# New Restaurant at Ferry Landing

Second Addendum to the Final Environmental Impact Report for the Coronado Boatyard Plan Amendment: The Wharf Development Project

UPD #83356-EIR-143; SCH #88062222

Prepared for:



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## ACRONYMS AND ABBREVIATIONS

ALUC	Airport Land Use Commission
ALUCP	Airport Land Use Compatibility Plan
BMP	best management practice
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
City	City of Coronado
CMP	Congestion Management Plan
dBA	A-weighted decibel
District	San Diego Unified Port District
DTSC	Department of Toxic Substances Control
EIR	Environmental Impact Report
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
LOS	level of service
MRZ	Mineral Resource Zone
NASNI	Naval Air Station North Island
PMP	Port Master Plan
project	New Restaurant at Ferry Landing Project
PTWC	Pacific Tsunami Warning Center
PVC	polyvinyl chloride
RAQS	Regional Air Quality Strategy
SANDAG	San Diego Association of Governments
SDAPCD	San Diego Air Pollution Control District
SDIA	San Diego International Airport
Sf	square feet
SR-	State Route
UWMP	Urban Water Management Plan
Wharf Development	Coronado Boatyard Plan Amendment, The Wharf Development
WC/ATWC	West Coast/Alaska Tsunami Warning Center

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## 1.0 INTRODUCTION

Ferry Landing Associates, LLC., as the project Applicant, has submitted an application for a bayside commercial development that would accommodate up to two restaurants (proposed project). The proposed project would implement a portion of the restaurant component of a previously approved commercial development project that was analyzed pursuant to the California Environmental Quality Act (CEQA) in the Final Environmental Impact Report (FEIR; UPD #83356-EIR-143; SCH #88062222) certified by the San Diego Unified Port District (District) for the Coronado Boatyard Plan Amendment – The Wharf Development Project (herein, Wharf Development). This Addendum clarifies modifications to the commercial development evaluated in the FEIR, as further described below. The District, as the lead agency under CEQA, has prepared this Addendum to the FEIR. This Addendum documents that the proposed project, known as the New Restaurant at Ferry Landing, would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and would meet the conditions in State CEQA Guidelines Section 15164, which allows compliance with CEQA with the approval of an addendum to a previous environmental document. The proposed project involves the implementation of a component of the overall development considered in the FEIR for the Wharf Development and would not exceed the type or amount of development anticipated in the FEIR.

This section includes a summary of the previous development approvals and environmental documentation associated with the proposed project site, descriptions of the existing site conditions and proposed project details, an overview of applicable State CEQA Guidelines Sections 15162 and 15164 that permit the preparation of an addendum to a previous environmental document, and a determination by the District that an addendum to the FEIR is appropriate for the proposed project. The District's determination in Section 1.0 of this Addendum is supported by the environmental checklist in Section 2.0, *Environmental Checklist*, of this Addendum, and references and a list of preparers of this document are provided in Section 3.0, *References and List of Preparers*.

## 1.1 PREVIOUS ENVIRONMENTAL REVIEW AND DEVELOPMENT

The FEIR for the Wharf Development was certified by the Board of Port Commissioners (Board) by Resolution No. 89-382 (District Clerk Document No. 24647) on December 19, 1989. The FEIR analyzed an amendment to the Port Master Plan (PMP) and the proposed development of approximately 3.9 acres of land (including the 0.5-acre proposed project site) and 2.8 acres of adjacent water in the City of Coronado (City). The FEIR included development of one and two-story buildings with a maximum height of 40 feet, including three full service restaurants of 23,000 square feet (sf), other food and beverage services shops of approximately 9,000 sf, and retail and management office space of 43,000 sf, for a total of approximately 75,000 sf. The FEIR also analyzed a below-grade parking structure of approximately 462 parking spaces as well as extensive perimeter landscape improvements. In addition, a 30-foot-wide apron wharf was planned for pedestrian and bicycle access along 600 feet of the San Diego Bay (Bay). The former marine railway area was retained to allow the Bay to flood the indent area. A sheltered harbor area consisting of two L-shaped docks was proposed to provide approximately 28 slips.

The FEIR included mitigation measures and specific conditions to reduce potentially significant impacts related to aesthetics, air quality, biological resources, cultural resources, hazards and hazardous materials, noise, and transportation and traffic. It should be noted that the FEIR did not number the FEIR mitigation measures or specific conditions; however, they have been numbered for clarity within this

document and in the Mitigation, Monitoring, and Reporting Program (MMRP). See Appendix A, *Mitigation, Monitoring, and Reporting Program*, for a complete list of mitigation measures and specific conditions included in the FEIR. The Board also adopted a statement of overriding considerations for significant and unavoidable impacts to aesthetics (Bay views) and transportation and traffic (parking).

The PMP amendment, included as part of the Wharf Development project, was certified by the California Coastal Commission (CCC) on June 15, 1990 and incorporated into the PMP. One of the mitigation measures related to hazardous materials was implemented through the preparation of a Site Assessment and Remediation Report, and a Closure Letter was issued for the project site in July 1997 (see Appendix C, Closure Letter - County of San Diego Department of Environmental Health). On November 18, 1997 a Coastal Development Permit (CDP) (CDP-97-3) was issued by the Board for the Ferry Landing Expansion (Resolution Number No. 97-248; Clerk Document No. 36851), which included development and operation of the Wharf Development project area. CDP-97-3 allowed for the construction of two restaurants with a total of approximately 18,500 sf, approximately 6,500 sf of offices, parking for approximately 255 vehicles, rip-rap and revetment shoreline protection, extension of the bicycle path along the waterfront, and landscaping improvements; however, only a portion of this development has been constructed as further described below. Since the CDP was issued in 1999, the first restaurant, II Fornaio, was constructed and included an approximately 11,700 sf, one-story restaurant. Additionally, a 6,500-sf two-story office building and surface parking lot containing approximately 269 parking spaces was constructed instead of a subterranean parking lot with 462 parking spaces, which was previously analyzed in the FEIR.

In 1999, mitigation measures and specific conditions from the FEIR were implemented to reduce potentially significant operational impacts on noise and transportation and traffic. Potentially significant noise impacts due to vehicle traffic accessing the Wharf Development were mitigated by the relocation of the access/egress driveway about 50 feet further west and the construction of a six-foot-tall noise wall. Lastly, some traffic improvements were completed, including fair share contributions for signalization of First Street and Orange Avenue and the construction of a right-turn lane from eastbound First Street onto southbound A Street.

In 2008, an Addendum to the FEIR was prepared for the construction of a second restaurant (District Clerk Document No. 53309). The 2008 Addendum addressed plans to construct a second 11,500-square-foot restaurant, pavement approaches to the restaurant entry, and adjacent landscape improvements to the site. Since the construction of the second restaurant was not built within two years of CDP-97-3 permit issuance, a special provision of CDP-97-3, a CDP amendment (CDP-2008-82; Clerk Document No. 53487) was approved to allow for construction of the second restaurant. Due to market conditions, the second restaurant was not constructed, and the proposed second restaurant site (the project site) remains vacant.

In October 2015, a District Tenant Project Plan Application and Environmental Application was submitted by Ferry Landing Associates, LLC, which is further described as the proposed project in subsection 1.3 of this document, below.

## 1.2 PREVIOUS AND EXISTING CONDITIONS

The project site is located at 1355 First Street in the Coronado along the San Diego Bay within the jurisdiction of the District, as shown in Figure 1, *Regional Location*, and Figure 2, *Project Vicinity*. The San Diego Bay is located to the north and northeast of the project site and two- and three-story residential



## **Regional Location**

NEW RESTAURANT AT FERRY LANDING

Figure 1

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## **Project Vicinity (Aerial Photograph)**

NEW RESTAURANT AT FERRY LANDING

Figure 2

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multi-family buildings are located to the south and include apartments and condominiums. Regional access to the proposed project area is provided by State Route (SR-) 75, Orange Avenue, and First Street, and local access to the site is available from a driveway near the intersection of First Street and "A" Avenue. As shown on Figure 3, *Project Site*, the project is part of the approved Coronado Boatyard Plan Amendment, The Wharf Development (Wharf Development). The project site is located within Planning District 6 of the certified PMP. The PMP land use designation for the project site is Commercial Recreation, which allows for hotels, restaurants, convention centers, recreational vehicle parks, specialty shopping, pleasure craft marinas, and sport fishing. Below is a description of the project site and surrounding areas as described in the FEIR, followed by a description of the existing and surrounding conditions as they currently exist in 2018. Table 1, *Comparison of Existing Conditions*, as shown below, provides a summary by environmental topic of the existing conditions in 1989 vs 2018.

The project site at the time the FEIR was certified in 1989 was part of a developed industrial boatyard that had existed since the 1940s. The boatyard was described in the FEIR as consisting of a two-story, 5,000 sf office building, shop buildings, marine ways and rail system, bare ground, asphalt, concrete, and crushed-rock paving. The boatyard included electricity, sewer, water, gas, and telephone infrastructure and facilities. Water area improvements were described as consisting of deteriorating docks and broken concrete and rip-rap bank revetments. Areas surrounding the boatyard in 1989 included two- and three-story multi-family residences and commercial and recreational development associated with the Coronado Ferry Landing Complex.

Currently, the project site is a 0.5-acre undeveloped and graded building pad composed of compact fill. The site is generally flat and ranges from about 10 to 13 feet above mean sea level. There are existing utilities at the project site, including infrastructure for stormwater, potable water, sewer, irrigation, and natural gas. An existing catch basin occurs in the northern portion of the site that connects to an outlet to the San Diego Bay. In addition, an existing approximately 18-inch and approximately 24-inch reinforced concrete pipe storm drains are also located in the southwestern part of the project site near the parking lot and drain beneath the site into the San Diego Bay. An existing approximately 4-inch water line made of polyvinyl chloride (PVC), an approximately 6-inch sewer line, and an approximately 2-inch PVC irrigation line occurs in the southern-central part of the site. A gas line is also present in the southeastern part of the site.

Further west of the Wharf Development is the Coronado Ferry Landing Complex, which includes a restaurant (Peohe's), a dock for the Coronado Ferry, a beach, grass areas, several smaller retail shops, and fast-food restaurants. A 15-foot-wide shoreline public walkway that is part of a regional pathway for pedestrians and cyclists around the San Diego Bay, known as the Bayshore Bikeway, occurs between the project site and the San Diego Bay. A series of three existing observation decks are located directly across the shoreline public walkway from the project and are situated above the riprap along the shoreline.



