

Appendix L
Environmental Noise Impact Analysis



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MARE ISLAND DREDGED MATERIAL DISPOSAL PONDS PROJECT

TECHNICAL REPORT:

ENVIRONMENTAL NOISE IMPACT ANALYSIS

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INTRODUCTION

Wilson, Ihrig and Associates, Inc. (WIA) was contracted to review and revise the preliminary environmental noise study prepared for the Mare Island Dredged Material Disposal Ponds Project by Weston Solutions, Inc. and Jones & Stokes, Inc. WIA has reviewed and revised, as appropriate, all of the equations used in the calculations, the source noise levels, and the sound attenuation rates. WIA has also checked and revised, as appropriate, source-receiver distances. Accordingly, WIA takes full responsibility for the calculations and the input parameters described above used in this analysis. WIA has necessarily relied upon information provided by Weston Solutions and other project consultants regarding operations and equipment (types, number of pieces, and typical utilization rates).

PROJECT DESCRIPTION

The proposed project would provide facilities for dredging contractors operating in San Francisco Bay and the Sacramento River Delta to dispose of dredged materials. The primary means of unloading would use a stationary, hydraulic off-loader near Pier 35 on Mare Island. The dredged material slurry would be pumped from barges to Ponds 2 and 4 through a fixed pipeline. A secondary means of unloading would use a crane to scoop material into dump trucks on Pier 34. The trucks would then dump the material in Pond 7 where it would be spread using a dozer. Finally, a tertiary means of moving material would be to truck the material unloaded by crane at Pier 34 to Ponds 2 and 4. This last operational mode is referred to as “Alternative 3.”

This analysis assesses the potential noise impacts from the following operations associated with the Dredged Material Disposal Ponds Project:

1. Mechanically off-loading material at Pier 34
2. Mechanically dumping and spreading material at Pond 7
3. Hydraulically off-loading material near Pier 35
4. Spreading material at Ponds 2 and 4
5. Ditching at Ponds 2 and 4
6. Trucking material to ponds (Alternative 3)
7. Dumping and spreading material in ponds (Alternative 3)

The sensitive receptor locations that have been examined in this analysis are:

1. The proposed Regional Park at the south end of Mare Island
2. The existing Golf Course on Mare Island
3. Coral Sea Village (proposed development on Mare Island)
4. Farragut Village (currently being developed on Mare Island)
5. The existing Sandy Beach Road community (on Vallejo mainland)

NOISE MODEL METHODOLOGY

Stationary Operations

Noise levels at representative sensitive receptor locations from essentially stationary operations were calculated taking into account:

1. The noise emission of each type of equipment
2. The number of each type of equipment
3. The utilization of each type of equipment (the amount of time it will be running per hour)
4. The sound level attenuation with distance (including wind and temperature gradient effects).
5. The acoustical shielding provided by the terrain, where applicable.

The following steps are taken in the noise calculation methodology to arrive at applicable noise levels at the various receiver locations:

- Step 1. The base noise emission level ($L_{\text{typical}, 50 \text{ ft}}$) was projected out to the receiver distance using the standard formula

$$L_{\text{typical}, \text{receiver}} = L_{\text{typical}, 50 \text{ ft}} - [a_{\text{dd}} \log_{10}(d/50') / \log_{10}(2)] - a_{\text{shielding}}$$

where

| | | |
|---------------------------------------|---|--|
| $L_{\text{typical}, \text{receiver}}$ | = | typical noise level at receiver position (dBA) |
| $L_{\text{typical}, 50 \text{ ft}}$ | = | typical noise level at 50' (dBA) |
| a_{dd} | = | attenuation rate (decibels per doubling of distance – dB/dd) |
| d | = | distance between source and receiver (feet) |
| $a_{\text{shielding}}$ | = | attenuation due to shielding (dB) |

The typical noise levels for construction equipment was culled from various sources, including:

1. *Transit Noise and Vibration Impact Assessment*, U.S. Dept. of Transportation, 1995.

2. *Fair, Issac Office Park Project EIR*, RBF, 1997.
3. *Grantville Redevelopment Project EIR*,
www.sandiego.gov/redevelopment-agency, 2004.
4. *Small Takes of Marine Mammals Incidental to Specified Activities; Harbor Activities at Vandenberg Air Force Base, CA*, Federal Register, Vol. 67, No. 42, NOAA/NMFS, 2002. [Tug boat noise level]

The attenuation rate depends on many factors, primarily ground surface cover and wind and temperature gradients. A point source over a hard surface under quiescent conditions attenuates at 6 dB/dd. In the presence of wind or temperature gradients, however, the rate can be higher or lower. For this project, an attenuation rate of 7.3 dB/dd was measured across Mare Island Strait between the end of Pier 34 and Sandy Beach Road under prevailing, daytime, wind and temperature conditions.¹ Specifically, the average wind speed was between 1.5 and 2.5 mph. Figure 1 shows the wind speed distribution from a Mare Island weather station over 14 days. Assuming an attenuation rate of 7.3 dB/dd for the 50% of the time the wind speed exceeds 1.5 mph and 6 dB/dd for the other 50% of the time, the daily average attenuation across the strait is 6.7 dB/dd. This rate was used for all Sandy Beach calculations. For the other sensitive receptor locations, the nominal rate of 6 dB/dd was used.

Geographically, the south end of Mare Island is dominated by a high bluff which blocks the line of sight from some source locations to some receivers. In situations where there is no direct line of sight, 5 dB for shielding attenuation was used, a conservative amount.

Step 2. Section 16.72.060 (Noise Level Measurement) of the City of Vallejo Municipal Code stipulates that the “measurement of sound level limits shall be the average sound level for a period of one hour.” To arrive at the hourly equivalent noise level (L_{eq}) for each piece of equipment, the typical noise level calculated in Step 1 is adjusted by the following formula

$$L_{eq, receiver} = L_{typical, receiver} - 10 \log_{10}(U\%)$$

where

$$L_{eq, receiver} = \text{hourly equivalent noise level at receiver (dBA)}$$

¹ The attenuation rate across Mare Island Strait was measured by playing “pink noise” (96 dBA at 50’) through loudspeakers at the end of Pier 34 and measuring the attendant sound level on Sandy Beach Road. In the absence of other noise sources (cars, boats, airplanes), the average sound levels on Sandy Beach Road over 5 minutes was 58 dBA. The distance between the end of the pier and Sandy Beach Road is 1,850’, leading to an attenuation rate of 7.3 dB/dd.

$$\begin{aligned} L_{\text{typical, receiver}} &= \text{steady noise level at receiver when operating (dBA)} \\ U\% &= \text{utilization rate (amount of time equipment is used per hour)} \end{aligned}$$

- Step 3. Once the L_{eq} for each piece of equipment at a receiver location is calculated, the decibel levels are converted to sound energy and, if there is more than one piece of a particular type of equipment, the energy is multiplied by the number of pieces of equipment.
- Step 4. The total sound energy arriving at the receiver location from all of the equipment is then summed and converted back to a decibel level to arrive at the cumulative L_{eq} . This number is the best estimate of the long-term average noise level (nominally one hour) at the location. Separate calculations are done for the daytime (L_{day} , 7 AM to 10 PM) and nighttime (L_{night} , 10 PM to 7 AM), but the only difference occurs for Pier 34 operations (see below).
- Step 5. For the residential areas, the day-night average noise level (L_{dn}) is then calculated assuming that the hourly L_{day} and L_{night} noise levels are continuously present during all 24 hours of the day. The L_{dn} is the weighted energy-average over 24 hours with a 10 dB penalty added to noise levels between the hours of 10 PM and 7 AM (L_{night}). For example, if the L_{eq} were constant at 50 dB all day long, the L_{dn} calculation would use 50 dB for the 15 daytime hours and 60 dB for the 9 nighttime hours. For a steady noise source level, the L_{dn} will be 6.4 dB higher than the L_{eq} .

