

CALIFORNIA COASTAL COMMISSION

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STAFF REPORT: REGULAR CALENDAR

Application No.: 6-16-0483

Applicant: SeaWorld San Diego

Agent: Darlene Walter

Location: 500 SeaWorld Drive, Mission Bay Park, San Diego, San Diego County (APN: 760-037-01-01)

Project Description: Removal of existing above-water theatrical screens and show set and installation of new stage set pieces for new Orca Experience show.

Staff Recommendation: Approval with Conditions

SUMMARY OF STAFF RECOMMENDATION

The proposed development is to remove and replace the existing, above-grade stage set at the existing Shamu Stadium for a new Orca Experience show to debut in 2017.

In October , 2015, the Commission approved a permit to expand the existing orca facility with new 450,000 gallon and 5.2 million gallon pools and replacement of a nearby restroom facility (CDP No. 6-15-0424). However, the applicant has indicated to Commission staff that SeaWorld is unlikely to move forward with completing the permit process for that much larger project; the applicant has not satisfied the prior-to-issuance conditions placed on the permit and the permit has thus not yet been issued. This permit

currently before the Commission is independent of the previously approved tank expansion and is not dependent upon or related to that development.

Because SeaWorld is a large, well-frequented facility located in an already popular coastal park area, its operation and expansion could create potential impacts to nearby coastal resources. Mission Bay Park is served by a limited number of access roads that often become congested during periods of high vehicle volume, which the addition of a new attraction area at SeaWorld may exacerbate. Mission Bay Park consists of large amounts of open space and water area, and the erection of new, visually intrusive structures may impair public views or detract from the visual quality of the park. Because SeaWorld is located on a site adjacent to Mission Bay and in an area with nearby geological faults, the potential for water quality impacts due to runoff from the proposed attraction area or public risk from creating a public attraction in a geologically unstable area may be present. While the work will not occur within the tanks housing the orcas, the presence of construction machinery and proximity to the orcas raises the possibility that construction noise could impact them.

However, the proposed project will not impact public access and recreation because annual traffic monitoring demonstrates that the surrounding intersections and road segments are still operating at acceptable levels, and that SeaWorld has adequate parking supply to handle their attendance numbers. Visual impacts are not expected because the site of the proposed attraction area is located within the developed amusement park area, and will be surrounded by existing structures and landscaping, screening it from public view. Water quality and geologic impacts will be avoided because the project site is located well away from the limits of a buried, historic landfill and will direct all site runoff into the existing water treatment system serving the park. Because the proposed development is above-water, and noise mitigation measures will be incorporated into the project, significant noise impacts to the resident orcas are not anticipated.

To address these potential adverse impacts, the Commission staff is recommending five special conditions. **Special Condition No. 1** will require adherence to final revised plans that prohibit any stage element from extending beyond 30 feet above grade. **Special Condition No. 2** requires a final drainage plans to ensure that runoff from the upgraded stage area enters SeaWorld's existing water treatment system before entering Mission Bay Park and final construction staging and storage plans to avoid adverse impacts to public access in the surrounding park area from construction activity. **Special Condition No. 3** requires that the project adhere to the construction noise mitigation measures contained in the August 15, 2015, and October 7, 2016 memoranda offered by SeaWorld so as to avoid noise impacts to the resident orcas. **Special Condition No. 4** gives SeaWorld notice that should its attendance figures surpass 4 million annual visitors, additional public access improvement measures may be required to mitigate for future development.

Commission staff recommends **approval** of coastal development permit application 6-16-0483 as conditioned.

TABLE OF CONTENTS

I. MOTION AND RESOLUTION	4
II. STANDARD CONDITIONS	4
III. SPECIAL CONDITIONS	5
IV. FINDINGS AND DECLARATIONS	7
A. PROJECT DESCRIPTION	7
B. PROJECT HISTORY	7
C. MARINE RESOURCES	11
D. PUBLIC ACCESS	14
E. WATER QUALITY	17
F. HAZARDS	17
G. VISUAL RESOURCES	17
H. LOCAL COASTAL PLANNING.....	19
I. CALIFORNIA ENVIRONMENTAL QUALITY ACT	21

APPENDICES

[Appendix A – Substantive File Documents](#)

EXHIBITS

[Exhibit 1 – Vicinity Map](#)

[Exhibit 2 – Aerial View](#)

[Exhibit 3 – Site Plans](#)

[Exhibit 4 – Noise Memorandum](#)

[Exhibit 5 – Letter of Support](#)

I. MOTION AND RESOLUTION

Motion:

*I move that the Commission **approve** Coastal Development Permit Application No. 6-16-0483 subject to the conditions set forth in the staff recommendation.*

Staff recommends a **YES** vote on the foregoing motion. Passage of this motion will result in conditional approval of the permit and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

Resolution:

The Commission hereby approves coastal development permit 6-16-0483 and adopts the findings set forth below on grounds that the development as conditioned will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to prepare a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the development on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the development on the environment.

II. STANDARD CONDITIONS

This permit is granted subject to the following standard conditions:

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent of interpretation of any condition will be resolved by the Executive Director or the Commission.
4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS

This permit is granted subject to the following special conditions:

1. Submittal of Revised Final Plans.

A. PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT

PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, two full-size sets of the following revised final plans, modified as required below.

1. Final construction plans that substantially conform with the plans submitted to the Commission, titled “SWSD Orca Experience 2017” dated May 11, 2016, except that they shall be modified as required below:

- a. No element of the approved development shall exceed 30 feet in height above existing grade.

B. All revised plans shall be prepared and certified by a licensed professional or professionals as applicable (e.g., architect, surveyor, geotechnical engineer), based on current information and professional standards, and shall be certified to ensure that they are consistent with the Commission’s approval and with the recommendations of any required technical reports.

C. The applicant shall undertake the development in conformance with the approved plans unless the Commission amends this permit or the Executive Director determines that no amendment is legally required for any proposed minor deviation.

2. Submittal of Final Plans.

A. PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT

PERMIT, the applicant shall submit, for the review and written approval of the Executive Director, two full-size sets of the following final plans:

1. Final construction and post-construction drainage and Best Management Practice (BMP) plans. Said plans shall demonstrate that all runoff from the project area shall be captured by SeaWorld’s existing stormwater treatment system.
2. Final construction staging and storage plans that contain staging and storage within the SeaWorld leasehold and do not spread, or

cause other SeaWorld activity, to spread into public park areas outside the leasehold.

B. The permittee shall undertake the development in conformance with the approved final plans unless the Commission amends this permit or the Executive Director determines that no amendment is legally required for any proposed minor deviation.

3. **Noise Reduction Program.** PRIOR TO ISSUANCE OF THIS COASTAL DEVELOPMENT PERMIT, the applicant shall submit to the Executive Director a written agreement whereby the applicant agrees to implement the noise reduction measures outlined in the SeaWorld memoranda dated August 21, 2015, and October 7, 2016 from Hubbs-SeaWorld Research Institute and Rudolph and Sletten, respectively.

The applicant shall undertake the development in accordance with the approved plan. Any proposed changes to the approved plans shall be reported to the Executive Director. No changes to the plans shall occur without a Coastal Commission-approved amendment to the coastal development permit unless the Executive Director determines that no amendment is legally required.

4. **Future Development.** When documented annual attendance at the SeaWorld Park reaches 4 million visitors, the applicant shall notify the Executive Director in order to review potential impacts to public access. Additional traffic and parking mitigation measures may be required for subsequent identified Tier 2 project and Special project sites, according to criteria in the SeaWorld Master Plan Update.

IV. FINDINGS AND DECLARATIONS

A. PROJECT DESCRIPTION

SeaWorld San Diego proposes to demolish the existing above-water stage set in the Shamu Stadium and construct a new set in its place with related sound and lighting upgrades in anticipation of a new “Orca Experience” show expected to debut in 2017. The existing set pieces including the four LED screens and motors will be unbolted and craned away to be further disassembled. The substructure that supports the existing set will remain in place to support the new backdrop.

The new backdrop proposed to be installed is designed to mimic an outdoor coastal setting in the Pacific Northwest. The set will utilize a rockwork façade consisting of multiple fiberglass reinforced panels that will be brought in by crane and bolted to the existing substructure. Seams between the panels will be bonded together to create a seamless appearance across the set. Artificial trees and a waterfall feature will also be incorporated into the backdrop. Rockwork away from the pool area will consist of traditional concrete that is carved and colored to resemble natural rock. Various stairways within the stadium will also be demolished and reconstructed, along with sound and lighting upgrades. Additional aesthetic treatments and decorations will also be installed at various points in the stadium complex, such as around the orca haul out platform at the front of the show pool and around the public viewing area adjacent to one of the rear orca tanks.