NEW RESTAURANT AT FERRY LANDING



Environmental Issue	FEIR Conditions	Existing Conditions	Change
Area	(1989)	(2018)	Developed industrial
Aesthetics	a two story. E 000 sf office building	site with 6 500 of of office and	bestvard to partially
	shop buildings marine ways and rail	18 200 sf of commercial	developed commercial
	sustam bare ground asphalt	dovelopment including a	site with a vacant
	concrete, and crushed-rock naving	vacant commercial building	commercial building nad
	surrounded by the San Diego Bay	nad surrounded by the San	
	two- and three-story multifamily	Diego Bay, two- and three-story	
	residences and the Coronado Ferry	multifamily residences and the	
	Landing Complex	Coronado Ferry Landing	
		Complex	
Air Quality	Emissions and odors associated	Emissions and odors associated	Industrial emissions and
	with operations at an industrial	with operations at a	odors to commercial
	boatyard	commercial development	emissions and odors
<b>Biological Resources</b>	Developed landside with no	Graded building pad with no	Developed landside to
	sensitive plants or animals	sensitive plants or animals	graded building pad
Cultural Resources	Filled site with no prehistoric or	Filled site with no prehistoric or	None
	paleontological resources. Potential	paleontological resources.	
	for historic piers or wharf materials	Potential for historic piers or	
	within fill	wharf materials within fill	
Geology/Soils	Geologic conditions were	Geologic conditions are	None
	determined favorable to support	considered favorable to	
	the proposed development with	support the proposed	
	liquefaction concerns	development with liquefaction	
		concerns	
Hazards and	Hazardous waste was used and	No hazardous waste used or	Remediation activities
Hazardous Materials	stored at the boatyard and active	stored at the site and no active	have removed previous
	hazardous sites were present	documented hazardous sites	hazardous waste
		are present	
Land Use/Planning	Industrial land use designation	Commercial land use	Industrial to Commercial
		designation	land use designation
Noise	Vehicular and waterborne traffic,	Vehicular and waterborne	None
	aircraft, and business activities	traffic, aircraft, and business	
		activities	
Public Services	City of Coronado Fire and Police and	City of Coronado Fire and	None
	Harbor Department Fire and Police	Police and Harbor Department	
		Fire and Police	
Transportation/Traffic	All study area intersections	All study area intersections	Reduced congestion and
	operated at acceptable levels of	operate at acceptable levels of	improved intersection
	service, except for 3 <sup>rd</sup> and 4 <sup>th</sup>	service, including 3 <sup>rd</sup> and 4 <sup>th</sup>	safety and operations
	Streets at Orange Avenue	Streets at Orange Avenue	
Utilities/Service	Utilities included to serve previous	Utilities included to serve	Utilities modified to be
Systems	boatyard	current and future commercial	suitable for commercial
		uses	uses

Table 1 COMPARISON OF EXISTING CONDITIONS<sup>1</sup>

1. Evidence for these summary statements is provided in Chapter 2, *Environmental Checklist*, of this Addendum.

2. Agriculture Resources, Hydrology and Water Quality, Mineral Resources, Population/Housing, and Recreation were concluded to have no impacts in the FEIR and are not included in this table.

## 1.3 PROJECT DESCRIPTION

The proposed project includes a bayside commercial development that would accommodate up to two restaurants within the District's jurisdiction, located within the City of Coronado (City). Specifically, the project includes the development of a single-story 7,500 sf commercial building with outdoor seating areas and landscaping improvements that would accommodate one or two restaurants. The project would operate under the existing 40-year lease with the District, which began in 1997 and will expire in 2037. There are no proposed modifications to the duration of the lease. Table 2, *Comparison of Proposed Conditions*, as shown below, provides an overview of how the individual components of the proposed project compare to the overall FEIR development.

## **Project Layout and Design**

The proposed 7,500-square-foot building would accommodate a total of approximately 300 guests, including 190 indoor guests and 110 outdoor guests, and would be 23 feet in height. As shown on Figure 4, *Proposed Site Plan*, the proposed building would be situated in the middle of the project site toward the existing parking lot and would provide the option to accommodate up to two tenants within a single building. Two separate entrances are planned near the parking lot and two outdoor seating areas are proposed between the restaurant and the existing shoreline public walkway, including one pervious wooden patio and one impervious concrete patio. Two smaller outdoor seating areas are included along the western side of the building and in the southeastern portion of the project site. Bicycle racks would be installed at the southwestern portion of the site along the sidewalk and at the three existing concrete viewing decks over the San Diego Bay. A covered 224 sf utility and trash area is proposed at the southeastern corner of the site, adjacent to the proposed utility and trash area. Parking for the project would be provided within the existing 269 spaces in the parking lot located south and adjacent to the project. No changes to the current parking configuration are proposed with the exception of re-striping to include handicapped-accessible parking stalls.



## **Proposed Site Plan**

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Торіс	Approved Wharf Development (1989)	Existing Conditions (2018)	Proposed Project	Existing Plus Project	Change
Project Components					
Land Use	Office, Retail, Restaurant	Office, Restaurant	Restaurant	Office, Restaurant	Reduced
Total Development	75,000 sf	18,200 sf	7,500 sf	25,700 sf	Reduced
Restaurant Development	23,000 sf	11,700 sf	7,500 sf	19,200 sf	Reduced
Number of Restaurants	3	1	1 or 2 2 or 3		Reduced or Same
Building Height	2 stories/40'	2 stories/<40'	1 story/23' 2 stories/<40'		Reduced
Construction					
Time of Day	Day and Night		Day	Day	Reduced
Duration	14 months		9 months	9 months	Reduced
Activities	Remove industrial uses, grade commercial site and prepare underground parking	Not applicable	Clear and grub site, prepare foundation, and construct building	Clear and grub site, prepare foundation, and construct building	Reduced
Loudest Equipment (at 50 feet)	Backhoe (85 dBA)		Auger (84 dBA)	Auger (84 dBA)	Reduced
Parking					
Required	610 <sup>1</sup>	150 <sup>2</sup>	100 <sup>2</sup>	250 <sup>2</sup>	Reduced
Included	462	269	0	269	Reduced

Table 2 COMPARISON OF PROPOSED CONDITIONS

1. Parking requirement per FEIR, which required 3 spaces/1,000 sf for office, 3.8 spaces/1,000 sf for retail and 20 spaces/1,000 sf for restaurant. Source for parking requirement was the Urban Land Institute.

2. Parking requirement per FEIR specific condition SC-1, which requires 5 spaces/1,000 sf for retail and office, and 10 spaces/1,000 sf of restaurant.

The landscaping plan, which is shown on Figure 5, *Proposed Landscape Plan*, would incorporate a "beach dune" planting design theme to be consistent with the visual character of the surrounding area. Proposed plantings include grasses and low-water-use plants and palm trees. The palm trees would be located toward the parking lot and low-lying vegetation would be planted toward the San Diego Bay. Existing overhead lighting located along the 15-foot-wide shoreline public walkway would be removed and replaced with low-profile bollard lighting along both sides of the walkway. Three bio-filtration areas are proposed, including two at each entrance of the restaurant building and one between the outdoor seating area and the walkway. As discussed above, the existing utilities at the project, including infrastructure for stormwater, potable water, sewer, irrigation, and natural gas, would be utilized by the proposed project.

The design of the proposed building is depicted on Figure 6, *Architectural Rendering (Daytime)*, and Figure 7, *Architectural Rendering (Nighttime)*. As shown in the renderings, the architecture incorporates strong horizontal elements with a focus on windows and open areas that flow into outdoor patio areas. As shown on Figure 8, *Building Elevations*, materials would include recycled composite wood panel exterior walls with metal framing, operable windows to promote natural ventilation, and a reflective thermoplastic polyolefin roof to reduce heat island effect. A vegetated wall would be included on the southern façade, toward the center of the building. Glass wind screens are proposed around the



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## Architectural Rendering (Daytime)

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## Architectural Rendering (Nighttime)

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## **KEY NOTES - 01 CONCEPT DESIGN**

## **Building Elevations**

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outdoor patio areas, including a low-profile stone wall with a glass screen between the restaurant building and the shoreline public walkway. The utility and trash area on the southeastern side of the building would be constructed of concrete and metal framing. Solar panels are proposed on the roof, along with four heating, ventilation, and air conditioning units and four tankless natural gas water heaters. All mechanical equipment would be enclosed within a recessed well and would not be visible from the ground. Low-flow and/or waterless fixtures would be installed throughout the building.

### Construction

Construction of the project is expected to occur over nine months, anticipated to begin in 2018, and would involve an average of approximately 100 construction round trips per day, with a maximum of up to approximately 180 round trips in a single day. Construction would include three phases: (1) preliminary earthwork; (2) foundation work; and (3) building construction and exterior site work. No nighttime construction is proposed.

- Phase 1 Preliminary earthwork is anticipated to occur over an approximately one-month period and would involve general clearing and grubbing of the site using small earth-moving equipment. Due to the existing flat topography of the site, mass grading of the site is not anticipated.
- Phase 2 Foundation work is anticipated to be conducted over an approximately one-month period and would include construction of the pad and continuous foundations. Concrete would be placed using a boom pump and would be delivered to the site via self-contained concrete mixing transport trucks. Pre-drilled (cast-in-place) foundation piles would be installed with the use of an auger to support the foundations and would include approximately 40 individual foundation piles.
- Phase 3 Building construction and exterior site work would occur over an approximately sevenmonth period and would involve the installation of the structure using large steel I-beams, open web trusses, and cold-formed metal stud framing. Equipment for this phase would include rubber-tired hydraulic cranes and man-lifts. Exterior site work during the final phase of construction would include landscaping, decking, and sidewalk installation.

### Operation

Project operations would involve full-service indoor and outdoor dining activities, similar to other restaurant activities in the immediate vicinity, such as II Fornaio. These activities include food and drink preparation for buffets or catered meals and traditional dining, seven days a week and year-round. Operations are anticipated to occur between the hours of 7:00 a.m. and 11:00 p.m., and the majority of customers are expected to patronize the restaurant in the evenings (e.g., after 4:00 p.m.). No changes to the existing lease are included, and the tenant's existing lease would remain in place until 2037. The proposed project would require issuance of an amendment to CDP-97-3, pursuant to Section 14.d of the District's CDP Regulations.

### **Project Reviews and Approvals**

The District is the lead agency under CEQA and responsible for approval of the proposed project. It is anticipated that the following approvals would be required:

- Concept Approval
- FEIR Addendum
- Coastal Development Permit Amendment
- Real Estate Agreements

## 1.4 **REGULATORY OVERVIEW**

A subsequent EIR is not required provided that none of the conditions set forth in State CEQA Guidelines Sections 15162(a) are met. Subsection 1.5, *Determination*, below provides a discussion for each of the requirements listed in State CEQA Guidelines Section 15162(a) and how the proposed project would not meet any of the conditions that require preparation of a subsequent EIR. Moreover, Subsection 1.5, *Determination*, provides a discussion for how implementation of the proposed project would meet the conditions set forth in State CEQA Guidelines Section 15164 that must be met to prepare an addendum to a previously certified EIR.

