (dBA L_{EQ})	Noise Limit at 50 Feet (dBA L_{EQ}) For Single-Family Residential
Indoor or Enclosed		
Generator*	75 to 85	50
Odor Control (Roots Blower)	55 to 75	45
Ventilation Fan(s)	45 to 55	45
Pump Motors	55 to 65	45
Outdoor		
Transformer	40 to 50	45
HVAC	40 to 50	45

*Evaluated as Outdoor Generator in Weatherproof Enclosure and Standard Exhaust Silencer (Muffler)

The evaluated property line noise levels are predominately based on the nighttime facilities operations. Only the generator evaluation assumes that the residential property line limit for the daytime is appropriate for system exercise and testing operations, but that nighttime would only occur in the event of a power outage and would be exempted from compliance during a power outage.

Without final building design and siting, exact noise levels cannot be predicted; however, potential operational noise levels could be as high as 75 dBA at a residential property line without the generator and 85 dBA when the generator is operating, both of which would exceed the allowable noise levels at a single-family residential zone.

CONCLUSION

Construction

Construction of the proposed lift station would comply with the requirements in the City's Noise Ordinance as it would occur during daytime hours and would not exceed the 85 dBA 100-foot requirement in the City's General Plan Noise Element. Nighttime construction of the proposed force main would result in nighttime noise in excess of 75 dBA at single-family residences; however, Section 38.15 of the City's Noise Ordinance allows the City Manager or the manager's designee to exempt nighttime construction noise if it furthers the public interest.

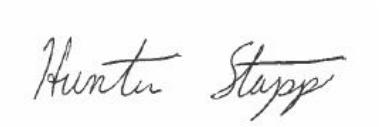
Operation

While final design and details for the lift station are not yet available, operation noise levels associated with the proposed lift station could exceed residential zone noise limits at 50 feet. As such, it is recommended that a Project Noise Control Plan be developed during final design of the lift station to achieve compliance with the City's applicable noise requirements listed in Table 1. Specifically, noise control systems for the lift station may include either an indoor generator with noise-controlled ventilation systems and enhanced engine exhaust silencers or enhanced generator noise control enclosure (greater than a standard manufacturer's Class II enclosure). The Project Noise Control Plan

should be included as part of the final building plan submittal showing specific project planning information, noise source information, and distances from noise sources and building openings to all property lines. The information should illustrate estimated noise levels with noise control in compliance with the specified property line noise limits in Table 1.

CERTIFICATION

This noise letter report is based on the related project information received and represents a true and factual analysis of the acoustical impact issues associated with the proposed project.



Hunter Stapp
Noise Analyst

March 15, 2024
Date

Attachments:

Figure 1, Lift Station Construction Noise Contours
Figure 2, Force Main Construction Noise Contours



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Source: Aerial (SanGIS, 2017)

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Lift Station Construction Noise Contours

Figure 1

Scale: 1" = 350'

Scale: 1" = 500'

Scale: 1" = 350'

Scale: 1" = 350'

Buccaneer Force Main Approximate Alignment

Buccaneer Force Main Approximate Alignment (Garrison Alternative)

Noise Contours

75 dBA (95 Feet)

60 dBA (537 Feet)

45 dBA (3018 Feet)

0 1,500 Feet

Source: Aerial (SanGIS, 2017)

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Force Main Construction Noise Contours

Figure 2