The project consists entirely of above-water work and does not involve demolition, reconstruction, or modification to any of the existing pools that currently house the orcas residing at SeaWorld.

B. PROJECT HISTORY

SeaWorld began construction in 1961 and opened to the public in 1964. Since then, the park has operated under a number of different master plans. The SeaWorld Master Plan is a separate, stand-alone segment of the certified Mission Bay Park Master Plan LUP. The most current plan, the SeaWorld Master Plan Update, was certified by the Commission on February 7, 2002, and addressed future development within the SeaWorld leasehold over the subsequent 15-20 years (LCPA No. 2-2001C). The SeaWorld Master Plan Update sets forth the long-range conceptual development program, development parameters, and project review procedures for the future renovation of the SeaWorld Adventure Park. One of the stated goals of the SeaWorld Master Plan Update is “to define development criteria for future conceptual development areas,” and the purpose is to “create a framework for continued improvements and renovations to the park into the new century.” The SeaWorld Master Plan update recognizes that:

The SeaWorld site is unique in both the type and frequency of development projects within the leasehold. Each year, SeaWorld processes numerous projects to upgrade park facilities and keep attractions in top working order. Additionally, in response to

consumer demands and competition in the theme park industry, SeaWorld regularly undertakes renovations of its larger attractions, rides, shows, or exhibits.

The Commission has approved multiple above-water improvements to Shamu Stadium related to changes in shows or attractions, including shade structures (6-83-190), a 1,000 seat addition (6-87-658), a 1,500 seat addition (6-89-363), lighting upgrades (6-01-075), a “Dine with Shamu” eating area (6-04-158), replacement of the stadium stage set (6-05-031-W), and lighting, sound, and effects upgrades (6-10-086).

In October , 2015, the Commission approved a permit to expand the existing orca facility with new 450,000 gallon and 5.2 million gallon pools and replacement of a nearby restroom facility (CDP No. 6-15-0424). However, the applicant has indicated to Commission staff that SeaWorld is unlikely to move forward with completing the permit process for that much larger project; the applicant has not satisfied the prior-to-issuance conditions placed on the permit and the permit has thus not yet been issued. This permit currently before the Commission is independent of the previously approved tank expansion and is not dependent upon or related to that development.

C. MARINE RESOURCES

Section 30001 of the Coastal Act describes the goals of the Act:

The Legislature hereby finds and declares that:

(a) That the California coastal zone is a distinct and valuable natural resource of vital and enduring interest to all the people and exists as a delicately balanced ecosystem.

(b) That the permanent protection of the state’s natural and scenic resources is a paramount concern to present and future residents of the state and nation.

(c) That to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to protect the ecological balance of the coastal zone and prevent its deterioration and destruction.

(d) That existing developed uses, and future developments that are carefully planned and developed consistent with the policies of this division, are essential to the economic and social well-being of the people of this state and especially to working persons employed within the coastal zone.

Additionally, Section 30001.5 of the Coastal Act states:

The Legislature further finds and declares that the basic goals of the state for the coastal zone are to:

(a) Protect, maintain, and where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources.

(b) Assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state.

(c) maximize public access to and along the coast and maximizing public recreational opportunities in the coastal zone consistent with sound resources conservation principles and constitutionally protected rights of private property owners.

(d) Assure priority for coastal-dependent development over other development on the coast.

(e) Encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

Chapter 3 policy, Section 30230 of the Coastal Act states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological significance. Uses of the marine environment shall be carried out in a manner that will sustain biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

The proposed project is a demolition and remodel of the above-water stage area of the Shamu Stadium in preparation of a new “Orca Experience” show to debut in 2017. While the work will not occur within the tanks housing the orcas, the presence of construction machinery and proximity to the orcas raise concerns regarding possible noise impacts. As orcas are a marine resource, these impacts and the methods to avoid them must be analyzed.

Noise Impact Analysis

In the past, the Commission has looked at development wherein impacts to marine mammals were anticipated, including noise impacts. Many marine mammals, such as orcas, utilize sound to navigate or communicate, and noise impacts from human development can either interfere with these functions or harm the sensitive hearing of the mammals, causing injury, death, or alteration of natural behaviors. When SeaWorld applied for construction of the Journey to Atlantis splashdown ride, which was designed to hold 10 Commerson’s dolphins within its structure, the Commission requested that SeaWorld submit information detailing the existing and anticipated ambient noise levels within the dolphin facility and the steps to be taken to shield the dolphins from noise impacts, which SeaWorld did to the Commission’s satisfaction.

SeaWorld has addressed noise impacts on its captive marine mammals in the past. At the Commission hearing for the SeaWorld Master Plan Update in February 2002, members

of the public and Commissioners raised concerns over how the animals would be affected by noise generated by development contained in the master plan. In the case of the Journey to Atlantis splashdown ride, the first development built pursuant to the current master plan and approved in CDP No. 6-01-0129, the concerns was focused on Commerson's Dolphins proposed to be housed within the ride area. To address those concerns, SeaWorld submitted a memorandum demonstrating that the ambient noise level in the water would be lower than existing levels once the ride was completed, and detailed the construction measures and design features that would be utilized to achieve that result.

In October 2015, the Commission approved the "Blue World" project, an expansion of the existing orca facility through construction of a new, larger pool. The project involved the excavation of 35,000 cubic yards of soil and construction of a large 5,000,000 gallon tank, creating the risk that construction activity could create noise impacts for the orcas in the adjacent, remaining pools, as construction sounds travel through the water. In the application, SeaWorld submitted an August 21, 2015 memo from Hubbs-SeaWorld Research Institute addressing sound propagation in water and describing the construction methods that would have been implemented in order to minimize noise generation and isolate the orcas from the noise. The memo was reviewed by the Commission and found adequate to address noise impact concerns.

In this current proposal consisting wholly of above-water work, SeaWorld resubmitted the memo (Exhibit 4) from the Hubbs-SeaWorld Research Institute, confirming that sounds attenuates (declines in level) at different rates depending on the location of origin and the medium in which it is travelling. Within a SeaWorld pool, the memo states that attenuation averages 2-3 decibels (dB) for a 10kHz tonal (narrowband) signal, which is fairly low attenuation. However, the memo continues that when a sound travels from outside a boundary such as a concrete wall, the attenuation is greater, depending on the intervening substance. In the case of propagation of sound from air into water, sound originating in the open air transmits inefficiently into water (unless produced directly overhead in a narrow cone), and will be attenuated by approximately 30 dB (comparable to the difference in noise level between the inside and outside of a building with doors and windows shut). Furthermore, the memo states that orcas hear best at higher frequencies, and that high frequency noise is attenuated more than low frequencies when traveling over a distance.

For this application, SeaWorld also submitted a letter dated October 7, 2016, from Rudolph & Sletten (Exhibit 4), the construction firm contracted to construct this project and who has constructed other major improvements within SeaWorld in the past. The letter states that the construction will coordinate with the orca trainers overseeing the orcas to inform them of upcoming activities and that construction crews will be made aware of any issues the trainers observe in the orcas during their monitoring. The letter further states some of the noise mitigation measures that will be utilized: constructing the crane beyond the rear of the stadium, using "wet" concrete saws to reduce noise and dust and produce pieces that can be removed by loaders or by hand, and to muffle pneumatic tools, install water-filled K-rails along the perimeter, and stage concrete trucks at least 100 feet away while hosing in the concrete. To minimize noise impacts, the proposed

construction work will be screened and separated above grade by 8-ft. tall panels. When above grade work such as demolition occurs, the whales will be directed into the pools farthest away from the work. Many stage components will be cut into segments and removed or craned away and disassembled elsewhere so as to avoid the use of noisier jack hammers. Due to the size of the excavation area, the majority of the work will be conducted more than 50 feet away from the concrete wall separating the expansion area from the remaining orcas pools, so that construction noise will be greatly attenuated.

The Commission's staff ecologist has reviewed the proposed noise attenuation measures and determined that they are adequate to protect the marine resources at the site. **Special Condition No. 3** requires that SeaWorld adhere to the construction measures contained in its April 21, 2015 memo and October 7, 2016 letter, and that any deviation from such measures be reviewed by the Executive Director for determination as to whether an amendment to this CDP is required.

In conclusion, with the above-grade nature of the proposed work and the aforementioned noise-attenuation measures incorporated into the project, the Commission finds that the proposed project, as conditioned, is in conformance with the marine resource protection policies of Chapter 3 of the Coastal Act.