Section 15162(a) of the State CEQA Guidelines states that no further environmental review is required for a project for which an EIR has been previously prepared, provided that none of the following conditions are present:

- Substantial changes are proposed in the project that will require major revisions of the previous EIR because of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- 2) Substantial changes occur with respect to the circumstances under which the project is undertaken, which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- 3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable due diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following: (a) the proposed project will have one or more significant impacts not discussed in the previous EIR; (b) that significant effects in the FEIR will be more severe; (c) mitigation measures or alternatives previously found to be infeasible would substantially reduce one or more significant effect of the project; or (d) mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measures or alternative.

Section 15164 of the State CEQA Guidelines includes additional guidance for preparing an addendum:

- a) The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.
- b) An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.

- c) An addendum need not be circulated for public review but can be included in or attached to the final EIR.
- d) The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.
- e) A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in the addendum to an EIR, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

## 1.5 DETERMINATION

Based on the environmental analysis included in Section 2.0 of this Addendum, the District concludes that an addendum to the FEIR is appropriate for the proposed project. The following discussion includes a response to each of the criteria identified in Sections 15162(a) and 15164 of the State CEQA Guidelines in support of this determination.

State CEQA Guidelines Section 15162(a) states that when an EIR has been certified for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following:

a) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

**Discussion:** As discussed in Section 2.0 of this Addendum, the proposed project would not include changes which will require major revisions of the previous FEIR due to new or substantially more severe impacts than identified in the FEIR. Changes to the proposed project when compared to the Wharf Development evaluated in the FEIR include reduced development and the installation of 40 cast-in-place piles to support the proposed building foundation (which was not identified in the FEIR). Specifically, the proposed project, when considered with the rest of the Wharf Development analyzed in the FEIR, would result in the following reductions (also see Table 2): (1) overall development (23,000 sf with the proposed project plus existing conditions versus 75,000 sf in the FEIR); (2) restaurant development (19,200 sf with the proposed project plus existing conditions versus 25,700 sf in the FEIR); and (3) building height (a one story building at 23 feet in height with the proposed project versus two story buildings up to 40 feet in height in the FEIR). The FEIR also described proposed in-water work in San Diego Bay, nighttime construction, and an underground parking garage, none of which is proposed. Due to these reductions in development, there would also be a related reduction in construction equipment, construction duration, vehicle trips during construction and operations, energy use, and excavations, and project-related impacts would generally be reduced. As a result, the proposed project involves a similar type of development anticipated in the Wharf Development FEIR (i.e., restaurant development); however, the amount of development associated with the proposed project would be much less than the development analyzed in the FEIR and the changes to the project, including the addition of cast-in-place piles, would not require major revisions to the FEIR, nor would it result in a substantial increase in the severity of previously identified significant effects on aesthetics (Bay views) or transportation/traffic (parking).

b) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

**Discussion:** Changes with respect to the circumstances from 1989 to today are discussed in greater detail throughout Section 2.0 of this Addendum. Related to physical conditions, the site has changed from a developed industrial boatyard to a vacant graded commercial site with appropriate infrastructure (utilities, storm drain, and a parking lot) to serve future commercial development, and the site was cleaned of hazardous materials. Traffic counts were also taken in 2017 and compared to the existing traffic conditions presented in the FEIR, which determined that there is less traffic congestion on roadways in Coronado, partly due to the intersection improvements and fair-share traffic contributions completed per mitigation measures in the FEIR (see Appendix A for a list of all FEIR mitigation measures and which have been completed to date). In addition, construction equipment, motor vehicles, and mechanical equipment have been subject to increasingly more stringent emissions standards and are generally cleaner and quieter than they were in 1989. Lastly, land uses and development surrounding the proposed project site are generally similar to conditions in 1989 and include the adjacent multi-family residential developments near the proposed project. Because of the improved or similar circumstances, the proposed project would not result in new significant environmental effects that were not included in the FEIR nor would it result in a substantial increase in the severity of previously identified significant effects.

- c) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was adopted, shows any of the following:
  - A. The project will have one or more significant effects not discussed in the previous EIR.

**Discussion:** As discussed in Section 2.0 of this Addendum, there is no new information of substantial importance that indicates that the proposed project would have one or more significant effects not discussed in the FEIR.

B. Significant effects previously examined will be substantially more severe than shown in the previous EIR.

**Discussion:** Significant effects identified in the FEIR included unavoidable impacts to aesthetics due to obstruction of current full or partial Bay views from private condominiums, and to transportation and traffic due to a shortfall of parking spaces. As discussed in Section 2.0 of this Addendum, the severity of the impacts associated with the proposed project would be less than those associated with the effects presented in the FEIR, and there is no change in circumstances or new information that shows substantially more severe impacts. Specifically, the proposed project would involve a single-story building that would be 17 feet lower than the height of development anticipated in the FEIR and would not increase the significant and unavoidable aesthetics impact on Bay views. Because the proposed project would involve less development than analyzed in the FEIR, the existing 269-space parking lot would accommodate the parking demand for the existing office and restaurant development plus the proposed project, which would cumulatively demand 250 spaces per specific condition SC-1 of the FEIR, which is more strict than the District's Tidelands Parking Guidelines, and the proposed project would eliminate

the significant and unavoidable parking impact in the FEIR. A detailed account of consistency with the District's Tidelands Parking Guidelines is provided in subsection XIV of Section 2.0 of this Addendum. For impacts in the FEIR that were concluded to be less than significant with mitigation measures, applicable measures would continue to apply to the proposed project and are detailed in Appendix A of this document. These impacts would similarly be reduced to less than significant with mitigation measures.

C. Mitigation measures or alternatives previously found to not be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative.

**Discussion:** Significant and unavoidable effects identified in the FEIR were limited to aesthetics (Bay views) and transportation and traffic (parking). None of the mitigation measures in the FEIR were identified as infeasible and all mitigation measures from the FEIR would apply to the proposed project unless the measure has already been implemented or is no longer needed to reduce a potentially significant environmental impact as identified in the FEIR. Appendix A of this document includes a complete list of mitigation measures and specific conditions from the FEIR and identifies if they have been completed and if they would apply to the proposed project.

The alternatives analysis in the FEIR included four alternatives, including the No Project Alternative, the Bayside Pedestrian/Bicycle Path Extension Alternative, the Reduced Density Alternative, and the Access/Egress Design Alternative (Scheme A). The No Project Alternative included site improvements to the boatyard that previously existed at the proposed project site. The Bayside Pedestrian/Bicycle Path Extension Alternative considered a 400-foot long and 15-foot wide extension of an existing promenade connecting the Wharf Development to the Coronado Tidelands Park. The Reduced Density Alternative included a revised project with up to 50,000 sf of development, including 30,000 sf of restaurant and 20,000 sf of retail. The Access/Egress Design Alternative (Scheme A) included a two-lane entry and one-lane exit driveway to First Street, located opposite from the intersection with A Avenue.

While the No Project Alternative would avoid the significant and unavoidable parking impact, impacts related to aesthetics were characterized in the FEIR as reduced but not eliminated under this alternative. Adoption of this alternative would substantially reduce the significant parking impact identified in the FEIR; however, this alternative is not feasible under existing conditions because the previous boatyard has been replaced by commercial development.

The Bayside Pedestrian/Bicycle Path Extension Alternative considered connecting the Wharf Development project area to the Coronado Tidelands Park. The FEIR did not identify any reductions to the significant aesthetics (Bay views) or transportation and traffic (parking) impacts related to the Bayside Pedestrian/Bicycle Path Extension Alternative. As such, adoption of this alternative would not substantially reduce any significant effects identified in the FEIR and its adoption is not further considered in this Addendum. Furthermore, a pedestrian/bicycle connection currently exists between the proposed project and the Coronado Tidelands Park.

The FEIR identified a reduction (but not elimination) of the significant and unavoidable aesthetics impact and avoidance of the significant and unavoidable parking impact under the Reduced Density Alternative (including 30,000 sf of restaurant and 20,000 sf of retail). The proposed project, when considered with existing development within the Wharf Development

project area, would include 19,200 sf of restaurant space, 6,300 sf of office, and no retail development, which is less development than considered in the Reduced Density Alternative. As such, the significant and unavoidable aesthetics and parking impacts would be further reduced under the proposed project when compared to this alternative. While this alternative would avoid the significant and unavoidable parking impact of the Wharf Development, the proposed project would involve less development and would provide adequate parking per specific condition SC-1, as further discussed in subsection XIV of Section 2.0 of this Addendum. As a result, this alternative is not necessary.

The Access/Egress Design Alternative (Scheme A) involved relocation of the entrance/exit to the Wharf Development approximately 50 feet west of A Avenue to reduce noise impacts from vehicles entering and exiting the Wharf Development project area. This alternative analysis resulted in the adoption of a mitigation measure for noise (see mitigation measure NOI-3 in Appendix A), which has been implemented. Because the relocation of the entrance/exit has been constructed, this alternative is not necessary.

In conclusion, none of the mitigation measures or alternatives in the FEIR determined not to be feasible would in fact be feasible. Furthermore, the proposed project includes less development than the Reduced Project Alternative and would similarly eliminate the significant and unavoidable parking impact identified in the FEIR. While the significant and unavoidable aesthetics impact would be reduced (but not eliminated) under the No Project Alternative and the Reduced Project Alternative, the proposed project would similarly reduce (but not eliminate) aesthetics impacts.

D. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

**Discussion:** The proposed project would avoid the significant and unavoidable parking impact because less development would occur than was considered in the FEIR and the proposed project would substantially reduce the significant and unavoidable aesthetics impact identified in the FEIR due to a reduction in building height. There are no other significant effects identified in the FEIR; therefore, no other mitigation measures or alternatives were considered.

State CEQA Guidelines Section 15164(a) states that the lead agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162(a) calling for the preparation of a subsequent EIR have occurred.

**Discussion:** This Addendum supports the conclusion that none of the conditions described in Section 15162(a) calling for the preparation of a subsequent EIR have occurred, as demonstrated above under items 1, 2, and 3a through 3b, above.

State CEQA Guidelines Section 15164(c) states that the decision-making body shall consider the addendum with the final EIR prior to making a decision on the project.