The Golf Course is only open from 7 AM to 8:30 PM, so the L_{dn} was calculated assuming no noise exposure outside the L_{day} hours (7 AM to 10 PM). This is a conservative assumption that facilitated calculations. The proposed Regional Park is also assumed to be accessible to the public during daytime hours, so was treated equivalently.

Moving (Trucking) Operations

Trucks hauling material to Ponds 2 and 4 will be moving, so, at any fixed location, their noise level will rise as the truck approaches and fall as the truck drives away. To estimate the hourly equivalent noise level from hauling trucks, the following steps are taken:

- Step 1. The variable noise energy exposure from a single truck passing on an “infinite”, straight roadway is calculated by

$$L_{\text{eq, 1 hour, 1 truck}} = (1/1 \text{ hour}) * \text{integral } \{ L[x(t)] dt \}$$

where

$L_{eq, 1 \text{ hour, 1 truck}}$ = hourly equivalent noise exposure level for one truck
 integral = integral over the duration of the passby ($-\infty < t < +\infty$)
 $L[x(t)]$ = noise level as a function of distance, which is, in turn, a
 function of time. $L[x(t)]$ calculation uses an attenuation
 rate of 6 dB/dd for all receptors.

Step 2. The hourly equivalent for one truck is scaled to account for 10 trucks per hour (the estimated rate of trucks traveling from Pier 34 to the Ponds) by

$$L_{eq, 1 \text{ hour, 10 trucks}} = L_{eq, 1 \text{ hour, 1 truck}} + 10 \log_{10}(10)$$

Step 3. The noise energy is then doubled (+3 dB) to account for the fact that each truck will pass the position twice per hour – once traveling to the pond and once returning to the pier.

NOISE IMPACT CRITERIA

The National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA) require that all “significant” environmental impacts from a new development be identified and, if possible, mitigated. The guidelines for determining significance are:

Will the project substantially increase ambient noise levels in adjoining area?

Will project-related noise conflict with adopted noise plans and goals of the community?

Applicable Community Standards

Policy 2 of the City of Vallejo Noise Element stipulates the community norms for limiting noise from new development:

Policy 2: Avoid adverse effects of noise-producing activities on existing land uses by implementing noise reduction measures, limiting hours of operation, or by limiting increases in noise.

2a. Continue to enforce the noise regulations within the Vallejo Municipal Code, including Chapter 7.84 “Regulation of Noise Disturbances” and Chapter 16.72 “Performance Standards Regulations”.

2b. Where appropriate, limit noise generating activities (for example, construction and maintenance activities and loading and unloading activities) to the hours of 7:00 a.m. to 9:00 p.m.

2c. When approving new development limit project-related noise increases to no more than 10 dB in non-residential areas and 5 dB in residential areas where the with-project

noise level is less than the maximum “normally acceptable” level in Table 2. Limit project-related increases in all areas to no more than 3 dB where the with-project noise level exceeds the “normally acceptable” level in Table 2.

Table 2 shows the Maximum Normally Acceptable Level for Residential development is 60 L_{dn} (dBA) and for Parks and Golf Courses is 70 L_{dn} (dBA).

The applicable sections of the Municipal Code to this project are:

7.84.010 General prohibition – Loud unnecessary and unusual noise.

Notwithstanding any other provisions of the Vallejo Municipal Code and in addition thereto, it shall be unlawful for any person to willfully make or continue, or cause to be made or continued, any loud, unnecessary, and unusual noise which disturbs the peace or quiet of any neighborhood or which causes discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area. The standard which may be considered in determining whether a violation of the provisions of this chapter exist may include, but not be limited to, the following:

- A. The level of noise;
- B. Whether the nature of the noise is usual or unusual;
- C. Whether the origin of the noise is natural or unnatural;
- D. The level and intensity of the background noise, if any;
- E. The proximity of the noise to residential sleeping facilities;
- F. The nature and zoning of the area within which the noise emanates;
- G. The density of the inhabitation of the area within which the noise emanates;
- H. The time of the day and night the noise occurs;
- I. The duration of the noise;
- J. Whether the noise is recurrent, intermittent, or constant; and
- K. Whether the noise is produced by a commercial or noncommercial activity.

(Ord. 1377 N.C.(2d) § 1 (part), 1997.)

7.84.020 Specific prohibitions.

In addition to and separate from the prohibition set forth in Section 7.84.010 above, the following acts, and the causing or permitting thereof, are hereby declared to be in violation of this ordinance. As used in this section, the term "noise disturbance" means any sound which (1) endangers or injures the safety or health of humans or animals; (2) annoys or disturbs a reasonable person of normal sensitiveness; or (3) endangers or injures personal or real property. The listing of specific prohibited activities in this section is not intended to limit the city's authority to regulate any and all loud, unnecessary and unusual noise pursuant to Section 7.84.010. Any noise not falling within the specific prohibitions set forth in this section is subject to regulation under the provisions of Section 7.84.010 above.

F. Loading and Unloading. It shall be unlawful to load, unload, open, close, or to do

other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of nine p.m. and seven a.m. in such a manner as to cause a noise disturbance across a residential real property boundary. This subsection shall not apply to the collection and disposal of garbage and recyclable materials by the city's franchises.

(Ord. 1377 N.C.(2d) § 1 (part), 1997.)

16.72.030 Noise performance standards.

No land use shall generate sound exceeding the maximum levels permitted in the following table when such sounds are measured in any of the zoning districts listed in this table:

| <u>Zoning District</u> | <u>Maximum Sound Pressure Level in Decibels</u> |
|--|---|
| Resource Conservation, Rural Residential, and Medical Districts | 55 |
| Low, Medium, and High Density Residential Districts | 60 |
| Professional Offices, Neighborhood, Pedestrian, and Waterfront Shopping and Services Districts | 70 |
| Freeway Shopping and Service, Linear Commercial and Intensive Use Districts | 75 |

(Ord. 649 N.C.(2d) § 20, 1982; Ord. 558 N.C.(2d) § 2 (part), 1980.)

16.72.040 Noise performance standards – Correction factors.

The following correction factors, when applicable, shall be applied to the maximum sound pressure levels given in Section 16.72.030:

| <u>Time and Operation of Type of Noise</u> | <u>Correction in Maximum Permitted Decibels</u> |
|---|---|
| Emission only between 7 a.m. and 10 p.m. | Plus 5 |
| Noise of unusual impulsive character such as hammering or drill pressing | Minus 5 |

Noise of unusual periodic character such as
hammering or screeching

Minus 5

(Ord. 558 N.C.(2d) § 2 (part), 1980.)

16.72.050 Noise performance standards – Exceptions.

The following sounds, upon compliance with state conditions, may exceed the maximum sound pressure levels given in Section 16.72.030:

C. Sounds from transportation equipment used exclusively in the movement of goods and people to and from a given premises, temporary construction or demolition work;

(Ord. 558 N.C.(2d) § 2 (part), 1980.)

Effective Noise Impact Criteria

Collectively, these Policies and Codes portend the following restrictions and criteria for the project:

- Policy 2a Criteria:** The substantive requirements of this policy are established by the Section 7.84 Criteria and Section 16.72 Criteria.
- Policy 2b Criteria:** This policy contains the conditional phrase “where appropriate.” For the purposes of this analysis, the quantitative criteria established by Policy 2c and Section 16.72 will be used to determine “appropriateness,” rendering this criteria redundant.
- Policy 2c Criteria:** Allowable increase in local L_{dn} in residential areas is 5 dB if “with-project” noise level is projected to be 60 L_{dn} or less, but only 3 dB if “with-project” noise level is projected be greater than 60 L_{dn} .
- Allowable increase in local L_{dn} in non-residential areas is 10 dB if “with-project” noise level is projected to be 70 L_{dn} or less, but only 3 dB if “with-project” noise level is projected be greater than 70 L_{dn} .
- Section 7.84 Criteria:** The provisions in subsection 010 and 020 give the City of Vallejo broad powers to restrict noise-producing activities. Because the wording of the subsections includes subjective criteria such as “disturbs the peace or quiet,” “causes

discomfort or annoyance to any reasonable person of normal sensitiveness,” and “cause a noise disturbance,” it is difficult to assess future noise-producing activities against them directly in an objective manner. The Policy 2c Criteria and the Section 16.72 Criteria are better suited for objective analyses.