D. PUBLIC ACCESS

Section 30210 of the Coastal Act states:

In carrying out the requirements of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

Section 30211 of the Coastal Act states:

Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first terrestrial vegetation.

Section 30212 of the Coastal Act states, in part

- a) *Public access from the nearest public roadway to the shoreline and along the coast shall be provided in new development projects except where: (1) it is inconsistent with public safety, military security needs, or the protection of fragile coastal resources, (2) adequate access exists nearby, or, (3) agriculture would be adversely affected. Dedicated accessway shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability of the accessway.*

[...]

- c) *Nothing in this division shall restrict public access nor shall it excuse the performance of duties and responsibilities of public agencies which are required by Sections 66478.1 to 66478.14, inclusive, of the Government Code and by Section 4 of Article X of the California Constitution.*

Section 30213 of the Coastal Act states, in part:

Lower cost visitor serving and recreational facilities shall be protected, encouraged, and, where feasible, provided. Developments providing public recreational opportunities are preferred.

Section 30604 of the Coastal Act states, in part:

[...]

- c) *Every coastal development permit issued for any development between the nearest public road and the sea of the shoreline of any body of water located within the coastal zone shall include a specific finding that the development is in conformity with the public access and public recreation policies of Chapter 3 (commencing with Section 30200).*

SeaWorld is a private commercial leasehold within Mission Bay Park, a public park owned by the City of San Diego. The site is located between the first coastal roadway and the bay.

There are only a few remaining areas of Mission Bay Park where public access is routed inland around existing commercial leaseholds rather than along the shoreline. SeaWorld is one of those leaseholds. Although public lateral access is available along most of the Mission Bay shoreline, there is no access through the SeaWorld leasehold, which extends to or beyond the waterline in places. Pedestrian and bicycle traffic can cross through the parking areas and rejoin the bayside pathway on either side of the leasehold. Vertical access is available at those same two locations and informally elsewhere along the shore depending upon parking or transit availability. The proposed development will be located entirely within the private leasehold, approximately 1,100 feet from the shoreline, and will not encroach into any existing or proposed public accessways. The Mission Bay Master Plan lists a complete pedestrian access pathway around the bay as a future goal; access through SeaWorld may itself be an issue when the lease is renewed, but for this permit, the Commission finds that lateral and vertical access is adequate and available to serve the needs of the public in this area of Mission Bay Park, and the proposed project will not preclude the ability to provide public shoreline access in the future.

Sea World Drive and Ingraham Street serve as major coastal access routes for all areas of Mission Bay Park and the public beaches at Pacific Beach, Mission Beach, and Ocean Beach, and serves as a popular commuter route as well. These are the only roadways serving SeaWorld. The lease between SeaWorld and the City of San Diego, as well as the

SeaWorld Master Plan Update, calls for phased traffic improvements based on the expected increase in attendance at the park. SeaWorld typically submits its annual attendance figures for each past year so the Commission will be aware when the next critical level of attendance occurs that would trigger traffic mitigation measures. Increased SeaWorld attendance has triggered, and SeaWorld has implemented, various traffic mitigation measures over the years. Numerous Commission-approved traffic and parking mitigation projects have been completed by SeaWorld since the certification of the SeaWorld Master Plan Update, including the addition of a public pedestrian promenade (CDP No. 6-06-022), road improvements along Sea World Drive and the southbound Interstate 5 interchange (CDP No. 6-08-016), and resurfacing, restriping, and landscaping to extend and widen bicycle and pedestrian paths across the southern and western edges of SeaWorld's main parking lot (CDP No. 6-05-075). Those improvements as well as the previously established traffic, roadway, and parking systems have been designed and constructed to support up to 4 million visitors annually. The next improvements are not required until attendance reaches 4 million, which is anticipated as the maximum anticipated attendance at full buildout. Last year, SeaWorld's annual attendance was approximately 3.613 million visitors.

Regarding traffic, SeaWorld submits annual traffic monitoring reports to the Commission for review of the impact of park operations on the surrounding transportation infrastructure. Because parks such as SeaWorld serve the public and are subject to changing preferences and market forces, attendance levels, and thus traffic impacts, can fluctuate over the years. Last year, Commission staff reviewed the preceding 5 years of traffic reports, as well as a summary report of those past years to discern any patterns. The analysis determined that the major intersections around SeaWorld have consistently operated at a Level of Service (LOS) of D or better, and that some intersections actually improved slightly in service over the past 5 years of monitoring. Regarding Average Daily Traffic (ADT), the studies focus mainly on AM peak periods and PM peak periods, as that is when SeaWorld traffic combines with local rush hour traffic to create the greatest impact. The past 5 years of studies show that AM peak ADTs have decreased by 5% while PM peak ADTs have increased by 6%. Overall, ADTs increased by 4% over the preceding 5 years, but as mentioned above, the LOS for the surrounding intersections has held steady or improved slightly. Thus, the growth in traffic has been relatively low at an average of just 1% a year over the preceding 5 years, with the LOS indicating that the existing infrastructure is adequately processing the load.

With respect to the adequacy of on-site parking, SeaWorld currently provides a total of 8,664 parking spaces for visitors, staff, and employees. SeaWorld's employment base includes full-time, part-time, and seasonal employees. Employee numbers vary during the year from approximately 2,600 non-peak employees to approximately 4,500 peak time employees. Parking spaces have not been specifically allocated to individual uses, but most employee parking occurs in the lots nearest the administrative facilities and, during times of heaviest park use, in the parking lot in the northwest portion of SeaWorld and within the leasehold boundaries. In addition to serving SeaWorld, the existing parking facilities have also served the needs of Hubbs Research Institute personnel. The Hubbs facilities, which include laboratories, aquaculture tanks, and associated research and administrative functions, are currently housed in the western area of SeaWorld, along

with many of SeaWorld's administrative, storage, and employee facilities. Under CDP No. 6-93-086, Hubbs converted the former Atlantis Restaurant building to research facilities retaining 77 spaces in the former Atlantis lot for use by Hubbs' researchers. The remainder of that lot and all other on-site parking facilities continue to be used by SeaWorld patrons and employees.

In 2010, total peak parking demand was 5,466 spaces. In 2011, peak parking demand was 6,382 spaces. In 2012 peak demand was 7,028 spaces. In 2013 peak demand was 7,103 spaces. In 2014, the peak demand was 6,357 spaces on July 19, 2014 (73% of total supply). Thus, SeaWorld's parking demand has not exceeded its on-site supply of 8,664 parking spaces.

The proposed development will not increase the capacity of the existing Shamu Stadium, and it will not increase the footprint of the existing structures. Thus, the project is not expected to result in an increase in traffic or parking demand. **Special Condition No. 4** reaffirms Master Plan requirements and puts SeaWorld on notice that when the annual SeaWorld Park attendance levels reach 4 million visitors, future development proposals may be required to complete certain traffic and parking mitigation measures as conditions of approval, such as enhancing surrounding public right-of-ways and road improvements, in conformance with mitigation criteria established in the SeaWorld Master Plan Update EIR. Furthermore, **Special Condition No. 2** requires SeaWorld to adhere to approved construction staging and storage plans to ensure that construction activity is properly contained within the leasehold and will not spill out into public areas or displace on-site parking to an extent that will cause patron parking to spread into public areas.

In summary, the Commission finds that the proposed project will not adversely impact the existing vertical and lateral accessways around the Sea World leasehold, or result in significant increases in traffic or parking demand. Therefore, the Coastal Commission finds the proposal consistent with all of the public access policies of the Coastal Act.

E. WATER QUALITY

Section 30230 of the Coastal Act states:

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological significance. Uses of the marine environment shall be carried out in a manner that will sustain biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231 of the Coastal Act states:

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where

feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Stormwater Runoff, Discharge, and Intake

The federal Clean Water Act (CWA) requires States to identify and make a list of surface water bodies that are polluted. These water bodies, referred to in law as “water quality limited segments,” do not meet water quality standards even after discharges of wastes from point sources have been treated by the minimum required levels of pollution control technology. States are required to compile these water bodies into a list, referred to as the “Clean Water Act Section 303(d) list of Water Quality Limited Segments” (List). States must also prioritize the water bodies on the list and develop Total Maximum Daily Loads (TMDLs) to improve water quality. At the time of the adoption of SeaWorld’s National Pollutant Discharge Elimination System (NPDES) permit in June, 2011, Mission Bay was listed on the 303(d) list of impaired water bodies as impaired because of bacteria, lead, and eutrophication. A total maximum daily load has not yet been adopted for these pollutants.