**Discussion:** This Addendum will be considered with the FEIR by the Port Board of Commissioners prior to making a decision on the project.

State CEQA Guidelines Section 15164(d) states that a brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162(a) should be included in an addendum to the EIR, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

**Discussion:** This Addendum provides an explanation of the decision not prepare a subsequent EIR pursuant to Section 15162(a), which is summarized in Section 1.0 of this Addendum, and further detailed by environmental resource topic in Section 2.0 of this Addendum.

On the basis of this initial evaluation:

I find that the proposed project DOES NOT meet any of the conditions within State CEQA Guidelines 15162(a) requiring that a Subsequent EIR is necessary, and an ADDENDUM to the Final EIR will be prepared pursuant to State CEQA Guidelines Section 15164.
I find that the proposed project DOES meet the conditions within State CEQA Guidelines 15162 and that a SUPPLEMENTAL EIR to the Final EIR will be prepared to address minor additions or changes to make the previous EIR adequate.
I find that the proposed project DOES meet the conditions within State CEQA Guidelines 15162 and that a SUBSEQUENT EIR to the Final EIR will be prepared to address substantial additions or changes to make the previous EIR adequate.

Signature

Date

Printed Name:

For:

## 2.0 ENVIRONMENTAL CHECKLIST

1.	Project Title:	New Restaurant at Ferry Landing
2.	Lead Agency Name and Address:	San Diego Unified Port District Development Services Department 3165 Pacific Highway San Diego, CA 92101
3.	Contact Person and Phone Number:	Dana Sclar, Senior Planner San Diego Unified Port District (619) 400-4765
4.	Project Location:	1355 First Street Coronado, CA 92118
5.	Project Sponsor's Name and Address:	George Palermo Flagship Cruises and Events P.O. Box 120751 San Diego, CA 92112
6.	Port Master Plan Designation:	Commercial Recreation
7.	Zoning Designation:	Pursuant to Section 19 of the Port Act, zoning does not apply within the District's jurisdiction. See the Port Master Plan designation above.
8.	Description of Project:	See Chapter 2, Project Description
9.	Surrounding Land Uses and Setting:	North: San Diego Bay South: Multi-Family Residences East: San Diego Bay West: Commercial
10.	Other Public Agencies Whose Approval is Required:	City of Coronado

This Section 2.0 includes separate discussions for each of the 16 environmental topics considered in this Addendum. Each discussion begins with an overview of what was discussed and concluded in the FEIR, and identifies what, if any, impacts were concluded for that topic, followed by a summary of the changes in the project and changes in circumstances or new information of substantial importance as it relates to that topic. These details are then the focus of the rest of the environmental analysis, in accordance with State CEQA Guidelines Section 16162(a).

		Revision Required New or M Significat Cause Substantia	n to FEIR I Due to a ore Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ge From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
I. AESTHETICS Would the project:							
a)	Have a substantial adverse effect on a scenic vista, including but not limited to the vista areas designated by the District in the Port Master Plan?						
b)	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?						
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?						
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of proposed project changes as they relate to aesthetics, and a summary of changes in circumstances or new information of substantial importance as it relates to aesthetics, followed by a discussion for each of the individual threshold questions I.a through I.d.

## Summary of FEIR

The FEIR described the existing conditions in the Wharf Development project area as a developed industrial boatyard that was blighted, except for the administrative office building, and described portions of the site as occupied by old, dilapidated shop and storage building, machinery, and scrap metal. Views of San Diego Bay and downtown San Diego were described as highly visible across the site from the second and third stories of the two nearby multi-family developments south of the Wharf Development project area. The Wharf Development evaluated in the FEIR included one- and two-story commercial buildings of up to a total of 75,000 square feet (sf) with a maximum height of up to 40 feet.

The FEIR did not identify significant impacts related to scenic vistas or vista areas; however, the FEIR concluded that temporary visual impacts related to lighting during nighttime construction would be less than significant with mitigation and that permanent impacts related to obstruction of private Bay views

from the second and third floors of nearby multi-family residential developments would remain significant and unavoidable. The FEIR included mitigation measures AES-1, AES-2, AES-3, AES-4, and specific condition SC-7 to mitigate impacts to aesthetics, as further described and included below. Mitigation measures AES-1 and AES-2 and specific condition SC-7 would reduce aesthetics impacts to less than significant by requiring landscaping improvements, solid fences and a landscape buffer, below grade parking, a waterfront/nautical design theme, an apron wharf for public access to view of the Bay, and implementation of light spill restrictions. However, permanent impacts related to the obstruction of full or partial Bay views from multi-family residences were concluded to remain significant and unavoidable, despite the inclusion of mitigation measures AES-3 and AES-4, which discussed project redesign to preserve Bay views and offering public viewing opportunities of the San Diego Bay and skyline. All mitigation measures and specific conditions from the FEIR are included in Appendix A of this Addendum, and applicable mitigation measures and specific conditions related to aesthetics are included at the end of this section.

## Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to aesthetics and visual quality, the proposed project includes a reduction in the overall development square footage and building height evaluated in the FEIR and would not include nighttime construction. Specifically, the project site would be developed with an approximately 7,500 sf restaurant building, and when combined with existing development, would total 25,700 sf, which is approximately one-third of the Wharf Development floor area evaluated in the FEIR (75,000 sf). Also, the proposed building would be 23 feet in height, which is 17 feet lower than the building height of 40 feet that was analyzed as part of the Wharf Development in the FEIR. No other changes to the proposed project that relate to aesthetics are proposed.

## Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to aesthetics has occurred since the FEIR was certified. Specifically, the proposed project site is no longer a developed industrial boatyard but is instead a vacant graded commercial site. Most of the development identified in the FEIR has not yet been built, as the area currently includes approximately 18,200 sf of development, which is roughly one-quarter of the 75,000 sf of floor area analyzed as part of the Wharf Development in the FEIR. The proposed project site currently exists as a graded flat building pad, with an existing restaurant located to the west and an office to the southwest. No other change in circumstances or new information of substantial importance related to aesthetics was identified during preparation of this Addendum to the FEIR.

### Impact Analysis

## Would the project:

# a. Have a substantial adverse effect on a scenic vista, including but not limited to the vista areas designated by the District in the Port Master Plan?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to scenic vistas. Due to the reduced square footage and building height, proposed project impacts on a scenic vista would be reduced compared to the impacts analyzed in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to scenic vistas. The area surrounding the proposed project site is no longer a developed industrial boatyard and is currently a partially developed commercial and office development; however, this change in existing conditions does not include changes or new designations of scenic vistas or any Port Master Plan (PMP)-designated vista areas.

The FEIR did not identify significant impacts related to scenic vistas and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to scenic vistas; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to scenic resources. Due to the reduced square footage and building height, proposed project impacts on scenic resources would be reduced compared to the impacts analyzed in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to scenic resources. The area surrounding the proposed project site is no longer a developed industrial boatyard; however, the current development is not considered a scenic resource.

The FEIR did not identify significant impacts related to scenic resources and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to scenic vistas; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

## c. Substantially degrade the existing visual character or quality of the site and its surroundings?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified significant and unavoidable effects related to visual character or quality of the site and its surroundings. Due to the reduced square footage and building height, proposed project impacts on views from the second and third stories of nearby multi-family residences would be reduced when compared to the Wharf Development analyzed in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the

severity of previously identified effects related to visual character or quality of the site and its surroundings. Though the area surrounding the proposed project site is no longer a developed industrial boatyard, the proposed restaurant building is consistent with the surrounding existing commercial development.

The FEIR identified significant and unavoidable impacts related to degrading the existing visual character and quality of the site and its surroundings due to obstruction of full and partial Bay views from private condominiums in the area, and identified mitigation measures AES-1, AES-3, and AES-4 to reduce potential impacts by requiring landscaping along the perimeter of the site, solid fences and a landscape buffer along the edges of the project, below grade parking, a waterfront/nautical theme, and making changes to the design of the project to reduce impacts to some private Bay views. The proposed project would be required to implement portions of mitigation measure AES-1, specifically the project Applicant would be required to provide extensive landscaping, solid fences and a landscape buffer along the edges of the project, and a waterfront/nautical theme. A component of mitigation measure AES-1, the provision of below grade parking, would not apply to the proposed project because an existing parking lot would serve the project and no additional parking is necessary. Due to the reduction in proposed development, including a reduction in developed area and building height, below grade parking is not necessary to reduce aesthetics impacts. The last part of mitigation measure AES-1, construction of the apron wharf, has been constructed and would not apply to the project. Mitigation measures AES-3 and AES-4, which require a redesign of the project with lower density and the provision of public views to the Bay, would be implemented by the project Applicant. As a result, the proposed project would result in reduced significant and unavoidable impacts identified in the FEIR related to degrading the existing visual charter or quality of the site and its surroundings. Therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the creation of a new source of substantial light or glare which could adversely affect day or nighttime views in the area. Due to the change to construct the proposed project during daytime, no temporary increases in substantial light or glare during nighttime would occur during construction. Due to the reduced square footage and building height, proposed project impacts related to operational light and glare would be reduced when compared to the impacts of the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the creation of a new source of substantial light or glare. The area surrounding the proposed project site is no longer a developed industrial boatyard; however, the proposed restaurant building is consistent with the surrounding existing commercial development, which includes some sources of light and glare.

The FEIR identified potentially significant impacts related to nighttime lighting from construction equipment and vehicles and operational lighting impacts related to passing and parked vehicles. These impacts would be reduced to less than significant with the incorporation of mitigation measure AES-2 and specific condition SC-7, which require that cowls be installed on light standards and that trees are included along the perimeter of the site to reduce night lighting and glare from vehicles. The proposed project would be required to implement mitigation measure AES-2 and specific condition SC-7 and would not result in any new or more severe significant impacts related to lighting and glare impacts; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

## Applicable Mitigation Measures and Specific Conditions

AES-1: The Wharf on San Diego Bay includes the following design features which mitigate impacts resulting from the visual intrusion of the project into a largely residential area: (1) extensive landscaping;
(2) solid fences and landscape buffer along edges of the project; (3) below grade parking<sup>1</sup>;
(4) waterfront/nautical design theme; and (5) an apron wharf for public access to views of Bay.<sup>2</sup>

**AES-2:** The Applicant will use sodium vapor light bulbs during construction and shield direct night lighting away from homes. The proposed project design includes cowls on light standards to control off-site spillage of night lighting and sky glow. Trees will be used along the project perimeter to cut down the effects of night lighting and glare from passing and parked vehicles.

**AES-3:** None planned by the Applicant. The project could be redesigned to preserve some private Bay views. This would require a lower density development and positioning of buildings to allow view corridors. A lower density development with view corridors would only partially mitigate the impact to private adjacent residences.