Section 16.72 Criteria: Because the operational noises for this project are neither unusually impulsive nor unusually periodic, the only subsection 040 correction that applies to the limits in subsection 030 is the 5 dB increase allowed between 7 AM and 10 PM. The specified maximum allowable sound pressure levels are thus

Residential Areas

| | |
|---------------|--------|
| 7 AM to 10 PM | 65 dBA |
| 10 PM to 7 AM | 60 dBA |

The City of Vallejo has indicated that the Golf Course and proposed Regional Park are zoned “Mixed Use Planned Development.”² As such, these areas do not have explicit limits specified in Section 16.72.030. However, in Table 2 of the Noise Element, the “Normally Acceptable” range for Parks and Golf Courses extends 10 dB higher than for residential land uses. Applying this differential to the above criteria for residential areas, the presumed allowable sound pressure levels for the MUPD areas are:

Regional Park, Golf Course

| | |
|---------------|-------------------------|
| 7 AM to 10 PM | 75 dBA |
| 10 PM to 7 AM | N/A (Facilities closed) |

EXISTING AMBIENT NOISE MEASUREMENTS

Application of the Policy 2c Criteria requires knowledge of the existing L_{dn} in the receptor location. To obtain these, WIA deployed three logging sound level meters from Saturday, April 23, 2005, through Thursday, April 28, 2005. Special, 9” diameter wind screens were used to eliminate erroneous noise that could otherwise be generated by the high winds in the area. In accordance with Section 16.72.060 (Noise Level Measurement) of the Municipal Code, the measurements were A-weighted and used the “slow” meter response, and the sound level meters were calibrated with a NIST-traceable calibration tone immediately prior to deployment. The sound level meters monitored noise levels continuously and calculated and stored the hourly equivalent (L_{eq}) levels for all 24 hours of each day. The day-night average noise level (L_{dn}) was

² Source: Michelle Hightower, City of Vallejo, Planning Department. 19 May 2005.

calculated from the 24 L_{eq} values.

Two meters were deployed on Sandy Beach Road; both were hung from public utility poles approximately 15' above the ground and more than 4' from the nearest wall or any other reflecting surface. One meter was hung near 2 Sandy Beach Road, very near where the road turns after the long downhill portion, and the other near 12 Sandy Beach Road. Six of the 288 measured hourly L_{eq} were adjusted to account for interference from rain; the adjustments all served to lower the existing L_{dn} . After the adjustments, the standard deviation over the six days was less than 1 dBA. The average L_{dn} near 2 Sandy Beach Road, the closest residence to Mare Island, was 58 dBA. The average near 12 Sandy Beach Road was 55 dBA. For the purposes of assessing Policy 2c Criteria, 57 L_{dn} was used for Sandy Beach Road.

One meter was deployed on a gate fence post between Ponds 2N and 4N to estimate the ambient noise levels for Coral Sea Village and Farragut Village. The measurement location was due west of Farragut Village. Representative noise measurements could not be made near Farragut Village because it is currently under construction. After adjusting two of the 144 hours measured, the average L_{dn} at the ponds was 47 dBA with a standard deviation of 2 dBA. Because the future residents of the Villages will themselves generate noise, 7 dBA was added to the measured value for a projected future L_{dn} of 54 dBA. This value is 3 dB less than the measured L_{dn} at Sandy Beach, so it is reasonable and probably conservative.

NOISE LEVEL CALCULATIONS

A brief description is presented below for each of the three operations analyzed. A copy of the calculation spreadsheet showing the input parameters and details of the calculations may be found in Appendix A.

Mechanical Off-Loading at Pier 34

For this operation, one to three barges per day will be brought to Pier 34 using a harbor tug. There will be no need for a generator on the tug, nor will a public address system be used. The material on the barges will be off-loaded onto dump trucks at the end of the pier using a 50 ton movable crane located either on the barge or on the pier. Only one truck will be on the pier at a time. It will take approximately 5 minutes to load a single dump truck, during which time its engine will be at idle. Once a truck is full, it will back off the pier and another truck will drive onto the pier. Because of the logistics of moving trucks on and off the pier, only two trucks will be present at a time, and both will be idling except when driving on or off the pier.

Because of the potential disturbance that typical back-up alarms could cause at Sandy Beach Road during the nighttime hours, flagmen will be used in lieu of back-up alarms during the hours

of 10 PM to 7 AM.³ The activities of flagmen are assumed not to make any noise for the purposes of this analysis.

Other noise sources include a small work boat to deploy and retrieve a silt curtain and pneumatic, hand-held tools to work on the machinery when necessary. Neither of these are expected to have high utilization rates. Finally, a small, 6½ hp generator will be used during the nighttime hours to power lights on the pier.

The nearest receptor to Pier 34 is the proposed Regional Park. While most of the park will be shielded from Pier 34 noise by the high bluff, there is one spot along Imhoff Road from which Pier 34 is visible. This spot, approximately 1,200 feet from the pier, has been used for this analysis because the lack of shielding makes it the “worst case” scenario. Sandy Beach is the closest residential area and has a clear view of Pier 34. Coral Sea Village, Farragut Village, and the Golf Course are all shielded by the bluff and are much further away.

Off-loading at Pier 34 is expected to occur 14 to 50 days per year. Only small projects will be off-loaded at Pier 34, and even these would be off-loaded at Pier 35 if a hydraulic off-loader were at the site, resulting in a very low probability that both Piers 34 and 35 would be used simultaneously.

Dumping and Spreading at Pond 7 (Material from Pier 34 Only)

Material that is mechanically off-loaded onto dump trucks at Pier 34 will most likely be dumped and spread in Pond 7 at the southern end of Mare Island. At any give time, three trucks at most are expected to be in the area, and their loads will be distributed in Pond 7 by a dozer.

The Golf Course, Coral Sea Village, and Farragut Village are all shielded from Pond 7 by terrain. Sandy Beach and parts of the Regional Park have direct line of site to the pond.

Hydraulic Off-Loading at Pier 35

For this operation, one to three barges per day will be brought to Pier 35 using a harbor tug. A diesel or electric 2,500 hp off-loader would be used to pump the slurried material off the barge and along a fixed pipeline to Ponds 2 and 4. A small work boat will be used to lay and inspect floating pipeline, and a 500 hp diesel generator will be used at night to provide power for lights. A second, 1000 hp, electric-powered booster pump will be located near Ponds 2S and 4S, but this will be entirely contained within a building.

Parts of the Regional Park will have a clear view of Pier 35 operations, but Sandy Beach, the Golf Course, Coral Sea Village, and Farragut Village will not.

³ This analysis assumes the back-up alarms would meet SAE J994 Type B requirements, 107 dBA at 4 feet.

Spreading at Ponds 2 and 4

The dredged material slurry will be discharged into Ponds 2 and 4 in either the southwest or southeast corners. Most of the slurry is expected to flow easily across the entire pond, but some of the heavier material will accumulate near the outlet of the pipeline. Occasionally, this material will have to be spread around the area with a dozer. Spreading will take about 2 hours on the days it is done, which will be once a week or so during off-loading. Because the dozer will move around the ponds as it is spreading, the representative distances are measured from the center of the nearest pond.

All receptors except Sandy Beach will have line of sight to the spreading operation.

Once per year, the bottom of the ponds will be plowed to kill any vegetation growing in the ponds. This operation will create noise levels similar to the spreading operation.

Ditching at Ponds 2 and 4

To allow the slurry water to flow out of the settling slurry, a ditch must be dug around the entire inside perimeters of the levees around Ponds 2 and 4. Once dug, maintenance digging will occur about 5 days per month. All digging will be done with a drag line which is similar to a crane. Because the drag line equipment will move around the entire ponds, the representative distances are measured from the center of the nearest pond.