As with all structural development in Mission Bay Park, storm runoff from SeaWorld San Diego enters into the adjacent Mission Bay. In addition, SeaWorld is unique in that it uses sea water for its aquariums and show tanks, and circulates this water to and from the bay. To address water quality concerns, SeaWorld constructed two on-site treatment facilities that have been operational since October, 1991. Conceived initially to address the treatment of used aquarium water, these facilities are subject to a NPDES permit and were ultimately designed with enough capacity to treat the entire leasehold and future planned leasehold improvements. The NPDES permit requires weekly sampling of coliform, chlorine, and acidity of the effluent, which discharges into Mission Bay, and semiannual monitoring of solids, turbidity, grease, and oil. Although designed primarily for the treatment of used aquarium water, these facilities also treat surface runoff from the developed park area and the improved parking lots before discharging into Mission Bay. The remainder of the parking lot runoff enters the City’s municipal storm drain system, which is outfitted with low-flow interceptors. During more intense storm events, the nearest storm drain discharges directly into Mission Bay in the Perez Cove area (westernmost point of SeaWorld).

The current park layout includes a series of storm water and catchment areas that convey water to either SeaWorld’s Western Wastewater Treatment Plant or the Eastern Wastewater Treatment Plant. The main visitor parking lot drains southerly to the municipal storm water system. The two treatment plants are used to treat the collected outfall discharge from storm water sources, landscape irrigation runoff, and various industrial activity wastewater from exhibit pools and aquaria. With the proposed development, the volume of influent and effluent will increase but will still be within the existing Regional Water Quality Control Board permit limits, and will not require amendments to those permits. SeaWorld also has two backup generators, one each at the

west and east treatment facilities, to ensure they are operable during extended power outages.

In addition, SeaWorld has a Best Management Practices (BMP) program in place to control non-point sources of pollution during its day-to-day operations. In the past, concerns have been raised regarding SeaWorld's land and water operations with respect to maintaining optimum water quality. In particular, the manner in which surface runoff from the parking lots is discharged has been raised as a significant issue. This issue was addressed in detail in the Commission's review of the SeaWorld Master Plan, and SeaWorld's grading, drainage, erosion, and storm water requirements in that document were reviewed and found acceptable by the Commission's water quality staff. The proposed development is designed to tie into the park's existing storm water system. Moreover, the proposed development will not substantially increase impermeable surfaces or significantly change existing patterns of runoff. The subject proposal does not modify any of SeaWorld's existing water treatment, collection, or discharge facilities. These facilities currently process runoff from some of SeaWorld's paved parking lots and nearly all of its developed venues; this treatment will continue.

Because SeaWorld has an extensive water treatment system to handle water from both the stage area and surface runoff, which is monitored under a thorough permitting regimen that has identified minimal water quality violations, the proposed development, as conditioned, will not cause significant impact to the water quality of adjacent Mission Bay.

Landfill

The southeastern-most parking area of SeaWorld leasehold is underlain by a portion of the inactive Mission Bay Landfill. The City of San Diego operated the landfill from approximately 1952 until 1959. The landfill reportedly accepted municipal solid waste and some liquid industrial wastes (including acids, alkaline solutions, solvents, and paint wastes). The U.S. EPA estimates that up to 737,000 gallons of industrial wastes may have been disposed at the landfill during its operation. After closure of the landfill, dredged material from Mission Bay (consisting of mostly fine-grain material) was placed on top of the former landfill surface to a depth of approximately 15 feet. A portion of the site is currently paved with a chip-seal paving surface which allows for diffusion of landfill gases while remaining impervious to water infiltration. The proposed stage improvements are located approximately 1,700 feet to the west of the estimated western limits of the landfill and will be completely above-grade, with no excavation involved. Thus, there is no potential for contamination or human health impacts.

Conclusion

Because SeaWorld continues to intake and discharge water in and out Mission Bay, and because storm water runoff from the site and water from the expanded tanks will eventually enter the bay, **Special Condition No. 2** requires SeaWorld to submit a final drainage plan that ties into the existing treatment system currently serving the park, which the Commission and other agencies have found adequate to treat such outflows.

In conclusion, the water quality data submitted both for the current proposal as well as past developments approved by the Commission, in conjunction special conditions regulating water quality, means the proposed development will not adversely impact the water quality of coastal waters and is found in conformance with Chapter 3 of the Coastal Act.

F. HAZARDS

Section 30253 of the coastal act states in relevant part:

New development shall do all of the following:

(a) Minimize risks to life and property in areas of high geologic, flood, and fire hazard.

(b) Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along the bluffs and cliffs.

[...]

A March 17, 2015 Christian Wheeler geotechnical report indicates that the soils at the Shamu Stadium site are susceptible to liquefaction in the event of a major earthquake on the Rose Canyon Fault (1.5 miles from the site) could produce liquefaction-induced settlement of 5-8 inches, and differential settlement of 3.5-5.5 inches. However, the proposed development doesn't involve excavation of soils or construction of below-grade improvements. The new stage set will be bolted onto existing foundational framework that is already in place and that supported the existing stage set. The project will not create nor increase any hazards, consistent with Chapter 3 of the Coastal Act.

G. VISUAL RESOURCES

Section 30251 of the Coastal Act states, in part:

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas.

The proposed set reconstruction will be located within the developed boundaries of SeaWorld, near the center of the park leasehold, within the existing Shamu Stadium. The proposed development is designed to be visually consistent with the existing adjacent

structures. The proposed improvements are substantially above-grade, and the above-grade improvements will not be above 30 feet in height and will not be visible from outside of the park leasehold.

Mission Bay Park is recognized nationally as a public resource providing a wide variety of passive and active recreational opportunities in a unique, visually-pleasing setting. The park is generally horizontal in character, consisting primarily of rolling grassy areas, sandy beach, and open water. There are a number of commercial leaseholds scattered throughout the park, which have been developed to various intensities. For the most part, the structural improvements in Mission Bay Park are low scale and do not detract from the wide open feeling of the park. Limited exceptions exist in four hotel towers (Hyatt Islandia, Bahia, Catamaran, and Hilton) and three attractions at SeaWorld (the observation tower, the gondola ride, and the splashdown ride). The majority of these structures predate the Coastal Act as well as the City's 30-foot coastal height limit overlay zone passed by City voters in the 1970's.

In 1998, SeaWorld sponsored, and City voters approved, an initiative exempting its leasehold from the City's 30-foot coastal height limit overlay zone. This initiative allowed future development within the leasehold to go as high as 160 feet – half the height of the existing observation tower. The splashdown ride was approved by the Commission subsequent to this exemption and the 2002 updates to the certified Mission Bay Park Master Plan and the SeaWorld Master Plan incorporated the initiative exemption. However, the majority of the facilities at Sea World are completely or largely screened from the surrounding park and bay. The gondola ride, which supports are 100 feet tall, is in an area of existing mature vegetation that is 60-80 feet in height that provides screening. The currently developed portions of SeaWorld are heavily landscaped with a variety of mature trees, shrubs, and groundcovers. Many existing trees are 60-80 feet tall and effectively screen the interior of the park from views outside SeaWorld. In addition, the existing landforms and development in this area obscure any view of Mission Bay across the historic leasehold itself.

All of Mission Bay Park is a highly scenic public recreational resource, such that protection and enhancement of visual amenities is a critical concern for any proposed development in the park. The appropriate height of any proposed structure must consider the specific details, siting, scale, and bulk of the proposed development, the nature of surrounding development, and the potential for cumulative impacts from additional future development.

The Commission's primary concern with respect to view preservation is to assure that views currently available to the general public recreating in Mission Bay Park are not obscured or significantly degraded. The public recreational amenities at South Shores Park are located immediately east of the SeaWorld leasehold, but significantly distant from the proposed development. Across the Pacific Passage to the north of the leasehold lies Fiesta Island. Along with South Shores, this is the last remaining large piece of undeveloped parkland designated for public recreational uses. Like South Shores, anticipated improvements include grassy picnic areas, open play areas, restrooms, and

parking lots. These two areas are the closest to the SeaWorld leasehold, and thus most likely to be affected by development within the park.

The proposed stadium set upgrade is located within, but not along the perimeter of, the existing enclosed Sea World theme park, near the center. The project originally included artificial trees that would have exceeded 30 feet in height, but after discussion with Commission staff, the applicant has revised the project to lower all elements of the project to be less than 30 feet in height. Due to the existing mature vegetation throughout much of the developed park, buildings 30 feet in height or lower cannot be readily seen from outside the park. Therefore, the project will not impact the visual resources of the area.