**AES-4:** Project implementation, however, would provide a significant increase in opportunity for the public to view the bay and San Diego skyline. Public views to the bay would be provided from the piers, the bayside promenade and bicycle path, and the proposed bayside dining and commercial establishments.

There are no specific conditions from the FEIR that were identified to reduce impacts related to aesthetics.

<sup>&</sup>lt;sup>1</sup> Item 3 from mitigation measure AES-1 does not apply because an existing surface parking lot adjacent to the project site includes a sufficient amount of parking spaces to serve the proposed project and the creation of parking is not part of the proposed project. For a discussion of parking requirements, see subsection XV. Transportation/Traffic, in Section 2.0 of this Addendum.

<sup>&</sup>lt;sup>2</sup> Item 5 from mitigation measure AES-1 does not apply because an apron wharf for public access to views of San Diego Bay has been constructed at the Wharf Development site.

		Revision to FEIRRequired Due to aNew or More SevereSignificant ImpactNew Information,Caused by aNot Previously KnownSubstantial Change in:Resulting in:			New Information, Not Previously Known Resulting in:		t Impact/ ige From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
11.	AGRICULTURE AND FORESTRY RESOUR Would the project:	CES	1			1	
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?						
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?						
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?						
d)	Result in the loss of forest land or conversion of forest land to non-forest use?						
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non- agricultural use or conversion of forest land to non-forest use?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of proposed project changes as they relate to agriculture and forestry resources, and a summary of changes in circumstances or new information of substantial importance as it relates to agriculture and forestry resources, followed by a combined discussion of the threshold questions II.a through II.e.

## Summary of FEIR

When the FEIR was certified, the Wharf Development project area was an industrial boatyard and did not include any agricultural or forestry resources in the immediate or surrounding area. No temporary or permanent impacts on agricultural or forestry resources were identified in the FEIR and no mitigation measures were required.

## Changes in Project

A summary of changes in the proposed project compared to the Wharf Development is provided in Table 2. There are no changes in the project that are relevant to agricultural and forestry resources.

## Changes in Circumstances or New Information of Substantial Importance

No changes in circumstances or new information of substantial importance that are relevant to agricultural or forestry resources have occurred since the FEIR was certified because there have not been agricultural resources at the Wharf Development project area and there are not agricultural resources at the proposed project site currently.

## Impact Analysis

## Would the project:

- a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
- b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?
- c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
- d. Result in the loss of forest land or conversion of forest land to non-forest use?
- e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

The FEIR did not identify significant impacts related to agricultural or forestry resources and did not identify any mitigation measures or specific conditions. Because there are no changes in project circumstances or new information relevant to agricultural or forestry resources, the proposed project would not result in any new or more severe significant impacts related to the conversion of farmland, conflicts with zoning for agricultural or forestry uses, the loss of forest land, or other changes that could result in the conversion of farmland. Therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

## Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to agriculture and forestry resources.

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		New Information, Not Previously Known Resulting in:		on to FEIR ed Due to a More Severe cant Impact New Information, sed by a Not Previously Known ial Change in: Resulting in:			t Impact/ ige From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis		
<b>III.</b>			l' h l -	- 1			U		
cor	ntrol district may be relied upon to make th	e following o	e applicable determinatio	ons. Would	/ manager I the proje	nent or air po ect:	liution		
a)	Conflict with or obstruct implementation of the applicable air quality plan?								
b)	Violate any air quality standard or contribute substantially to an existing or projected air quality violation?								
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?								
d)	Expose sensitive receptors to substantial pollutant concentrations?						$\boxtimes$		
e)	Create objectionable odors affecting a substantial number of people?								

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to air quality, and a summary of changes in circumstances or new information of substantial importance as it relates to air quality, followed by a discussion for each of the individual threshold questions, with the exception of thresholds III.b. and III.c, which have been combined as they both address project impacts on air quality standards.

## Summary of FEIR

The Wharf Development project area was described in the FEIR as a developed industrial boatyard and the predominant existing source of air pollutant emissions was attributed to motor vehicle traffic in Coronado. Other air pollution was identified related to ship and boat exhaust. The FEIR did not identify potentially significant impacts related to conflicts with air quality plans, the violation of air quality standards, or cumulative increases in criteria pollutants; however, fugitive dust impacts on sensitive receptors during construction, as well as impacts related to objectionable odors from restaurants were identified, in addition to long-term emissions resulting from energy use. Impacts on air quality were reduced to less than significant with the incorporation of mitigation measures AQ-1 through AQ-7 and specific conditions SC-5 and SC-6. All mitigation measures and specific conditions from the FEIR are included in Appendix A of this Addendum and applicable mitigation measures and specific conditions related to air quality are included at the end of this section.

## Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to air quality, the proposed project includes a reduction in the overall development square footage and building height evaluated in the FEIR, as well as a reduction in construction equipment, vehicle trips during operation, and energy use. Specifically, the proposed project site would be developed with a 7,500 sf restaurant building, and when combined with existing development, would equal 25,700 sf, which is approximately one-third of the Wharf Development floor area evaluated in the FEIR (75,000 sf). Also, the foundation of the proposed restaurant building would include 40 individual cast-in-place piles, which were not identified in the FEIR. No other changes to the proposed project that relate to air quality are proposed.

## Changes in Circumstances or New Information of Substantial Importance

Three changes in circumstances related to air quality have occurred since the FEIR was certified. The first change in circumstance is that the proposed project site is no longer a developed industrial boatyard that generates industrial air emissions but is instead a vacant graded commercial site. The second change in circumstance is that surrounding roadways include similar or less roadway congestion with vehicles than was observed during the preparation of the FEIR. See Section XV, Transportation/Traffic, of this Environmental Checklist for a discussion of existing traffic conditions compared to those in the FEIR. The third change in circumstance is that construction equipment, mechanical equipment, and vehicles have been subject to increasingly stringent air quality regulations since 1989 and generally produce less air emissions (USEPA 2016). Also, Title 24 of the California Building Code has since been updated to include energy efficiency measures in new construction, with which the proposed project would be required to comply.

While air quality regulations and plans have been adopted since the FEIR was certified in 1989, due to the reduction in the scope and size of the project, no new information of substantial importance related to air quality was identified during preparation of this Addendum to the FEIR.
# Impact Analysis

# Would the project:

# a. Conflict with or obstruct implementation of the applicable air quality plan?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to conflicts an air quality plan. While the proposed project would include the installation of 40 cast-in-place piles that were not analyzed in the FEIR, due to the reduced square footage, including the omission of an underground parking garage considered in the FEIR, vehicle trips and construction activities (i.e., excavation for below grade parking) associated with the proposed project would be reduced, and impacts related to conflicts with an air quality plan would also be reduced when compared to the impacts of the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to conflicts with an air quality plan. The change in circumstances from an industrial boatyard to a vacant graded commercial pad, the similar or reduced roadway congestion in the surrounding areas, and cleaner technology for construction equipment, mechanical equipment, and vehicles would not result in conflicts with an air quality plan because these changes will result in a decrease in pollutant emissions associated with the proposed project than were anticipated to occur in connection with the Wharf Development.

The FEIR did not identify significant impacts related to conflicts or obstruction of implementation of an air quality plan and did not identify mitigation measures to reduce potential impacts. The proposed project would not result in any new or more severe significant impacts related to air quality plan conflicts; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

# c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to violations of air quality standards. While the proposed project would include the installation of 40 cast-in-place piles that was not analyzed in the FEIR, due to the reduced square footage, the omission of below grade parking, and reduced vehicle trips associated with the proposed project, proposed project impacts on air quality would be reduced when compared to the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the

severity of previously identified effects related to air quality standards. The area surrounding the proposed project site is no longer a developed industrial boatyard; however, this change in circumstances represents a cleaner condition as the previous industrial operations within the Wharf Development project area no longer exist and have been replaced by commercial and office operations. Similarly, cleaner technology including cleaner vehicles today would result in reduced air emissions compared to vehicles evaluated in the FEIR.

The FEIR identified significant impacts related to violations of air quality standards and included mitigation measures AQ-3 through AQ-5, which requires energy efficiency devices be installed, to reduce potential impacts to less than significant. The proposed project would be required to implement mitigation measures AQ-3 through AQ-5 and would not result in any new or more severe significant impacts related to air quality standards; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# d. Expose sensitive receptors to substantial pollutant concentrations?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to exposure of sensitive receptors to substantial pollutant concentrations. While the proposed project would include the installation of 40 cast-in-place piles that were not analyzed in the FEIR, due to the reduced square footage and vehicle trips associated with the proposed project size, as well as the omission of below grade parking, proposed project impacts on air quality would be reduced when compared to the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the exposure of sensitive receptors to substantial pollutant concentrations. The area surrounding the proposed project site is no longer a developed industrial boatyard; however, this change in circumstances represents a cleaner condition as the previous industrial operations within the Wharf Development project area are not present and instead, existing commercial and office operations exist. Similarly, cleaner technology including cleaner vehicles today would result in reduced air emissions compared to vehicles evaluated in the FEIR.

The FEIR identified significant impacts related to the exposure of sensitive receptors to substantial dust concentrations during construction and included mitigation measures AQ-1 and AQ-2, as well as specific condition SC-5, which require fugitive dust controls to reduce potential impacts. The proposed project would be required to implement mitigation measures AQ-1 and AQ-2 and specific condition SC-5 and would not result in any new or more severe significant impacts related to impacts on sensitive receptors; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# e. Create objectionable odors affecting a substantial number of people?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to objectionable odors. Odors associated with the Wharf Development relate to the cooking and disposal of food and additional vehicles accessing the site. The proposed project would involve the same type of development with similar odors from cars and food preparation and disposal; however, the proposed project would be reduced in square footage, which would result in a reduction in the amount of food preparation and disposal, as well as a reduction in the number of vehicles that would access the site. As a result, the proposed project would involve less odors than what was analyzed in the FEIR. Therefore, proposed project impacts related to objectionable odors would be reduced when compared to the Wharf Development evaluated in the FEIR.

None of the listed changes in circumstances or new information of substantial importance identified above would require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the creation of objectionable odors.

The FEIR identified significant impacts related to the creation of objectionable odors and included mitigation measures AQ-6 and AQ-7 and specific condition SC-6 to reduce potential impacts. The proposed project would be required to implement mitigation measures AQ-6 and AQ-7 and specific condition SC-6 and would not result in any new or more severe significant impacts related to the creation of objectionable odors; therefore, would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# Applicable Mitigation Measures and Specific Conditions

**AQ-1**: The Applicant will require the construction contractor to keep fugitive dust down by regular wetting of work areas.