All receptors except Sandy Beach will have line of sight to the ditching operation.

Trucking Material to Ponds (Alternative 3)

If Pond 7 is not available, material off-loaded at Pier 34 will be trucked to the ponds. The preferred route will be Tyler Road to Ribeiro Road, but Ribeiro can not be used at night or during some breeding seasons to protect the salt marsh harvest mouse and other species. The alternative route uses Charlton and Meginnis Roads which are much closer to the proposed Park, the existing Golf Course, and the proposed Coral Sea Village. The Charlton and Meginnis route has been used for this analysis.

All of the receptors on Mare Island will have line of sight to some part of the trucking route. The truck noise at Sandy Beach will be the same as that analyzed for mechanical off-loading at Pier 34.

Dumping and Spreading Material in Ponds (Alternative 3)

Under Alternative 3, trucked material from Pier 34 will be dumped in the ponds and subsequently spread around. The preferred truck route in the pond area will be up the center levee, from which all dumping has been assumed to occur. The return route for the trucks out of

the ponds would be along the westernmost levee (between Ponds 2 and the water). Subsequent spreading could be over the entire pond, so the center of each pond has been used as the distance measurement reference. Back-up alarms will only be used during the daytime; flagmen will be utilized at night.

All of the receptors on Mare Island will have line of sight to the dumping and spreading operations. Sandy Beach will not because of the bluff.

NOISE IMPACT ASSESSMENT

Table I presents the estimated hourly L_{eq} noise levels for the operations analyzed and assesses the potential noise impact against the Section 16.72 Criteria. The only operational noise that is expected to exceed the criteria is trucking noise at Coral Sea Village at night. The hourly L_{eq} is predicted to exceed the allowable 60 dBA limit by 2 dBA, which will occur 14 to 50 days per year and only if Pond 7 is not in service. This assessment does not take into account Section 16.72.050 (Noise performance standards – Exceptions) which states “sounds from transportation equipment used exclusively in the movement of goods . . . to and from a given premises” . . . “may exceed the maximum sound pressure levels given in Section 16.72.030.”

Table II presents the estimated L_{dn} noise levels for the operations analyzed and assesses the potential noise impact against Policy 2c Criteria. For all operations except trucking to Ponds 2 and 4 and dumping and spreading in Ponds 2S, 2M, 4S, 4M, and 4N (under Alternative 3), the noise levels are expected to comply with Policy 2c Criteria.

Alternative 3 trucking is expected to raise the noise level near Charlton Road to 60 L_{dn} in the proposed Regional Park and 59 L_{dn} in the Golf Course. These levels would be 13 and 12 dBA, respectively, more than the assumed existing ambient level of 47 dBA.⁴ The allowed increase under Policy 2c is 10 dBA, so the noise increase would be up to 3 dBA over the allowable increase. The noise increase from trucking at Coral Sea Village would be greater. The estimated “with-project” level of 69 L_{dn} is 15 dBA over the estimated existing ambient of 54 L_{dn} . Under Policy 2c, the “with-project” level could be 59 L_{dn} (existing 54 plus allowable 5 dB increase), 10 dBA less than the anticipated level. The 69 L_{dn} would occur 14 to 50 days per year if Pond 7 is not in service and if the trucks had to use the Charlton/Meginnis route. If the Ribeiro route were used, the L_{dn} exposure in the Park and the Golf Course would meet the Policy 2c Criteria, but the noise level in Coral Sea Village would be 61 L_{dn} , still 2 dBA over the allowable 59 L_{dn} .

Dumping and spreading in Ponds 2S, 2M, 4S, 4M, and 4N would increase the L_{dn} at Coral Sea Village and/or Farrugut village between 7 and 12 dB, 2 to 7 dB more than the 5 dB allowable. Dumping and spreading at Pond 2N would only increase the L_{dn} in the residential areas by 2 to 5 dB, which would be allowable under Policy 2c.

⁴ The existing ambient in the Park area and the Golf Course has not been measured. It is assumed to be the same as that measured in the marsh, probably a conservative assumption.