Because the draft plans submitted show some elements exceeding 30 feet in height, **Special Condition No. 1** requires SeaWorld to adhere to revised final plans, which show the development to be completely under 30-feet in height. Thus, the Coastal Commission finds the proposed development visually compatible with the surrounding existing development, with no adverse impact on the existing scenic coastal area.

H. LOCAL COASTAL PLANNING

Section 30604(a) also requires that a coastal development permit shall be issued only if the Commission finds that the permitted development will not prejudice the ability of the local government to prepare a Local Coastal Program (LCP) in conformity with the provisions of Chapter 3 of the Coastal Act. In this case, such a finding can be made.

Mission Bay Park is primarily unzoned. As a whole, Mission Bay Park is a dedicated public park, and SeaWorld is designated as “Lease Area” in the certified Mission Bay Park Master Plan. The subject site is located within the City of San Diego in an area of deferred certification, where the Commission retains permit authority and Chapter 3 of the Coastal Act remains the legal standard of review.

However, as previously noted, the Commission has certified the SeaWorld Master Plan Update as a separate, stand-alone segment of the certified Mission Bay Park Master Plan LUP. The certified SeaWorld Master Plan Update divides the anticipated development and redevelopment needs of the entire SeaWorld leasehold into three categories: Tier 1, Tier 2, and Special Projects. Tier 1 identifies the sites and projects where new development or park renovations planned to be processed concurrently with the SeaWorld Master Plan or likely to be initiated shortly after the adoption of the master plan. Those projects include the Journey to Atlantis splashdown ride, an educational facility, front gate renovation, special events center expansion, and bicycle/pedestrian path enhancement. To date, all of those developments listed in that tier except for the special events center expansion have already occurred.

Tier 2 identifies sites within Area 1 (the developed park area) that are candidates for redevelopment; however, only general project descriptions are included in the master plan. Submittals for individual projects are expected to be made over a span of many years, and some have already been made, approved, and constructed (e.g. Manta

rollercoaster). Potential Tier 2 projects were not approved as part of the master plan, and no entitlements to redevelopment in the designated areas were granted nor implied. Finally, Special Projects are conceptual development proposals that have been identified for sites outside of the developed park but still within the SeaWorld leasehold. Like Tier 2 projects, Special Projects are not proposed to be built for many years, and like Tier 2 projects, only general project descriptions for future use are included.

The proposed development of a new set in Shamu Stadium is not specifically listed in the SeaWorld Master Plan Update as a Tier 1, Tier 2, or Special Project. However, SeaWorld is a large, public-serving facility with complex operations, and the SeaWorld Master Plan Update recognized that not all development that would occur in SeaWorld rose to the level requiring specific listing in the master plan. The master plan states that the:

...SeaWorld site is unique in both the type and frequency of development projects within the leasehold. Each year, SeaWorld processes numerous projects to upgrade park facilities and keep attractions in top working order. Additionally, in response to consumer demands and competition in the theme park industry, SeaWorld regularly undertakes renovations of its larger attractions, rides, shows, or exhibits.

Sections III and IV of the SeaWorld Master Plan establish “Development Criteria” and “Design Guidelines,” respectively, to govern subsequent development. Section III states that it:

...sets forth the development parameters applicable to the entire leasehold or specific leasehold areas in this plan. The intent is to ensure that all future development will be distributed and constructed in a manner that, to the extent feasible, harmonizes with the established visual quality of Mission Bay Park.

Section IV states that the guidelines:

...are intended as standards to be used by SeaWorld designers of buildings, landscaping, signage, and lighting as well as by maintenance personnel. The City of San Diego Real Estate Assets, Park and Recreation and Planning Departments, parks advisory committee, and City Council will utilize the design guidelines as a standard for evaluation of proposed new projects or for modifications to existing development.

Because of this recognition, in addition to the tiered project list, the SeaWorld Master Plan update contains development and design criteria regarding aspects such as public access, visual aesthetics, landscaping, and so on that apply not just to the listed Tier 1, Tier 2, and Special Projects, but to all development in SeaWorld in general. These guidelines include utilizing drought-tolerant plants and low-water irrigation, screening development from public park areas, designing visitor furnishings to be durable and visually compatible to the surrounding setting, utilizing non-glare lighting and limiting light spill over and intrusion into public views, and ensuring that architectural design conforms to the aquatic and educational nature of SeaWorld. The proposed development

is an upgrade of the existing Shamu Stadium stage area, and complies with the applicable guidelines contained in the plans. The Commission finds that the project is consistent with the SeaWorld Master Plan Update.

As conditioned, the proposed development is consistent with Chapter 3 of the Coastal Act, and thus, approval of the development, as conditioned, will not prejudice the ability of the City of San Diego to implement its certified LCP for the Mission Bay Park segment.

I. CALIFORNIA ENVIRONMENTAL QUALITY ACT

Section 13096 of the Commission's Code of Regulations requires Commission approval of Coastal Development Permits to be supported by a finding showing the permit, as conditioned, to be consistent with any applicable requirements of the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse effect which the activity may have on the environment. A certified Environmental Impact Report (EIR 99-0618) was produced in 1999 in conjunction with the current SeaWorld Master Plan Update. Although the EIR for the Master Plan does not directly include this specific project, the EIR addresses the relevant impacts potentially created by the project, such as visual impacts, traffic impacts, geologic hazards, noise impacts, and impacts to water quality. The City of San Diego is the lead agency for the purposes of CEQA, and the City determined that because the 1999 EIR contemplated the type of impacts that the proposed project could produce and that the EIR recognized that SeaWorld had pre-existing marine-related facilities that would require repair and upgrades, a new, project-specific EIR was not required.

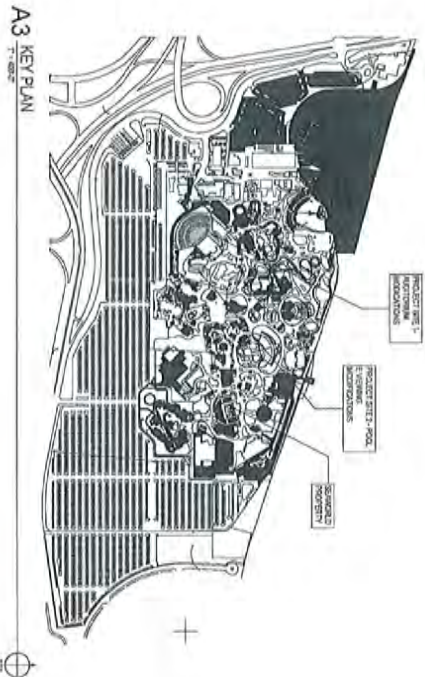
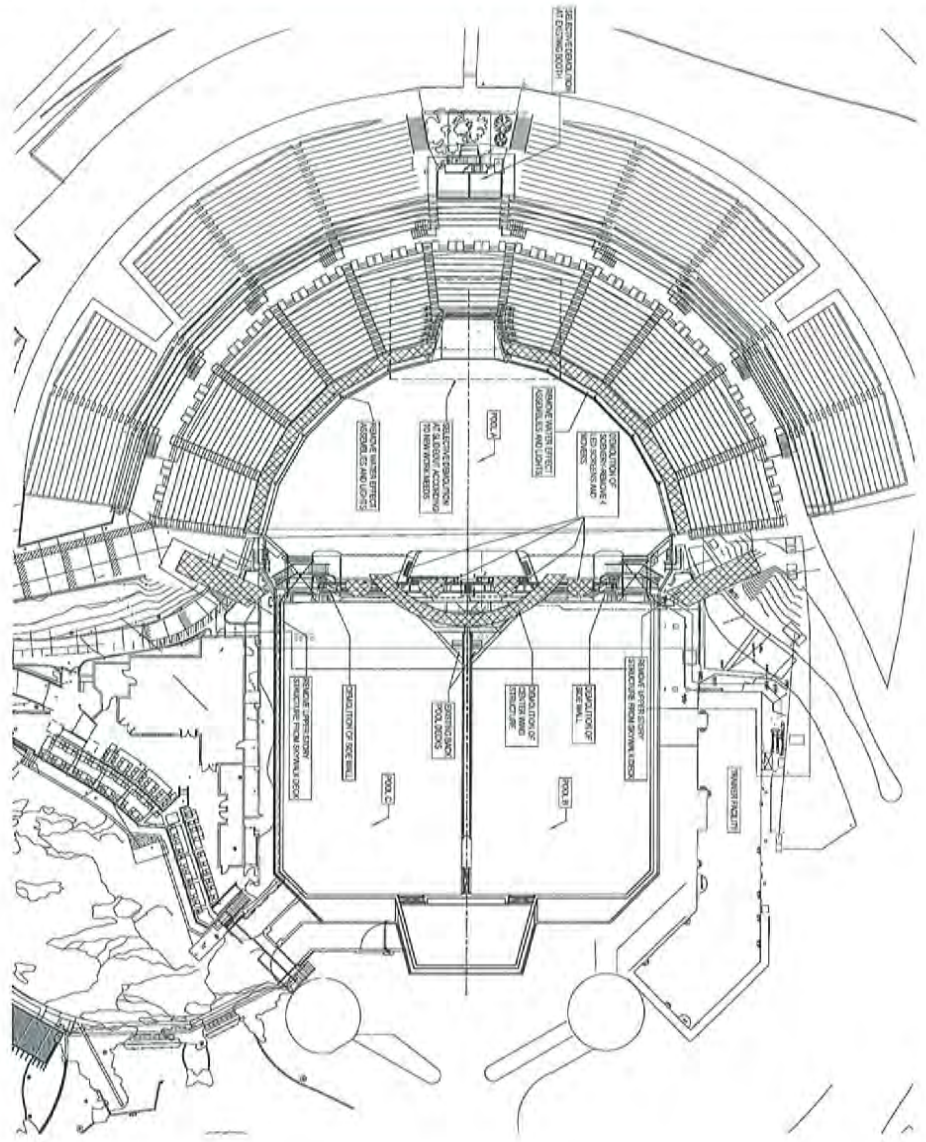
The proposed project has been conditioned in order to be found consistent with the Chapter 3 policies of the Coastal Act. Mitigation measures, including conditions addressing final construction plans, drainage plans, construction staging, disposal of graded materials, and noise attenuation measures will minimize all adverse environmental impacts. As conditioned, there are no feasible alternatives or feasible mitigation measures available which would substantially lessen any significant adverse impact which the activity may have on the environment. Therefore, the Commission finds that the proposed project is the least environmentally-damaging feasible alternative and can be found consistent with the requirements of the Coastal Act to conform to CEQA.