**AQ-2**: To reduce short-term impacts from construction activities for the project, the Applicant will require the construction contractor to control fugitive dust by regular wetting of work areas.

**AQ-3**: To reduce natural gas and energy consumption, the Applicant will design structures for efficient energy use. Energy-saving devices will be installed as part of the proposed project.

**AQ-4**: Design the structures for efficient energy use to reduce natural gas and electrical consumption.

AQ-5: Install energy saving devices such as setback thermostats, solar lighting, and solar water heaters.

**AQ-6**: The lessee will require vendors to use and regularly maintain after-burners or carbon filters to reduce odorous emissions from food establishments.

**AQ-7**: Require vendors to use and regularly maintain afterburners or carbon filters to reduce odorous emission from food establishments

**SC-5**: That to minimize fugitive air emissions during construction, the Applicant will require the construction contractor to keep fugitive dust down by regular wetting of work areas.

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		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significar No Substantial Cha Previous Analysis
IV.	<b>BIOLOGICAL RESOURCES</b> Would the project:	1	1				
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?						
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?						
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?						
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?						

**SC-6**: To minimize nuisance odors from restaurants, the lessee will require vendors to use and regularly maintain after-burners or carbon filters to reduce odorous emissions from food establishments.

		Revision Required D or More Significan Cause Substantia	n to FEIR ue to a New e Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ge From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to biological resources, and a summary of changes in circumstances or new information of substantial importance as it relates to biological resources. The impact analysis below includes a combined discussion of the threshold questions IV.a through IV.e.

# Summary of FEIR

The Wharf Development project area was described in the FEIR as a developed industrial boatyard with no known sensitive plant or animal species expected to inhabit the landside portion of the site. No terrestrial biological impacts were identified and no mitigation measures were required. The Wharf Development project also included construction of a marina, which was found to result in potentially significant impacts on eelgrass (BIO-1 and SC-3, respectively, see Appendix A for more information). Impacts on marine biological resources were reduced to less than significant with the incorporation of a mitigation measure and specific condition.

# Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to biological resources, the proposed project would not involve any in-water work, such as constructing a marina. Therefore, there are no mitigation measures or specific conditions from the FEIR related to marine biological resources that apply to the proposed project because no in-water work is proposed. As such, no mitigation measures or specific conditions are included at the end of this section. No other changes to the proposed project that relate to biological resources are proposed.

# Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to biological resources has occurred since the FEIR was certified. Specifically, the proposed project site is no longer a developed industrial boatyard and is instead a vacant graded commercial site. A HELIX biologist visited the site on March 28, 2017 to review the existing site conditions and to confirm that they have not substantially changed since the adoption of the FEIR. Prior to the March 2017 site visit, the California Natural Diversity Database (CNDDB) was reviewed. Based on a review of the current CNDDB list, it was estimated that no new special-status species had been added since the FEIR was certified. Based on the results of the site visit, vegetation observed within the site was non-native and included the following plants: wild radish (*Raphanus sativus*), cheeseweed (*Malva parviflora*), prickly sow-thistle (*Sonchus asper*), common sow-thistle (*Sonchus oleraceus*), Bermuda buttercup (*Oxalis pes-caprae*), black mustard (*Brassica nigra*), farmer's foxtail (*Hordeum murinum*), sweet clover (*Melilotus indicus*), red-stemmed filaree (*Erodium cicutarium*), ripgut brome (*Bromus diandrus*), ice plant (*Carpobrotus edulis*), pigweed (*Chenopodium album*), century plant (*Agave americanus*), and Mexican fan palm (*Washingtonia robusta*). None of these observed plant species is identified as candidate, sensitive, or special status in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the United States Fish and Wildlife Service. Also, none of the observed plant species onsite is considered riparian habitat or sensitive natural communities and therefore would not support sensitive animal species. No other change in circumstances or new information of substantial importance related to biological resources was identified during preparation of this Addendum to the EIR.

#### **Impact Analysis**

## Would the project:

- a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?
- b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?
- c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- f. Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The changes to the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to biological resources because the proposed project does not involve in-water work and would not contribute to additional impacts to marine biological resources identified in the FEIR.

The change in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified impacts on marine biological resources. A CNDDB search and site visit were conducted to confirm if the change from developed industrial boatyard to vacant graded commercial site was a substantial change that could result in new significant effects or a substantial

increase in the severity of previously identified effects related to biological resources. As discussed above, the results of the CNDDB search and site visit by a biologist did not indicate that there was an increased potential for impacts to biological resources. Therefore, the change in circumstances is not substantial.

The FEIR identified significant impacts related to the creation of a marina that would result in impacts on eelgrass and included mitigation measure BIO-1 and specific condition SC-3 to reduce potential impacts. The proposed project would not be required to implement either because no in-water work is proposed. As a result, the proposed project would not result in any new or more severe significant impacts related to the creation of a marina and the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### Applicable Mitigation Measures and Specific Conditions

While mitigation measure BIO-1 and specific condition SC-3 from the FEIR were included to reduce impacts related to in-water work; the proposed project does not involve in-water work and neither BIO-1 nor SC-3 would apply to the proposed project.

		Revision Required New or M Significat Cause Substantia	n to FEIR I Due to a ore Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:			t Impact/ ge From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
۷.	CULTURAL RESOURCES Would the project:	1	1	1	1	1	
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?						
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?						
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?						
d)	Disturb any human remains, including those interred outside of dedicated cemeteries?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to cultural resources, and a summary of changes in circumstances or new information of substantial importance as it relates to cultural resources, followed by an individual discussion of threshold V.a, which was identified as potentially significant in the FEIR. The responses for questions V.b through V.d have been combined as they all relate to ground disturbance and were concluded to result in less than significant impacts in the FEIR.

#### Summary of FEIR

The Wharf Development site was described in the FEIR as a commercial boatyard with flat topography created by the placement of fill from the San Diego Bay in the 1940s. Historically, the area was related to marine activities and included the loading and off-loading of freight and merchandise from ships until the 1940s, when the area was covered with dredged Bay fill materials. A rail spur existed at the Wharf Development site, which extended onto a wharf and pier at the foot of "A" Avenue and carried passengers along Orange Avenue to the Hotel del Coronado and Tent City. After that time, the site was used commercially as a boatyard and development in the surrounding area was minimal until the 1970s.

While no prehistoric cultural resources impacts were identified, the Wharf Development was concluded to result in potentially significant impacts on previously unidentified historical resources related to previous industrial and transportation improvements that were noted to exist at the site since the 1940s that could be discovered during project construction. Impacts on cultural resources were reduced to less than significant with the incorporation of mitigation measure CUL-1. All mitigation measures and specific conditions from the FEIR are included in Appendix A of this Addendum and applicable mitigation measures and specific conditions related to cultural resources are included at the end of this section.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to cultural resources, the proposed project includes a reduction in the proposed parking layout and building foundation construction. Specifically, the proposed project would utilize existing surface parking and would not involve the excavation of the site for an underground parking garage. Also, the foundation of the proposed restaurant building would include 40 individual cast-in-place piles, which were not identified in the FEIR. No other changes to the proposed project that relate to cultural resources are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to cultural resources has occurred since the FEIR was certified. Specifically, that the proposed project site is no longer a developed industrial boatyard but is instead a vacant graded commercial site. No new information of substantial importance related to cultural resources since the FEIR was certified was identified during preparation of this Addendum to the FEIR.

# **Impact Analysis**

# Would the project:

# a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to causing a substantial adverse change in the significance of a historical resource. As noted above, unidentified historical resources related to previous industrial and transportation improvements at the site could be discovered during any earthwork at the site. The proposed project would not involve excavating the site to construct an underground parking garage but would install cast-in-place piles to support the proposed building foundation. The 40 cast-in-place piles would involve much less site disturbance compared to the amount of disturbance that would be necessary to construct an underground parking garage. Therefore, this change in the project would result in a reduced potential for impacts on historical resources than those analyzed in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to impacts on historical resources. Specifically, the change in circumstances from an industrial boatyard to a vacant graded commercial pad would not result in new significant or increased significant effects compared to the FEIR because much of the previous development has been removed and the potential for historical resources to exist at the project site is less when compared to the conditions at the time the FEIR was prepared. Furthermore, no historical structures or objects were known or noted to exist previously at the Wharf Development site.

The FEIR identified potentially significant impacts related to a substantial adverse change in the significance of a historical resource and identified mitigation measure CUL-1 to reduce potential impacts to less than significant by requiring that any historical resources encountered during construction would be afforded full protection until their importance can be assessed. The proposed project would be required to implement mitigation measure CUL-1 from the FEIR and would not result in any new or more severe significant impacts related to historical resources; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

- c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?
- d. Disturb any human remains, including those interred outside of dedicated cemeteries?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to causing a substantial adverse change in the significance of an archaeological or paleontological resource, or human remains. The proposed project would not involve excavating the site

to construct an underground parking garage but would install cast-in-place piles to support the proposed building foundation. The 40 cast-in-place piles would involve much less site disturbance compared to the amount of disturbance that would be necessary to construct an underground parking garage. Therefore, this change in the project would result in a reduced potential for impacts on archaeological and paleontological resources, and human remains, than what was analyzed in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to impacts on archaeological and paleontological resources and human remains. The change in circumstances from an industrial boatyard to a vacant graded commercial pad would not result in new significant or increased significant effects compared to the FEIR because much of the previous development has been removed and the potential for these resources to exist at the project site are less when compared to the conditions at the time the FEIR was prepared.

The FEIR did not identify significant impacts related to archaeological or paleontological resources or human remains and no mitigation measures were included. The proposed project would not result in any new or more severe significant impacts related to archaeological or paleontological resources, as well as human remains; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

Furthermore, should human remains be uncovered during construction for the proposed project, as specified by State Health and Safety Code Section 7050.5, no further disturbance would occur until the County Coroner has made the necessary findings as to the origin and disposition pursuant to Public Resources Code 5097.98. If such a discovery occurs, excavation or construction would halt in the area of the discovery, the area would be protected, and consultation and treatment would occur as prescribed by law. If the County Coroner recognizes the remains to be Native American, he or she would contact the Native American Heritage Commission, who would appoint the Most Likely Descendant. Additionally, if the bones are determined to be Native American, a plan would be developed regarding the treatment of human remains and associated burial objects, and the plan would be implemented under the direction of the Most Likely Descendant.

#### Applicable Mitigation Measures and Specific Conditions

**CUL-1**: Any previously unidentified historical resources discovered during project construction will be afforded full protection by the Applicant until qualified personnel can assess their importance.

There are no specific conditions from the FEIR identified to reduce impacts related to cultural and paleontological resources.