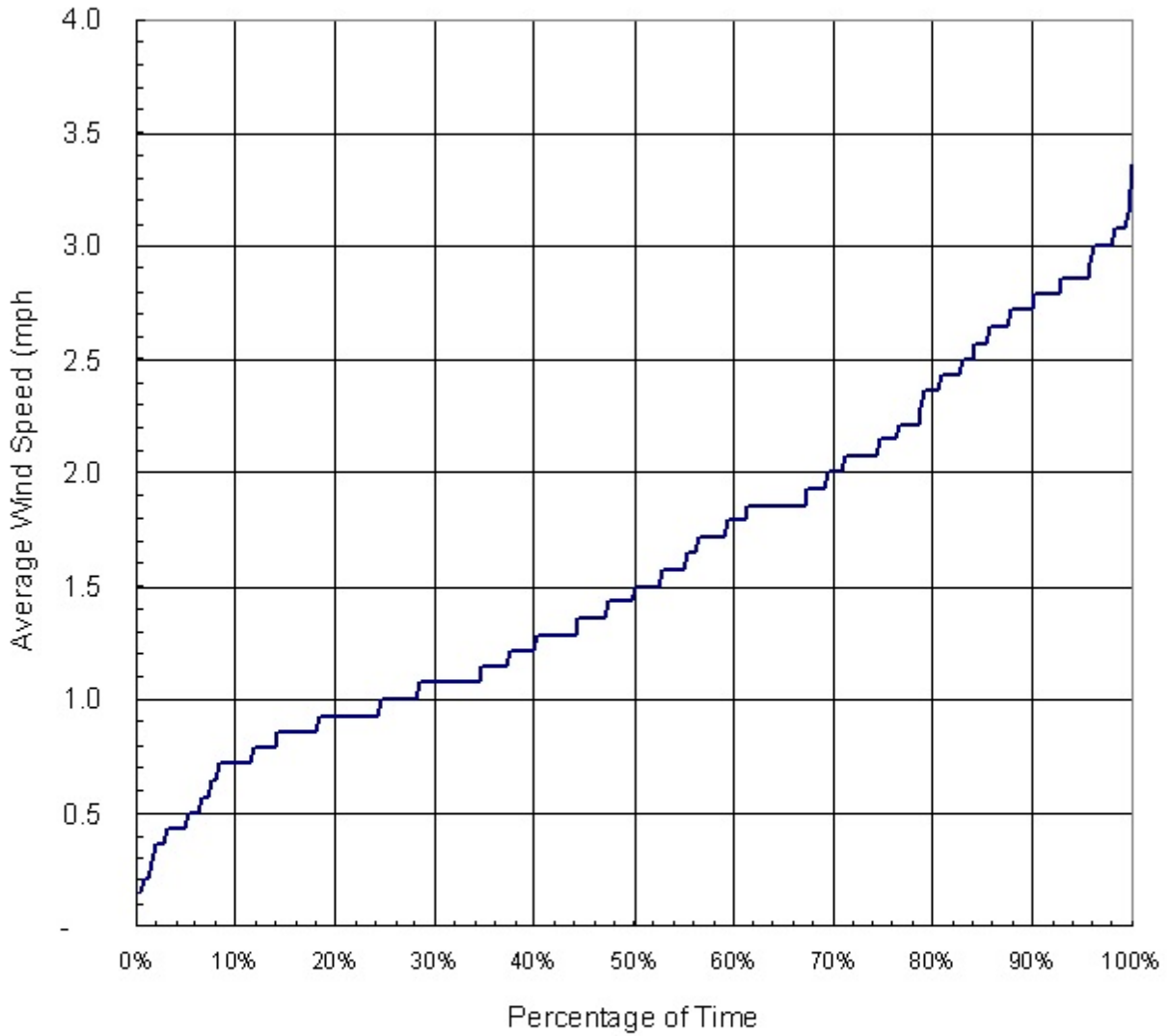


FIGURE 1 MARE ISLAND WIND SPEED OVER 14 DAYS

TABLE I HOURLY Leq NOISE IMPACT ASSESSMENT

| Operation | Receptor | Estimated Hourly Leq | Section 16.72 Criteria | Exceed? |
|------------------------------------|-------------------|-----------------------------|-------------------------------|----------------|
| Mechanical Off-Loading at Pier 34 | Sandy Beach | 51 dBA | Daytime: 65 dBA | No |
| | | 50 dBA | Nighttime: 60 dBA | No |
| | Coral Sea Village | 37 dBA | Daytime: 65 dBA | No |
| | | 36 dBA | Nighttime: 60 dBA | No |
| | Farragut Village | 35 dBA | Daytime: 65 dBA | No |
| | | 35 dBA | Nighttime: 60 dBA | No |
| | Golf Course | 42 dBA | Daytime: 75 dBA | No |
| | Regional Park | 58 dBA | Daytime: 75 dBA | No |
| Dumping and Spreading at Pond 7 | Sandy Beach | 41 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Coral Sea Village | 44 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Farragut Village | 39 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Golf Course | 57 dBA | Daytime: 75 dBA | No |
| | Regional Park | 51 dBA | Daytime: 75 dBA | No |
| Hydraulic Off-Loading near Pier 35 | Sandy Beach | 33 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Coral Sea Village | 35 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Farragut Village | 32 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Golf Course | 40 dBA | Daytime: 75 dBA | No |
| | Regional Park | 58 dBA | Daytime: 75 dBA | No |

TABLE I HOURLY Leq NOISE IMPACT ASSESSMENT (Continued)

| Operation | Receptor | Estimated Hourly Leq | Section 16.72 Criteria | Exceed? |
|---|-----------------------------|--|------------------------|------------|
| Spreading at Ponds 2 and 4 (Daytime Only) | Sandy Beach | 24 dBA | Daytime: 65 dBA | No |
| | Coral Sea Village | 52 dBA | Daytime: 65 dBA | No |
| | Farragut Village | 55 dBA | Daytime: 65 dBA | No |
| | Golf Course | 45 dBA | Daytime: 75 dBA | No |
| | Regional Park | 45 dBA | Daytime: 75 dBA | No |
| Ditching at Ponds 2 and 4 (Daytime Only) | Sandy Beach | 25 dBA | Daytime: 65 dBA | No |
| | Coral Sea Village | 54 dBA | Daytime: 65 dBA | No |
| | Farragut Village | 56 dBA | Daytime: 65 dBA | No |
| | Golf Course | 46 dBA | Daytime: 75 dBA | No |
| | Regional Park | 46 dBA | Daytime: 75 dBA | No |
| Trucking Material to Ponds (Alternative 3) | Sandy Beach | (Covered under Off-Loading at Pier 34) | | |
| | Coral Sea Village | 62 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | Yes |
| | Farragut Village | 50 dBA | Daytime: 65 dBA | No |
| | | | Nighttime: 60 dBA | No |
| | Golf Course | 61 dBA | Daytime: 75 dBA | No |
| Regional Park | 62 dBA | Daytime: 75 dBA | No | |
| Dumping and Spreading Material at Pond (Alternative 3) (Only highest noise levels shown. Corresponding pond indicated) | Sandy Beach (Pond 4S) | 30 dBA | Daytime: 65 dBA | No |
| | | 29 dBA | Nighttime: 60 dBA | No |
| | Coral Sea Village (Pond 4S) | 57 dBA | Daytime: 65 dBA | No |
| | | 56 dBA | Nighttime: 60 dBA | No |
| | Farragut Village (Pond 4M) | 60 dBA | Daytime: 65 dBA | No |
| | | 59 dBA | Nighttime: 60 dBA | No |
| | Golf Course (Pond 4S) | 53 dBA | Daytime: 75 dBA | No |
| | Regional Park (Pond 4S) | 54 dBA | Daytime: 75 dBA | No |

TABLE II Ldn NOISE IMPACT ASSESSMENT

| Operation | Receptor | Ldn (dBA) | | | | Policy 2c Criteria | Exceed? |
|--|-------------------|-----------|----------|-------|----------|-----------------------|---------|
| | | Project | Existing | Total | Increase | | |
| Mechanical Off-Loading at Pier 34 | Sandy Beach | 57 | 57 | 60 | 3 | 5 dBA | No |
| | Coral Sea Village | 43 | 54 | 54 | 0 | 5 dBA | No |
| | Farragut Village | 41 | 54 | 54 | 0 | 5 dBA | No |
| | Golf Course | 40 | 47 | 48 | 1 | 10 dBA | No |
| | Regional Park | 56 | 47 | 57 | 10 | 10 dBA | No |
| Dumping & Distributing at Pier 34 | Sandy Beach | 47 | 57 | 57 | 0 | 5 dBA | No |
| | Coral Sea Village | 50 | 54 | 56 | 2 | 5 dBA | No |
| | Farragut Village | 45 | 54 | 55 | 1 | 5 dBA | No |
| | Golf Course | 55 | 47 | 55 | 8 | 10 dBA | No |
| | Regional Park | 49 | 47 | 51 | 4 | 10 dBA | No |
| Hydraulic Off-Loading at Pier 35 | Sandy Beach | 40 | 57 | 57 | 0 | 5 dBA | No |
| | Coral Sea Village | 41 | 54 | 54 | 0 | 5 dBA | No |
| | Farragut Village | 38 | 54 | 54 | 0 | 5 dBA | No |
| | Golf Course | 38 | 47 | 48 | 1 | 10 dBA | No |
| | Regional Park | 56 | 47 | 57 | 10 | 10 dBA | No |
| Spreading at Ponds 2 & 4 (Daytime) | Sandy Beach | 22 | 57 | 57 | 0 | 5 dBA | No |
| | Coral Sea Village | 50 | 54 | 56 | 2 | 5 dBA | No |
| | Farragut Village | 53 | 54 | 57 | 3 | 5 dBA | No |
| | Golf Course | 42 | 47 | 48 | 1 | 10 dBA | No |
| | Regional Park | 43 | 47 | 48 | 1 | 10 dBA | No |

TABLE II Ldn NOISE IMPACT ASSESSMENT (Continued)

| Operation | Receptor | Ldn (dBA) | | | | Policy 2c Criteria | Exceed? |
|--|--------------------------------|--|----------|-------|----------|-----------------------|------------|
| | | Project | Existing | Total | Increase | | |
| Ditching at Ponds 2 & 4 (Daytime) | Sandy Beach | 23 | 57 | 57 | 0 | 5 dBA | No |
| | Coral Sea Village | 51 | 54 | 56 | 2 | 5 dBA | No |
| | Farragut Village | 54 | 54 | 57 | 3 | 5 dBA | No |
| | Golf Course | 44 | 47 | 49 | 2 | 10 dBA | No |
| | Regional Park | 44 | 47 | 49 | 2 | 10 dBA | No |
| Trucking to Ponds (Alt. 3) | Sandy Beach | (Covered under Off-Loading at Pier 34) | | | | | |
| | Coral Sea Village | 68 | 54 | 69 | 15 | 5 dBA | Yes |
| | Farragut Village | 56 | 54 | 58 | 4 | 5 dBA | No |
| | Golf Course | 59 | 47 | 59 | 12 | 10 dBA | Yes |
| | Regional Park | 60 | 47 | 60 | 13 | 10 dBA | Yes |
| Dumping & Spreading at Ponds 2S, 2M, 4S, 4M, and 4N (Alt. 3) (Only highest Ldn shown. Pond indicated) | Sandy Beach (Pond 4S) | 36 | 57 | 57 | 0 | 5 dBA | No |
| | Coral Sea Village (Pond 4S) | 63 | 54 | 63 | 9 | 5 dBA | Yes |
| | Farragut Village (Pond 4M) | 66 | 54 | 66 | 12 | 5 dBA | Yes |
| | Golf Course (Pond 4S) | 51 | 47 | 52 | 5 | 10 dBA | No |
| | Regional Park (Pond 4S) | 52 | 47 | 53 | 6 | 10 dBA | No |
| Dumping & Spreading at Pond 2N (Alt. 3) | Sandy Beach | 33 | 57 | 57 | 0 | 5 dBA | No |
| | Coral Sea Village | 52 | 54 | 56 | 2 | 5 dBA | No |
| | Farragut Village | 58 | 54 | 59 | 5 | 5 dBA | No |
| | Golf Course | 42 | 47 | 48 | 1 | 10 dBA | No |
| | Regional Park | 43 | 47 | 48 | 1 | 10 dBA | No |

Note: "Increase" may be different than "Total" minus "Existing" because of rounding.