6-16-0483 (SeaWorld San Diego)

APPENDIX A – SUBSTANTIVE FILE DOCUMENTS

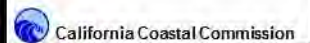


EXHIBIT NO. 2
APPLICATION NO.
6-16-0483
Aerial View

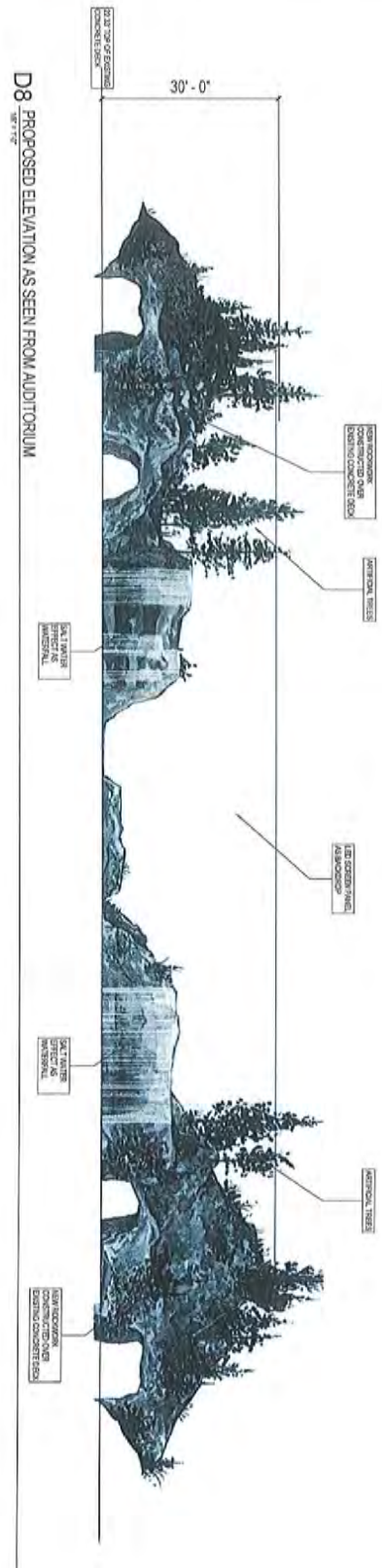


Keynote List
Keynotes: Keynote 1-14

EXHIBIT NO. 3
APPLICATION NO.
6-16-0483
Site Plans



SWSD Orea Experience 2017 San Diego, CA	
ISSUE FOR PLANNING PERMIT	
DATE: 08/15/2016	DRAWN BY: [Name]
CHECKED BY: [Name]	SCALE: 1/8" = 1'-0"
PROJECT NO.: [Number]	SHEET NO.: [Number]
TOTAL SHEETS: [Number]	A01



D8 PROPOSED ELEVATION AS SEEN FROM AUDITORIUM



A8 PROPOSED PLAN

Keynote List

PG&V
DESTINATIONS
 PLANNING & ARCHITECTURE
 10000 S. RAYBURN BLVD., SUITE 100
 DENVER, CO 80231
 TEL: 303.733.1000
 WWW.PGANDV.COM

DATE: 01/10/18
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 PROJECT: [Name]
 SHEET: [Name]

Seaworld
 SAN DIEGO
SWSD
 Ovea
 Ovea
 Experience
 2017
 San Diego, CA

ISSUE FOR PLANNING PERMIT

DATE: 01/10/18
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 PROJECT: [Name]
 SHEET: [Name]

A02



M E M O R A N D U M

TO: DARLENE WALTER

FROM: ANN BOWLES, PHD, AND PAMELA K. YOCHER, PHD, DVM

DATE: 8/21/15

RE: REGARDING NOISE, BLUE WORLD PROJECT CONSTRUCTION

CC: CORRINE BRINDLEY, CHRIS DOLD, AL GARVER, HENDRIK NOLLENS, JOHN REILLY, MIKE SCARPUZZI

We are writing to address your questions about noise that may be produced during the Blue World construction project and ambient noise following construction. One of us (Bowles) leads the Bioacoustics Program at Hubbs-SeaWorld Research Institute (HSWRI) and was a member of the NOAA Acoustic Criteria Panel that developed science-based criteria for protecting marine mammals from exposure to noise in the environment (Southall et al. 2007). The other (Yocher) is a Ph.D. veterinarian and the Vice President for Research at HSWRI; she has over 30 years of research experience in marine mammal health.

Below, we summarize information from the published literature on construction noise and from publications written by our staff containing data on ambient sound measurements in SeaWorld pools. The citations are given in "References" at the bottom of the memo.

Applicable Principles of Acoustic Propagation of Sound:

Richardson et al. (1995) and Erbe (2010) are the best references for this brief description of basic acoustic principles.

First, it is important to note that the decibel (dB), the measure commonly used to express sound level, is not an absolute measure, but calculated relative to a standard quantity (and expressed on a logarithmic scale). The standard used in water is not the same as that in air. In addition, because the density of air and water are very different, it is necessary to compensate for the density difference to compare levels between the two – otherwise the comparison is "apples to oranges". To get an intuitive feel for the relationship between the level of a sound in air and one in water, subtract 62 dB from the level in water.

EXHIBIT NO. 4

APPLICATION NO.
6-16-0483

Noise Memorandum

In homogeneous seawater and in the absence of barriers, sound attenuates (declines in level) as a function of the square of distance, a decline of 6 dB in units of sound pressure level (SPL) for each doubling of distance between source and receiver. In shallow water, the decline may drop to 3 dB or less per doubling of distance. Through structures like walls, the decline may be much greater than 6 dB

Within a pool, where sound may be channeled by surfaces such as the water's surface, bottom, and walls, attenuation can be even less than in shallow water. In addition, the sound field can be complex in a pool and will certainly depend on the amount of energy at given frequencies. Finneran and Schlundt (2007) give detailed measurements made in a small pool on a concrete pad, showing that signals with broader bandwidths attenuate less with distance than those with narrow bandwidths (most construction noise will be broadband). Bowles and Anderson (2012) found that attenuation across a SeaWorld pool averaged 2-3 dB for a 10 kHz tonal (narroband) signal. Thus, *within* the space of a pool, attenuation can be low.

However, where sound travels from *outside* across a boundary like a concrete wall, or multiple walls separated by sand, the attenuation is much greater, just as sound in air is attenuated substantially by a glass window. Generally, the greater the difference in density across the boundary, the greater the attenuation.