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		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
VI.	<b>GEOLOGY AND SOILS</b> Would the project:			1	1	1	
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:						
	<ul> <li>Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.</li> </ul>						
	ii) Strong seismic ground shaking?						$\boxtimes$
	iii) Seismic-related ground failure, including liquefaction?						
	iv) Landslides?						$\boxtimes$
b)	Result in substantial soil erosion or the loss of topsoil?						
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?						
d)	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?						

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	The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to geology and soils, and a summary of changes in circumstances or new information of substantial importance as it relates to geology and soils, followed by a discussion for each of the above-listed thresholds, with the exception of thresholds VI.c and VI.d, which are combined as they both address safety conditions related to soils.

# Summary of FEIR

The FEIR did not identify potentially significant impacts on geology and soils and concluded that the Wharf Development could be safely constructed given the implementation of design recommendations from the original geotechnical report prepared by Geocon. The FEIR included did not include mitigation measures or specific conditions as impacts were concluded to be less than significant.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to geology and soils, the proposed project would not involve the construction of an underground parking garage and would involve the use of 40 cast-in-place piles to support the proposed building foundation. No other changes to the proposed project that relate to geology and soils are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to geology and soils has occurred since the FEIR was adopted. Specifically, the project site has been filled with soils and prepared for future commercial development. No new information of substantial importance related to geology and soils was identified during the preparation of this Addendum to the FEIR.

# Impact Analysis

# Would the project:

- a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
  - *ii)* Strong seismic ground shaking?
  - *iii)* Seismic-related ground failure, including liquefaction?
  - iv) Landslides?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the rupture of a known earthquake fault, ground shaking, ground failure, including liquefaction, or landslides. Because the proposed project includes the use of 40 cast-in-place piles and does not include the construction of an underground parking garage, impacts related to geologic impacts would be reduced when compared to the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to adverse geologic impacts. The area surrounding the proposed project site is no longer a developed industrial boatyard and currently exists as a graded commercial building pad. This change in circumstances does not suggest that adverse geologic impacts would occur under the proposed project because the proposed project site supports commercial development currently whereas the previous condition of the proposed project site included parts of a marina that would not have supported commercial development without further site preparation. In addition, the Wharf Development project and the proposed project will be constructed in compliance with current California Building Code requirements.

The FEIR did not identify significant impacts related to the risk of loss, injury, or death and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to geologic impacts; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# b. Result in substantial soil erosion or the loss of topsoil?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to substantial soil erosion or the loss of topsoil. Specifically, the use of 40 cast-in-place piles would reduce the potential for soil erosion or the loss of topsoil compared to the excavation required

for an underground parking garage because a substantially reduced amount of soil would be removed. Therefore, impacts would be reduced when compared to the Wharf Development evaluated in the FEIR. The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to soil erosion or the loss of topsoil. The proposed project site previously was a developed boatyard and the proposed project site currently exists as a graded commercial building pad; however, this change in circumstances does not suggest that substantial soil erosion or the loss of topsoil would occur under the proposed project as no grading or major site disturbance is proposed and the proposed project site is generally flat.

The FEIR did not identify significant impacts related to soil erosion or loss of topsoil, and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to soil erosion or loss of topsoil; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

- c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?
- d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to unstable geology and expansive soils. Specifically, the use of 40 cast-in-place piles and the change to not include the construction of an underground parking garage would improve the stability of the proposed restaurant building, and impacts related to unstable geology or expansive soils would be similar when compared to the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to unstable geology or expansive soils. The proposed project site previously was a developed boatyard and the proposed project site currently exists as a graded commercial building pad; however, this change in circumstances does not suggest that unstable geology or expansive soils would occur under the proposed project as the proposed project site is generally flat and has been prepared for future commercial development.

The FEIR did not identify significant impacts related to unstable or expansive soils and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to geologic or expansive soil impacts; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

Furthermore, a geotechnical report prepared by Geocon in 2016 (provided as Appendix B, *Geotechnical Report*) noted that the seismic design parameters in accordance with the 2013 California Building Code, as well as the use of cast-in-place foundation piles, would avoid impacts associated with liquefaction and lateral spreading. Additionally, the report indicated that no changes to geology and soils occurred since the FEIR was certified.

# e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to adequate soils to support the use of septic tanks. Specifically, septic tanks or alternative waste water disposal systems were not included in the Wharf Development and would not be included for the proposed project.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to adequate soils to support the use of septic tanks. Specifically, the development pad on the project site has been backfilled and prepared for future construction and no other changes related to the condition of the soil have occurred since the certification of the FEIR.

The FEIR did not identify significant impacts related to soils incapable of supporting septic tanks or alternative waste water disposal and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to soils; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to geology and soils.

		Revision Requirec New or M Significan Cause Substantia	n to FEIR I Due to a ore Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ige From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
VII.	HAZARDS AND HAZARDOUS MATERIA Would the project:	LS	1	1	1	1	
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?						
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?						
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?						
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?						
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?						
f)	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?						

		Revision Required New or M Significan Cause Substantial	n to FEIR I Due to a ore Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ige From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
g)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?						
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to hazards and hazardous materials, and a summary of changes in circumstances or new information of substantial importance as it relates to hazards and hazardous materials, followed by responses for the above-listed thresholds. Thresholds VII.a and VII.c through VII.h are combined as no potentially significant impacts were identified related to the routine use of hazardous materials, the emission of hazardous materials near a school, the potential to be located on a hazardous materials site, aircraft hazards (public and private), emergency response plans, or wildland fires in the FEIR.

# Summary of FEIR

The FEIR identified potentially significant impacts on hazards and hazardous materials due to the observance of hazardous levels of arsenic, copper, mercury, and lead in soil on the project site that were identified during a preliminary site assessment. The FEIR concluded that excavation and removal of soils during construction would be required to prepare the Wharf Development site for development and that there was the potential for the introduction of hazardous waste to off-site land or water areas. To mitigate this potentially significant impact, the FEIR included mitigation measure HAZ-1 and specific condition SC-8 that would reduce temporary hazardous materials construction impacts to less than significant.

# Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to hazards and hazardous materials, the proposed project would not involve the construction of an underground parking garage and would involve the use of 40 cast-in-place piles to support the proposed building foundation. Other changes in the project related to hazards include the reduced height of the proposed project. No other changes to the proposed project that relate to hazards and hazardous materials are proposed.

# Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to hazards and hazardous materials has occurred since the FEIR was adopted. Specifically, the former soils at the proposed project site have been removed and the site has been prepared for future commercial development. A case closure letter was provided from the County of San Diego Department of Environmental Health, confirming that a site investigation and remediation action has been satisfactorily completed and a permanent remedy has been accomplished (see Appendix C). No new information of substantial importance related to hazards and hazardous materials was identified during the preparation of this Addendum to the FEIR since the FEIR was certified.

## Impact Analysis

## Would the project:

- a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- *f.* For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?
- h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the routine transport, use, or disposal of hazardous materials, including the emission or handling of hazardous materials within one-quarter mile of a school because omitting the construction of an underground parking garage and installing 40 cast-in-place piles do not involve actions that would involve more hazardous materials than what was estimated in the FEIR. Similarly, effects related to sites included on a list of hazardous materials sites or impacts related to the exposure of people or structures to wildland fires would not be further affected because the proposed project location is within the Wharf Development project area and the changes to the project do not involve additional areas that

weren't evaluated in the FEIR. Effects related to projects within the vicinity of an airport or private airstrip would not be further affected by changes to the proposed project because the proposed project includes development that is lower in height than the development analyzed in the FEIR. Also, none of the proposed project changes involve modifications to site access and as such, the impairment of an emergency plan would not occur due to changes in the proposed project.

Also, the changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the thresholds listed above because the replacement of contaminated soils with non-contaminated soils has substantially reduced the severity of potential hazardous materials impacts relating to the previously existing conditions at the proposed project site.

The FEIR did not identify significant impacts related to routine transport, use, or disposal of hazardous materials, including the emission of hazardous materials within one-quarter mile of an existing or proposed school, and did not identify impacts related to sites included on a list of hazardous materials sites, hazards due to the Wharf Development's location within the vicinity of an airport or private airstrip, the impairment of an emergency plan, or the exposure of people or structures to wildland fires, and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to these hazardous materials issues; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the release of hazardous materials into the environment because omitting the construction of an underground parking garage and installing 40 cast-in-place piles would involve less hazardous materials than what was estimated in the FEIR. Also, because excavation would be much less under the proposed project due to the omission of the underground parking garage, the potential for the release of hazardous materials would also be reduced.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the release of hazardous materials into the environment. In fact, because soil remediation occurred during the initial development of the project site, which was confirmed with the receipt of a closure letter from the County of San Diego Department of Environmental Health, the change in circumstances would result in fewer contaminated soils than what was analyzed in the FEIR (Appendix C).

The FEIR identified a less than significant impact with the incorporation of mitigation measure HAZ-1 related to the release of hazardous materials into the environment associated with contaminated soils. The proposed project would not involve substantial site preparation or grading and because soil remediation per mitigation measure HAZ-1 has already occurred, the proposed project would not be required to implement mitigation measure HAZ-1 and would not result in any new or more severe

significant impacts related to the release of hazardous materials. Therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance

#### Applicable Mitigation Measures and Specific Conditions

Mitigation measures HAZ-1 and HAZ-2 and specific condition SC-8 from the FEIR were included to reduce impacts related to hazards by completing site remediation activities. Because the project site and surrounding areas have been remediated (see Appendix C), these measures would not apply to the proposed project.

		Revision Required New or M Significan Cause Substantial	n to FEIR Due to a ore Severe nt Impact d by a Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ige From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
VII	I. HYDROLOGY AND WATER QUALITY Would the project:	1	1	1	1	1	
a)	Violate any water quality standards or waste discharge requirements?						$\square$
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?						
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?						

		Revisior Required New or M Significar Cause Substantial	n to FEIR Due to a ore Severe nt Impact d by a Change in:	New Information, Not Previously Known Resulting in:			ıt Impact/ nge From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significar No Substantial Chaı Previous Analysis
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?						
e)	Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?						
f)	Otherwise substantially degrade water quality?						$\boxtimes$
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?						
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?						
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?						
j)	Inundation by seiche, tsunami, or mudflow?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to hydrology and water quality, and a summary of changes in circumstances or new information of substantial importance as it relates to hydrology and water quality,

followed by responses for the above-listed thresholds. Thresholds VIII.a through VIII.j are combined as no potentially significant impacts were identified related to hydrology and water quality in the FEIR and no mitigation measures or other conditions were included in the FEIR to address hydrology or water quality impacts.