APPENDIX A

Noise Level Calculations

**Mare Island Dredged Material Disposal Pond Project
Noise Calculations - 7 Pond Alternative**

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|-----------------------------------|---------------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical Off-Loading at Pier 34 | Dump Truck Engine - Rolling | 79 | 45% | 2 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Dump Truck Engine - Idling | 76 | 45% | 2 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Flagman (10p-7a) | N/A | 100% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Crane (50T) 365 HP | 82 | 80% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Generator, gas, Honda, 6.5 HP (night) | 63 | 100% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Tug | 87 | 10% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| | Small Work Boat | 75 | 5% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 |
| Pneumatic Tool | 85 | 10% | 1 | 1,200 | 4,200 | 8,100 | 9,600 | 1,850 | |

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|-----------------------------|----------------------------------|--------------------|-----|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical Unload at Pond 7 | Dozer | 86 | 60% | 1 | 3,300 | 920 | 4,000 | 7,000 | 6,000 |
| | Dump Truck Engine - Rolling | 79 | 80% | 3 | 3,300 | 920 | 4,000 | 7,000 | 6,000 |
| | Dump Truck Back-Up Alarm (24 hr) | 85 | 17% | 1 | 3,300 | 920 | 4,000 | 7,000 | 6,000 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|------------------------------------|--------------------------------------|--------------------|-----|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Hydraulic Off-Loading Near Pier 35 | Stationary Unloader 2500 HP | 80 | 40% | 1 | 3,540 | 3,720 | 7,200 | 10,000 | 4,900 |
| | Diesel Generator 500 HP | 82 | 50% | 1 | 3,540 | 3,720 | 7,200 | 10,000 | 4,900 |
| | Booster Pump, Elec, 1000 HP, in bldg | 63 | 30% | 1 | 50 | 1,810 | 1,360 | 2,900 | 9,600 |
| | Tug | 87 | 10% | 1 | 3,540 | 3,720 | 7,200 | 10,000 | 4,900 |
| | Small Work Boat | 75 | 30% | 1 | 3,540 | 3,720 | 7,200 | 10,000 | 4,900 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|----------------------------|-----------|--------------------|-----|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Spreading at Ponds 2 and 4 | Dozer | 86 | 25% | 1 | 2800 | 3000 | 1200 | 900 | 10000 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

| 0 dB | 5 dB | 5 dB | 5 dB | 0 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|---------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut | |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Village |
| 51 | 36 | 30 | 28 | 44 | 48 | 32 | 26 | 25 | 41 | 126,843 | 3,303 | 892 | 636 | | | | |
| 48 | 33 | 27 | 25 | 41 | 45 | 29 | 23 | 22 | 38 | 63,572 | 1,655 | 447 | 319 | | | | |
| 57 | 42 | 36 | 34 | 50 | 50 | 34 | 28 | 27 | 42 | 95,383 | 2,483 | 671 | 478 | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | | | | |
| 54 | 39 | 33 | 31 | 47 | 54 | 38 | 32 | 31 | 46 | 224,964 | 5,857 | 1,582 | 1,127 | | | | |
| 35 | 20 | 14 | 12 | 28 | 35 | 20 | 14 | 12 | 28 | 3,540 | 92 | 25 | 18 | | | | |
| 59 | 44 | 38 | 36 | 52 | 49 | 34 | 28 | 26 | 42 | 88,925 | 2,315 | 625 | 446 | | | | |
| 47 | 32 | 26 | 24 | 40 | 34 | 19 | 13 | 11 | 27 | 2,805 | 73 | 20 | 14 | | | | |
| 57 | 42 | 36 | 34 | 50 | 47 | 32 | 26 | 24 | 40 | 56,108 | 1,461 | 395 | 281 | | | | |

| 0 dB | 5 dB | 5 dB | 5 dB | 0 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|---------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut | |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Village |
| 50 | 56 | 43 | 38 | 40 | 48 | 54 | 41 | 36 | 38 | 56,431 | 227,599 | 12,162 | 3,986 | | | | |
| 43 | 49 | 36 | 31 | 33 | 42 | 48 | 35 | 30 | 32 | 45,038 | 181,648 | 9,706 | 3,182 | | | | |
| 49 | 55 | 42 | 37 | 39 | 41 | 47 | 34 | 30 | 31 | 12,700 | 51,223 | 2,737 | 897 | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |

| 0 dB | 5 dB | 5 dB | 5 dB | 5 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|---------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut | |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Village |
| 43 | 38 | 32 | 29 | 31 | 39 | 34 | 28 | 25 | 27 | 8,216 | 2,354 | 631 | 328 | | | | |
| 45 | 40 | 34 | 31 | 33 | 42 | 37 | 31 | 28 | 30 | 16,277 | 4,663 | 1,250 | 650 | | | | |
| 63 | 27 | 29 | 23 | 7 | 58 | 22 | 24 | 18 | 2 | 598,579 | 148 | 262 | 58 | | | | |
| 50 | 45 | 39 | 36 | 38 | 40 | 35 | 29 | 26 | 28 | 10,294 | 2,949 | 791 | 411 | | | | |
| 38 | 33 | 27 | 24 | 26 | 33 | 27 | 22 | 19 | 20 | 1,949 | 558 | 150 | 78 | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|---------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut | |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Village |
| 51 | 51 | 58 | 61 | 30 | 45 | 45 | 52 | 55 | 24 | 32,623 | 28,432 | 176,589 | 313,318 | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
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| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 23,116 | 58 | 42 | 37 | 35 | 51 | 56 | 40 | 43 | 41 | 57 |
| 11,585 | N/A | N/A | 36 | 35 | 50 | Existing Ldn | | | | |
| 17,383 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| N/A | Daytime Limit | | | | | Combined Ldn | | | | |
| 40,997 | 75 | 75 | 65 | 65 | 65 | 57 | 48 | 54 | 54 | 60 |
| 645 | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| 16,206 | | | | | | 10 | 1 | 0 | 0 | 3 |
| 511 | Nighttime Limit | | | | | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| 10,225 | Closed | Closed | 60 | 60 | 60 | 70 | 70 | 60 | 60 | 60 |
| | N/A | N/A | Complies | Complies | Complies | Complies | Complies | Complies | Complies | Complies |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 5,630 | 51 | 57 | 44 | 39 | 41 | 49 | 55 | 50 | 45 | 47 |
| 4,494 | N/A | N/A | 44 | 39 | 41 | Existing Ldn | | | | |
| 1,267 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| | Daytime Limit | | | | | Combined Ldn | | | | |
| | 75 | 75 | 65 | 65 | 65 | 51 | 55 | 56 | 55 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 4 | 8 | 2 | 1 | 0 |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Complies | Complies | Complies |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 468 | 58 | 40 | 35 | 32 | 33 | 56 | 38 | 41 | 38 | 40 |
| 927 | N/A | N/A | 35 | 32 | 33 | Existing Ldn | | | | |
| 2 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| 586 | Daytime Limit | | | | | Combined Ldn | | | | |
| 111 | 75 | 75 | 65 | 65 | 65 | 57 | 48 | 54 | 54 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 10 | 1 | 0 | 0 | 0 |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Complies | Complies | Complies |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 238 | 45 | 45 | 52 | 55 | 24 | 43 | 42 | 50 | 53 | 22 |
| | N/A | N/A | N/A | N/A | N/A | Existing Ldn | | | | |
| | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| | Daytime Limit | | | | | Combined Ldn | | | | |
| | 75 | 75 | 65 | 65 | 65 | 48 | 48 | 56 | 57 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 1 | 1 | 2 | 3 | 0 |
| | No Oper | No Oper | No Oper | No Oper | No Oper | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | N/A | N/A | N/A | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Complies | Complies | Complies |