Propagation of sound from air into water is a special case. Except when produced directly overhead, within a cone defined by an angle of 13° around the source, sound in air transmits inefficiently into water. Sounds produced anywhere except directly overhead will be attenuated by around 30 dB. This is comparable to the difference between noise inside vs. outside a building when doors and windows are shut. The attenuation across the air-water boundary is greater than across an 8' plywood sound barrier in air.

Both distance and barriers affect sound differently depending on frequency. Higher frequencies, which the whales can hear well, are attenuated more than low frequencies, which they hear poorly (Szymanski et al. 1999). Thus, sound levels that the whales actually hear are likely to be lower than estimates of levels made without reference to their auditory thresholds.

Propagation of noise from construction activities into whale pools will first be a function of distance and second a function of the barriers or channels through which the sound propagates:

- 1) Construction activities with the potential to produce the highest received sound levels will be those in contact with pool walls or the concrete immediately adjacent to a pool, e.g., when cutting through the wall of an existing pool.
- 2) Propagation into pools can be reduced significantly by:
 - a. Increasing distance between the sound source and whales;

- b. Placing the whales on the other side of a wall or away from an overhead source, i.e., away from line-of-sight propagation;
- c. Conducting construction activities behind barriers, for example by emptying a pool to create a layer of air; by introducing a watertight gate; or by working at a distance with soil or air between the work and the wall;
- d. Minimizing or eliminating channels between the sound source and a pool with, such as water-filled pipes or filled gate channels.

We note that exposure of the whales to construction activities will be managed according to protocols designed to minimize exposure to the most intense activities, as described in SeaWorld's Blue World Construction Sound Memorandum (8/21/15).

Levels of Construction Sound Sources:

Drilling and concrete cutting are the activities likely to occur during Blue World construction that will be close to pools with whales. Drilling noise (from unspecified equipment) has been measured at long range (ca. 600 m [1968 ft]) through seawater in Sarasota Bay (Buckstaff et al. 2013). They reported received levels of 68-70 dB re 1 μ Pa (RMS SPL) at this distance. However, they did not provide source levels. We have not found any published measurements of noise from concrete cutting in seawater.

Ambient Noise in Pools:

There is no published, systematic, cross-industry review of ambient sound in oceanaria. However, there are a few published accounts with ambient noise measurements (O'Neal 1998, Wisdom et al. 2001, Finneran et al. 2005, Bowles & Anderson 2012, Scheifele et al. 2012). Generally, the ambient has been relatively uniform, mostly noise emitted by water conditioning equipment and the flow of water. Intermittently, there are higher levels produced by the animals themselves or maintenance activities (e.g., cleaning pools). Ambient levels measured by HSWRI in one of the killer whale pools at SeaWorld (Wisdom et al. 2001) were as quiet or quieter than in comparable facilities. In the low frequency range, levels averaged around 100 – 120 dB re 1 μ Pa²/Hz (the accepted unit of measurement for broadband sound), which is within or below the levels published elsewhere. Above 1000 Hz, it was in the range from 40-50 dB re 1 μ Pa²/Hz, or comparable to quiet surface waters (little wind or waves) and close to the realistic lower limit for ocean noise. Levels measured in another SeaWorld pool were slightly higher (Bowles & Anderson 2012), averaging 40-60 dB re 1 μ Pa²/Hz above about 5 kHz, but still within the range of quiet ocean conditions. Levels measured in other holding facilities were comparable to these or higher (O'Neal 1998, Finneran et al. 2005, Scheifele et al. 2012)¹.

Perspectives on Ocean Noise:

A review of the literature on noise in the ocean is beyond the scope of this document. However, a few notes are relevant.

Killer Whale Hearing. Killer whales hear well from 1 kHz to about 120 kHz (Szymanski et al. 1999).

Killer Whale Sounds: Killer whales vocalize at varying levels. Estimated source levels of their social signals are in the range 135 – 175.7 dB RMS SPL (Holt et al. 2011). Echolocation clicks are higher, in the range 195 – 224 dB re 1 μ Pa (Au et al. 2004).

Ocean Ambient: Generally, ambient levels are greatest in the range from a few Hz to about 300 Hz, and decline at higher frequencies until the thermal limit of noise is reached above about 100 kHz (Dahl et al. 2007, Erbe 2010).

Dahl et al. (2007) summarized the literature on broadband ocean noise and compared it with terrestrial ambient noise. An important conclusion of their analysis is that vessel noise in the ocean is as ubiquitous and as important as traffic noise in the terrestrial environment. Above 1000 Hz, the quietest ocean ambient (without waves, water flow, and wind) is around 30-40 dB re 1 μ Pa²/Hz (Dahl et al. 2007, Figure 2), but more usual conditions of light wind average 50-80 dB in open waters. Heavy shipping has elevated the ocean ambient worldwide (see figures in Dahl et al. 2007 and Erbe 2010), but the majority of this noise is at very low frequencies, in the range that killer whales hear poorly. Smaller boats at relatively close range are the most important human-made noise in killer whale habitat. In the Pacific Northwest, endangered Southern Resident killer whales are exposed to broadband ambient noise levels produced by vessel traffic reaching 120 dB re 1 μ Pa in the 1- 40 kHz band (Holt et al. 2009). In some parts of their critical habitat, the exposure is present for 90% of the whales' daytime hours during the summer.

Snapping shrimp are ubiquitous in tropical and temperate shallow waters, and they produce sounds that span the range of frequencies that killer whales hear well. In coastal zones, they can average 100-120 dB re 1 μ Pa²/Hz from around 300 Hz to 200 kHz (Au and Banks 1997). This noise is continuous, with only moderate changes in level over the course of a day.

NOTE:

- 1) The units of measurement for spectra (representations of level across frequencies) differ among publications. Oceanographers generally use power spectral densities, calculated in 1 Hz bands and expressed in dB re 1 $\mu\text{Pa}^2/\text{Hz}$ (or its equivalent, 1 $\mu\text{Pa}/\sqrt{\text{Hz}}$). However, levels may also be calculated in wider bands and expressed as average spectral level (units SPL, in dB re 1 μPa). Comparisons across these scales are usually “apples-to-oranges”. For the purposes of comparing oceanarium levels with levels in the ocean, we have elected to report levels in dB re 1 $\mu\text{Pa}^2/\text{Hz}$, and have used summary graphs in Dahl et al. (2007, Fig. 2) and Erbe (2010, Fig. 5) as the points of comparison for noise in the ocean.

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October 7, 2016

Darlene Walter
SeaWorld of San Diego
500 SeaWorld Drive
San Diego, CA 92109

Project: SeaWorld Orca Experience
Subject: Noise Impact Mitigation

Dear Ms. Walter,

Four over 50 years, Rudolph and Sletten has successfully built projects across the State of California for clients such as the San Diego Zoo and Wild Animal Park, Chula Vista Nature Preserve Center, Scripps Institute of Oceanography, and Monterey Bay Aquarium. However, it's our history with SeaWorld San Diego that makes this project a welcomed addition to our long line of successful projects together. These projects include the 4D Theater, Cirque de la Mer, Pets Rule, Seal and Otter Renovation, Blue Horizon Dolphin Show and several Shamu Stadium Pool upgrades. With this experience, we have continually demonstrated our ability to attain SeaWorld's schedule and quality while minimizing the impact to your daily operations. Our familiarity with working inside the park and the uniqueness to this environment is quite extensive.

For the Orca Experience project, Rudolph and Sletten has placed a high priority on making sure that the Orca trainers are always satisfied with the approach to our construction work to help support the monitoring of whale behavior and their well-being. This concern will be address by constant communication with the trainers. We will always clearly discuss our work plans for review and approval by SeaWorld, and the trainers specifically. Work plans will include the time to complete the work as well as communicating the type of work, and equipment and tools to be used. A significant area of mitigation is the work located on stage. R&S will develop detailed daily execution plans to be reviewed with SeaWorld that address, worker safety, working hours, protection from foreign objects entering the pools, whale barriers, and noise generated from our equipment and tools.

In order to have a better understanding of the expected noise levels generated by the construction operations, we have prepared a Map that shows the area of impact and a corresponding table that provides a description of the proposed work, expected noise level, type of equipment/tools to be used, and duration of work for the specific activities. It is our intent to distribute a similar document to communicate to the SeaWorld staff on a weekly basis with the schedule for the expected activities.

In order to mitigate the noise produced by the various tools and equipment, below are some of the noise mitigation measures that will be employed at various times of the project by Rudolph and Sletten:

- Crane Erection – Keep assembly of the crane behind the rear of the stadium. Use top tier equipment with low emissions that generate less noise.
- Concrete demolition – Use “wet” saws to cut concrete which reduces dust and sound. Limit or eliminate the use of jackhammers and chipping guns by saw cutting the concrete to sizes that can be removed by equipment loaders or by hand.