**Mare Island Dredged Material Disposal Pond Project
Noise Calculations - 7 Pond Alternative**

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|---------------------------|-----------|--------------------|-----|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Ditching at Ponds 2 and 4 | Crane | 82 | 80% | 1 | 2800 | 3000 | 1200 | 900 | 10000 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|--|-----------------------------|--------------------|-----|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Trucking Material to Ponds 2 and 4 (Alternative 3) | Dump Truck Engine - Rolling | 79 | | 10/hr | 150 | 200 | 150 | 2100 | 1850 |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|--|-----------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical Unload at Pond 2S (Alternative 3) | Dozer | 86 | 60% | 1 | 3050 | 3370 | 2520 | 2760 | 11800 |
| | Dump Truck Engine - Rolling | 79 | 80% | 3 | 2700 | 3050 | 2160 | 3700 | 11400 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 2700 | 3050 | 2160 | 3700 | 11400 |
| | Flagman (10p-7a) | N/A | 100% | 1 | | | | | |
| | | | | | | | | | |

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|--|-----------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical Unload at Pond 2M (Alternative 3) | Dozer | 86 | 60% | 1 | 5080 | 5320 | 4300 | 2100 | 13600 |
| | Dump Truck Engine - Rolling | 79 | 80% | 3 | 4800 | 5040 | 4060 | 1740 | 13500 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 4800 | 5040 | 4060 | 1740 | 13500 |
| | Flagman (10p-7a) | N/A | 100% | 1 | | | | | |

| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | L _{typ} + 10log(U) | | | | | 10 ^{^(Leq/10)} * N | | | |
|---------------|-------------|-----------|------------------|-------------|---|-------------|-----------|------------------|-------------|----------------------------------|-------------|-----------|------------------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | |
| Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village |
| 47 | 47 | 54 | 57 | 26 | 46 | 46 | 54 | 56 | 25 | 41,560 | 36,221 | 224,964 | 399,149 |
| | | | | | | | | | | | | | |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | L _{typ} + 10log(U) | | | | | 10 ^{^(Leq/10)} * N | | | |
|---------------|-------------|-----------|------------------|-------------|---|-------------|-----------|------------------|-------------|----------------------------------|-------------|-----------|------------------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | |
| Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | L _{typ} + 10log(U) | | | | | 10 ^{^(Leq/10)} * N | | | |
|---------------|-------------|-----------|------------------|-------------|---|-------------|-----------|------------------|-------------|----------------------------------|-------------|-----------|------------------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | |
| Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village |
| 50 | 50 | 52 | 51 | 28 | 48 | 47 | 50 | 49 | 26 | 66,025 | 54,118 | 96,592 | 80,574 |
| 44 | 43 | 46 | 42 | 22 | 44 | 42 | 45 | 41 | 21 | 67,186 | 52,695 | 104,818 | 35,854 |
| 50 | 49 | 52 | 48 | 28 | 43 | 42 | 45 | 40 | 20 | 18,946 | 14,860 | 29,558 | 10,111 |
| | | | | | | | | | | | | | |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | L _{typ} + 10log(U) | | | | | 10 ^{^(Leq/10)} * N | | | |
|---------------|-------------|-----------|------------------|-------------|---|-------------|-----------|------------------|-------------|----------------------------------|-------------|-----------|------------------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | |
| Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village |
| 46 | 46 | 47 | 54 | 27 | 44 | 43 | 45 | 51 | 25 | 23,883 | 21,784 | 33,296 | 138,919 |
| 39 | 39 | 41 | 48 | 20 | 39 | 38 | 40 | 47 | 19 | 21,342 | 19,364 | 29,797 | 161,288 |
| 45 | 45 | 47 | 54 | 26 | 38 | 37 | 39 | 47 | 18 | 6,018 | 5,461 | 8,402 | 45,482 |
| | | | | | | | | | | | | | |
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| | | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-----------------------|-------------|-----------|------------------|--|---|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | 7a - 10p | | 10p - 7a | | Ldn - 24 hour operation; single day | | | | | |
| | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 303 | 46 | 46 | 54 | 56 | 25 | 44 | 44 | 51 | 54 | 23 | |
| | N/A | N/A | N/A | N/A | N/A | Existing Ldn | | | | | |
| | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 | |
| | Daytime Limit | | | | | Combined Ldn | | | | | |
| | 75 | 75 | 65 | 65 | 65 | 49 | 49 | 56 | 57 | 57 | |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | | |
| | Nighttime Limit | | | | | 2 | 2 | 2 | 3 | 0 | |
| | No Oper | No Oper | No Oper | No Oper | No Oper | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | | |
| | N/A | N/A | N/A | N/A | N/A | 70 | 70 | 60 | 60 | 60 | |
| | | | | | | Complies | Complies | Complies | Complies | Complies | |

| | | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-----------------------|-------------|-----------|------------------|--|---|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | 7a - 10p | | 10p - 7a | | Ldn - 24 hour operation; single day | | | | | |
| | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| | 62 | 61 | 62 | 50 | 51 | 60 | 59 | 68 | 56 | 57 | |
| | N/A | N/A | 62 | 50 | 51 | Existing Ldn | | | | | |
| | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 | |
| | Daytime Limit | | | | | Combined Ldn | | | | | |
| | 75 | 75 | 65 | 65 | 65 | 60 | 59 | 69 | 58 | 60 | |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | | |
| | Nighttime Limit | | | | | 13 | 12 | 15 | 4 | 3 | |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | | |
| | N/A | N/A | Exceeds | Complies | Complies | 70 | 70 | 60 | 60 | 60 | |
| | | | | | | Exceeds | Exceeds | Exceeds | Complies | Complies | |

| | | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-----------------------|-------------|-----------|------------------|--|---|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | 7a - 10p | | 10p - 7a | | Ldn - 24 hour operation; single day | | | | | |
| | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 395 | 52 | 51 | 54 | 51 | 29 | 50 | 49 | 60 | 57 | 35 | |
| 341 | N/A | N/A | 53 | 51 | 29 | Existing Ldn | | | | | |
| 96 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 | |
| | Daytime Limit | | | | | Combined Ldn | | | | | |
| | 75 | 75 | 65 | 65 | 65 | 52 | 51 | 61 | 59 | 57 | |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | | |
| | Nighttime Limit | | | | | 5 | 4 | 7 | 5 | 0 | |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 | |
| | | | | | | Complies | Complies | Exceeds | Complies | Complies | |

| | | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-----------------------|-------------|-----------|------------------|--|---|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | 7a - 10p | | 10p - 7a | | Ldn - 24 hour operation; single day | | | | | |
| | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 288 | 47 | 47 | 49 | 55 | 28 | 45 | 45 | 54 | 61 | 34 | |
| 234 | N/A | N/A | 48 | 55 | 27 | Existing Ldn | | | | | |
| 66 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 | |
| | Daytime Limit | | | | | Combined Ldn | | | | | |
| | 75 | 75 | 65 | 65 | 65 | 49 | 49 | 57 | 62 | 57 | |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | | |
| | Nighttime Limit | | | | | 2 | 2 | 3 | 8 | 0 | |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 | |
| | | | | | | Complies | Complies | Complies | Exceeds | Complies | |

**Mare Island Dredged Material Disposal Pond Project
Noise Calculations - 7 Pond Alternative**

Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|-----------------------------------|-----------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical | Dozer | 86 | 60% | 1 | 6610 | 6840 | 5810 | 2960 | 15300 |
| Unload at Pond 2N (Alternative 3) | Dump Truck Engine - Rolling | 79 | 80% | 3 | 6580 | 6800 | 5700 | 2910 | 15000 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 6580 | 6800 | 5700 | 2910 | 15000 |
| | Flagman (10p-7a) | N/A | 100% | 1 | | | | | |
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Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|-----------------------------------|-----------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical | Dozer | 86 | 60% | 1 | 2070 | 2320 | 1400 | 2420 | 10900 |
| Unload at Pond 4S (Alternative 3) | Dump Truck Engine - Rolling | 79 | 80% | 3 | 2600 | 2850 | 2000 | 2830 | 11400 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 2600 | 2850 | 2000 | 2830 | 11400 |
| | Flagman (10p-7a) | N/A | 100% | 1 | | | | | |
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Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|-----------------------------------|-----------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical | Dozer | 86 | 60% | 1 | 3910 | 4130 | 3020 | 930 | 12400 |
| Unload at Pond 4M (Alternative 3) | Dump Truck Engine - Rolling | 79 | 80% | 3 | 4120 | 4380 | 3340 | 1660 | 12900 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 4120 | 4380 | 3340 | 1660 | 12900 |
| | Flagman (10p-7a) | N/A | 100% | 1 | | | | | |
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Shielding:
Attenuation Rate:

| Operation | Equipment | Ltyp @ 50 ft (dBA) | UF% | No. of Units | Distance to Receiver (feet) | | | | |
|-----------------------------------|-----------------------------------|--------------------|------|--------------|-----------------------------|-------------|-----------|------------------|-------------|
| | | | | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| Mechanical | Dozer | 86 | 60% | 1 | 5380 | 5610 | 4520 | 1490 | 13800 |
| Unload at Pond 4N (Alternative 3) | Dump Truck Engine - Rolling | 79 | 80% | 3 | 5430 | 5690 | 4630 | 1960 | 14100 |
| | Dump Truck Back-Up Alarm (7a-10p) | 85 | 17% | 1 | 5430 | 5690 | 4630 | 1960 | 14100 |
| | Flagman (10p-7a) | N/A | 100% | 1 | | | | | |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | | | |
| 44 | 43 | 45 | 51 | 26 | 42 | 41 | 43 | 48 | 23 | 14,132 | 13,201 | 18,276 | 70,087 | | | |
| 37 | 36 | 38 | 44 | 19 | 36 | 36 | 37 | 43 | 18 | 11,382 | 10,659 | 15,152 | 57,869 | | | |
| 43 | 42 | 44 | 50 | 25 | 35 | 35 | 36 | 42 | 17 | 3,210 | 3,006 | 4,273 | 16,319 | | | |
| | | | | | | | | | | | | | | | | |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | | | |
| 54 | 53 | 57 | 52 | 29 | 52 | 51 | 55 | 50 | 27 | 142,960 | 113,899 | 311,701 | 104,710 | | | |
| 45 | 44 | 47 | 44 | 22 | 44 | 43 | 46 | 43 | 21 | 72,435 | 60,322 | 122,195 | 61,175 | | | |
| 51 | 50 | 53 | 50 | 28 | 43 | 42 | 45 | 42 | 20 | 20,426 | 17,010 | 34,458 | 17,251 | | | |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | | | |
| 48 | 48 | 51 | 61 | 28 | 46 | 46 | 48 | 58 | 25 | 40,243 | 36,084 | 67,339 | 704,389 | | | |
| 41 | 40 | 43 | 49 | 20 | 40 | 39 | 42 | 48 | 19 | 28,938 | 25,615 | 43,969 | 177,151 | | | |
| 47 | 46 | 49 | 55 | 26 | 39 | 39 | 41 | 47 | 19 | 8,160 | 7,223 | 12,399 | 49,955 | | | |
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| 0 dB | 0 dB | 0 dB | 0 dB | 5 dB | Ltyp + 10log(U) | | | | | 10^(Leq/10) * N | | | | | | |
|------------------|---------|-----------|---------|-----------|---|--------|-----------|---------|----------|----------------------------------|----------|-----------|----------|-------------|-----------|----------|
| 6 dB/dd | 6 dB/dd | 6 dB/dd | 6 dB/dd | 6.7 dB/dd | Leq at Receiver based on Utilization Rate | | | | | Leq Energy * No. of Source Units | | | | | | |
| Ltyp at Receiver | | | | | Regional | Golf | Farragut | Sandy | Regional | Golf | Farragut | Sandy | Regional | Golf Course | Coral Sea | Farragut |
| Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | Beach | Park | Course | Coral Sea | Village | | | |
| 46 | 45 | 47 | 57 | 27 | 43 | 43 | 45 | 54 | 24 | 21,303 | 19,597 | 30,144 | 275,300 | | | |
| 38 | 38 | 40 | 47 | 19 | 37 | 37 | 39 | 46 | 18 | 16,691 | 15,205 | 22,932 | 127,216 | | | |
| 44 | 44 | 46 | 53 | 25 | 37 | 36 | 38 | 46 | 18 | 4,707 | 4,288 | 6,467 | 35,874 | | | |
| | | | | | | | | | | | | | | | | |
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| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 222 | 45 | 44 | 46 | 52 | 27 | 43 | 42 | 52 | 58 | 33 |
| 185 | N/A | N/A | 45 | 51 | 26 | Existing Ldn | | | | |
| 52 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| | Daytime Limit | | | | | Combined Ldn | | | | |
| | 75 | 75 | 65 | 65 | 65 | 48 | 48 | 56 | 59 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 1 | 1 | 2 | 5 | 0 |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Complies | Complies | Complies |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 471 | 54 | 53 | 57 | 53 | 30 | 52 | 51 | 63 | 59 | 36 |
| 341 | N/A | N/A | 56 | 52 | 29 | Existing Ldn | | | | |
| 96 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| | Daytime Limit | | | | | Combined Ldn | | | | |
| | 75 | 75 | 65 | 65 | 65 | 53 | 52 | 63 | 60 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 6 | 5 | 9 | 6 | 0 |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Exceeds | Complies | Complies |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 354 | 49 | 48 | 51 | 60 | 28 | 47 | 46 | 57 | 66 | 34 |
| 259 | N/A | N/A | 50 | 59 | 28 | Existing Ldn | | | | |
| 73 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| | Daytime Limit | | | | | Combined Ldn | | | | |
| | 75 | 75 | 65 | 65 | 65 | 50 | 50 | 59 | 66 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 3 | 3 | 5 | 12 | 0 |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Complies | Exceeds | Complies |

| | 10*log10[Sum(Energy)] | | | | | 10*log10[(15*Energy-day+9*Energy-night)/24] | | | | |
|-------------|---------------------------------------|-------------|-----------|------------------|-------------|--|-------------|-----------|------------------|-------------|
| Sandy Beach | Cumulative Leq | | 7a - 10p | 10p - 7a | Sandy Beach | Ldn - 24 hour operation; single day | | | | |
| | Regional Park | Golf Course | Coral Sea | Farragut Village | | Regional Park | Golf Course | Coral Sea | Farragut Village | Sandy Beach |
| 279 | 46 | 46 | 48 | 56 | 27 | 44 | 44 | 54 | 63 | 33 |
| 212 | N/A | N/A | 47 | 56 | 27 | Existing Ldn | | | | |
| 60 | Section 16.72.030/040 Analysis | | | | | 47 | 47 | 54 | 54 | 57 |
| | Daytime Limit | | | | | Combined Ldn | | | | |
| | 75 | 75 | 65 | 65 | 65 | 49 | 49 | 57 | 63 | 57 |
| | Complies | Complies | Complies | Complies | Complies | Increase in Ldn | | | | |
| | Nighttime Limit | | | | | 2 | 2 | 3 | 9 | 0 |
| | Closed | Closed | 60 | 60 | 60 | Policy 2c Analysis Max "Normally Acceptable" Level: | | | | |
| | N/A | N/A | Complies | Complies | Complies | 70 | 70 | 60 | 60 | 60 |
| | | | | | | Complies | Complies | Complies | Exceeds | Complies |