- Stage demolition- Use more hand tools to disassemble the existing construction. Minimize use of impact wrenches and drills. Use mufflers on pneumatic tools if possible. Utilize sound blankets where appropriate. Install water filled K-Rails around the perimeter to help shield noise.
- Concrete placement – Stage concrete trucks at least a 100 feet away from placement areas and utilized hoses and pumps to place the concrete. Use rubber mallets to dismantle formwork in lieu of metal hammers.
- General
 - Coordinate work with Orca Trainers to relocate animals temporarily.
 - If necessary, research, design, and engineer sound enclosures to encapsulate specific work areas to eliminate sound from being transmitted directly to areas not acceptable to the trainers.

Rudolph and Sletten takes the safety and work area environment planning and execution of occupied space construction very seriously. We will work diligently to plan, minimize and mitigate exposure on each project we construct. Through experience, thorough planning and careful process compilation and development, Rudolph and Sletten has developed best practices that, with SeaWorld input, will ensure safety and the least impact to everyone affected by the construction work.

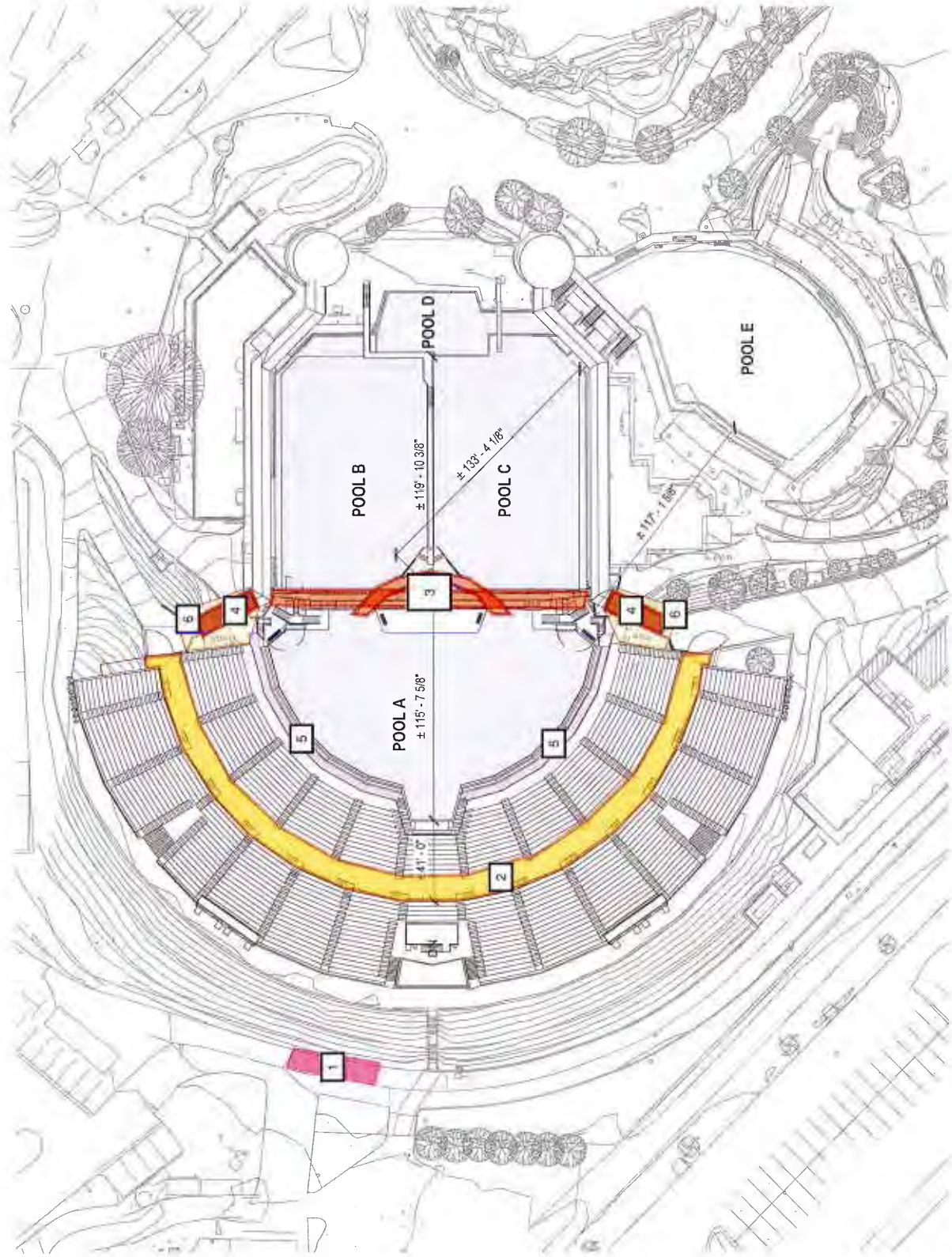
If you have any questions, please contact me at 619-247-8885.

Sincerely,

RUDOLPH AND SLETTEN, INC.



Nestor Comandante
Sr. Project Manager



MAP ID#	ACTIVITY DESCRIPTION	NOISE TYPE (TOOLS/EQUIPMENT) BEING USED	DURATION		APPROXIMATE TIME OF ACTIVITY
1	Crane Set-up and Operation	90 Ton assist crane to erect 400 Ton Crane	01/09/17	01/10/17	50%
2	Demo and removal of existing upper concrete walkway at stadium	Saw cut, mini-excavator, compressor, and small hand tools	01/10/17	01/30/17	75%
2	Install of new concrete walkway	Mini-excavator for grading (if necessary), and small hand tools	01/24/17	02/13/17	25%
3	Stage demolition	Sawzall, hand reciprocating saws, torches, hammers, screwdrivers, stripping bars. hand tools for unbolting connections	01/12/17	01/27/17	70%
3	Stage deck structural modifications (column bases)	Roto-Hammer, concrete vibrator, & hand tools, vacuum cleaner	01/30/17	02/14/17	50%
3	Installation of Structural Steel	Welding equipment, hammers, hand tools, electric drill for wrenches.	02/15/17	03/08/17	60%
4	Demolition of roof structure at walkways	Hand tools (soft demo), sawzall, hammers, small tools	01/30/17	02/06/17	75%
5	Demo and removal of existing lower concrete walkway at stadium behind trench drain.	Concrete saw cut equipment, compressor, small hand tools.	01/24/17	02/13/17	75%
6	Shotcrete Rockwork installation	Air Compressor, pump, small hand tools	03/20/17	04/14/17	25%

NOTE: It is NOT the intent of this table to show that the equipment/tools listed will be used constantly during the entire duration of the construction activities. The equipment/tools will be used intermittently and will be conveyed to the SeaWorld staff on a daily basis of the specific activity that is scheduled, the expected noise, and duration of such work so the SeaWorld staff and Rudolph & Sletten can plan accordingly.



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OF THE UNITED STATES**

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September 28, 2016

Mr. Alexander Llerandi
Coastal Program Analyst
California Coastal Commission San Diego District
7575 Metropolitan Drive, Suite 103
San Diego, CA 92108-4421

VIA EMAIL: Alexander.Llerandi@coastal.ca.gov

RE: SeaWorld Orca Encounter set changes

Dear Mr. Llerandi,

On behalf of The Humane Society of the United States (HSUS), I am writing with regard to SeaWorld's **proposed set renovations for the orca habitat at the San Diego park.**

In March of this year, HSUS announced with SeaWorld an agreement that will further **both groups' missions and is based on our joint interest in preserving and protecting** the health of our oceans and the animals they call home.

The HSUS is the nation's largest and most effective animal protection and advocacy organization that is seeking a humane world for people and animals alike by driving transformational change in the U.S. and around the world. HSUS and its affiliates provide hands-on care and services to more than 150,000 animals each year.

We commend SeaWorld for its decision to end orca breeding. Because SeaWorld has not collected orcas from the wild in nearly 40 years, this decision means that this is **the last generation of orcas in SeaWorld's care.** While the orcas live out their lives at SeaWorld, HSUS also commends the company for ending its theatrical performances of orcas in favor of orca encounters that highlight the **whales' natural behaviors in** more natural settings. The permit that SeaWorld is seeking is consistent with **SeaWorld's progress along this front.**

Please don't hesitate to contact us with any further questions.

Sincerely,

Nicole Paquette
Vice President, Wildlife Protection
npaquette@humanesociety.org

EXHIBIT NO. 5
APPLICATION NO. 6-16-0483
Letter of Support
California Coastal Commission