#### Summary of FEIR

The FEIR did not identify any potentially significant impacts on hydrology and water quality and the discussion of water quality impacts was limited to in-water work associated with the proposed wharf construction, pile driving, and dock construction in the FEIR. These potential impacts were deemed insignificant due to their temporary nature and the strong tidal currents in the area, which would rapidly disperse suspended sediments.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to hydrology and water, the proposed project would involve about one-third of the Wharf Development project area evaluated in the FEIR (75,000 sf) and would not involve in-water construction activities. No other changes to the proposed project that relate to hydrology and water quality are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to hydrology and water quality has occurred since the FEIR was certified. Specifically, that the proposed project site is no longer a developed industrial boatyard but is instead a vacant graded commercial site. No new information of substantial importance related to hydrology and water quality was identified during the preparation of this Addendum to the FEIR.

#### Impact Analysis

#### Would the project:

- a. Violate any water quality standards or waste discharge requirements?
- b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
- c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?
- d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?
- e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?
- f. Otherwise substantially degrade water quality?

- g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?
- h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?
- *i.* Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?
- j. Inundation by seiche, tsunami, or mudflow?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to hydrology or water quality. The proposed project involves a similar type of commercial development contemplated in the FEIR; however, the proposed project would be in the same location that was analyzed in the FEIR and issues related to flooding, seiche, tsunami, and mudflow would be generally the same under the proposed project as these issues are dependent on geography. The changes in the project as they relate to water quality, drainage, and runoff which are influenced by activities such as grading and creating impervious surfaces, would also be similar to those evaluated in FEIR because most of the Wharf Development project area involved impervious surfaces and most of the proposed project would involve impervious surfaces, too. Hydrology and water quality impacts would be similar compared to the Wharf Development evaluated in the FEIR. The listed change in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to impacts on hydrology and water quality because drainage infrastructure remains at the proposed project site (i.e., a catch basin and storm drains) that would result in similar conveyance of flows and runoff compared to the FEIR.

The FEIR identified less than significant impacts related to hydrology and water quality and did not include any mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to hydrology and water quality and the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to hydrology and water quality.

		Revision Required New or M Significan Cause Substantial	n to FEIR I Due to a ore Severe nt Impact d by a I Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ige From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
IX.	LAND USE AND PLANNING Would the project:		·			·	-
a)	Physically divide an established community?						
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?						
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to land use and planning, and a summary of changes in circumstances or new information of substantial importance as it relates to land use and planning. The impact analysis below includes a combined discussion of threshold questions IX.a through IX.c.

# Summary of FEIR

The Wharf Development project area was described in the FEIR was a developed industrial boatyard with a two-story office building, shop buildings, marine ways and rail system, asphalt, and concrete and crushed rock paving. Water areas were characterized by deteriorating docks and broken concrete riprap bank revetment. Existing landside operations included the storage and service of small buses for the owner's transportation business. The previous existing use at the proposed project site was characterized as an alleged nuisance by many of the adjacent residents.

Development of the site was under the jurisdiction of the District and subject to the California Coastal Act, which is implemented by the District through the issuance of a Coastal Development Permit (CDP). The Wharf Development project included a proposed Commercial Recreation PMP land use designation that would be more compatible with the adjacent residential land uses. A consistency review with the PMP concluded that the Wharf Development project, as analyzed in the FEIR, would not conflict with

habitat conservation plans or other applicable land use plans were identified and no potentially significant impacts or mitigation measures were identified in the FEIR.

# Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to land use and planning impacts, the proposed project would result in less development than the overall development analyzed in the FEIR. No other changes to the proposed project that relate to land use and planning are proposed and no change in the existing Commercial Recreation land use designation would be required.

# Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to land use and planning has occurred since the FEIR was certified. The proposed project site is no longer a developed industrial boatyard but is instead a vacant graded commercial site. No new information of substantial importance related to land use and planning was identified during the preparation of this Addendum to the FEIR.

# Impact Analysis

# Would the project:

- a. Physically divide an established community?
- b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?
- c. Conflict with any applicable habitat conservation plan or natural community conservation plan?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to land use and planning. The proposed project site has been prepared for future development and does not involve a change in the existing land use designation or other actions that would conflict with an applicable land use or conservation plan.

The change in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to impacts on land use and planning because the site has been graded and prepared to accommodate future commercial development and would be consistent with the previously approved Wharf Development.

The FEIR identified less than significant impacts related to land use and planning and did not include mitigation measures to reduce potential impacts. The proposed project would not result in any new or more severe significant impacts related to land use and planning and the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

The proposed project site is located within Orange Avenue subarea of Planning District 6, Coronado Bayfront of the PMP. At the time the FEIR was certified in 1989, the Orange Avenue subarea was updated to include the project analyzed in the FEIR. The PMP allows for development including a major restaurant, recreational shopping, marine service complex, and limited waterside development including boat slips. It also requires that structures do not to exceed 40 feet in height. The PMP land use designation for the project site is Commercial Recreation. The proposed project would not result in a change in land use and would remain compatible with the existing Commercial Recreation land use designation in the PMP.

The project site also lies within the California Coastal Zone and would require an amendment to CDP-97-3 pursuant to the requirements of the California Coastal Act (Coastal Act) and the District CDP Regulations. On November 18, 1997, a CDP was issued to allow for construction of two restaurant buildings with a total of approximately 18,500 sf, approximately 6,500 sf of office space, parking for approximately 255 vehicles, rip-rap and revetment shoreline protection, extension of the bicycle path along the waterfront, and landscaping improvements at the project site (CDP-97-3). Since the proposed second restaurant was not constructed within specified two-year timeframe stated in CDP-97-3, and the proposed project would exceed the total sf when combined with construction of the first restaurant (II Fornaio), a CDP amendment is required. Furthermore, the proposed project site is located within the SDIA Airport Land Use Compatibility Plan (ALUCP) but would not require Airport Land Use Committee (ALUC) review of the project because no increases in permitted height limits would occur and impacts related to light, glare, electromagnetic interference, dust, water, vapor, and smoke, thermal plumes, or bird attractants would be less than significant.

# Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to land use and planning.

		Revision Required New or M Significan Cause Substantial	n to FEIR I Due to a ore Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:		Impact/ ge From	
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significant No Substantial Chan <sub>i</sub> Previous Analysis
Х.	MINERAL RESOURCES Would the project:		·				·
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?						

	Revision Required New or M Significan Cause Substantial	n to FEIR I Due to a ore Severe nt Impact ed by a I Change in:	New Information, Not Previously Known Resulting in:		t Impact/ ige From	
	The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
<ul> <li>Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?</li> </ul>						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to mineral resources, and a summary of changes in circumstances or new information of substantial importance as it relates to mineral resources. The following impact analysis is in response to thresholds X.a and X.b and does not include separate discussions for each threshold because both thresholds are concerned with the loss of mineral resources, which do not exist at the site.

## Summary of FEIR

The Wharf Development project area at the time the FEIR was certified was an industrial boatyard and did not include any mineral resources in the immediate or surrounding area. No temporary or permanent impacts on mineral resources were identified in the FEIR.

#### Changes in Project

A summary of changes to the proposed project compared to the Wharf Development is provided in Table 2. There are no changes to the proposed project that are relevant to mineral resources.

#### Changes in Circumstances or New Information of Substantial Importance

No changes in circumstances or new information of substantial importance that are relevant to mineral resources have occurred since the FEIR was certified because there have not been mineral resources at the Wharf Development project area and there continues to be a lack of mineral resources at the proposed project site.

#### Impact Analysis

Would the project:

- a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?
- b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

The FEIR did not identify significant impacts related to mineral resources and did not identify any mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to the loss of availability of a known mineral resource as the proposed project is located in the same geographic location as the Wharf Development project area; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### Applicable Mitigation Measures and Specific Conditions

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		New Information, Not Previously Known Resulting in:			t Impact/ ge From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or	Less Than Significan No Substantial Chan Previous Analysis
XI.	<b>NOISE</b> Would the project:	1	1	1	1	1	
a)	Expose persons to or generate noise levels in excess of standards established in the City of Coronado's Noise Ordinance?						
b)	Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels?						

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to mineral resources.

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		New Information, Not Previously Known Resulting in:			t Impact/ nge From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or	Less Than Significan No Substantial Char Previous Analysis
c)	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?						
d)	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?						
e)	Be located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?						
f)	Be located within the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to noise, and a summary of changes in circumstances or new information of substantial importance as it relates to noise, followed by a discussion for the thresholds above. Thresholds XI.a and XI.c have been combined as they both evaluate operational noise impacts and threshold XI.e and XI.f have been combined as they both evaluate noise impacts from aircraft operations.

# Summary of FEIR

The Wharf Development site was described in the FEIR as a commercial boatyard characterized by vehicular and waterborne traffic, overflying aircraft, and business activities. The nearest residence was identified approximately 30 feet from the Wharf Development site. Existing ambient noise measurements were taken at the nearby residential locations and indicated that peak daytime noise levels were about 62 A-weighted decibels (dBA) at the parking lot of the Wharf Development site as analyzed in the FEIR. The FEIR concluded that the Wharf Development could result in potentially

significant construction noise impacts related to the use of equipment, primarily related to the operation of a backhoe to construct the underground parking garage, as well as operational impacts associated with vehicle traffic, the operation of parking and boats, normal operations, and the pick-up of dumpsters and operation of trash compactors. No potentially significant ground-borne vibration impacts or conflicts with aircraft operations were identified in the FEIR.

For construction noise impacts, the FEIR does not discuss construction noise ordinance thresholds but considers a 10-dBA increase above existing ambient noise levels as the threshold for temporary increases in noise to be noticeable. Construction equipment evaluated in the FEIR included one frontend loader, one backhoe, one grader, and two dump trucks. Noise estimates based on this mix of construction equipment indicated that the loudest average noise levels would be about 85 dBA at 50 feet at the center of the Wharf Development and would be noticeable at the residences, located as close as 150 feet from the center of the Wharf Development site. The FEIR concluded that temporary noise impacts would exceed the 10-dBA threshold. Temporary impacts related to construction noise were reduced to less than significant with the incorporation of mitigation measures NOI-1 and NOI-2 and specific condition SC-4.

For operational noise impacts, the FEIR references the City of Coronado's (City) Noise Ordinance and associated community noise standards from 1980, which restricts one-hour average sound levels (dBA) in residential areas to 50 dBA during the daytime (7:00 a.m. to 7:00 p.m.), 45 dBA during the evening (7:00 p.m. to 10:00 p.m.), and 40 dBA during the nighttime (10 p.m. to 7:00 a.m.). The FEIR concluded that impacts from delivery and trash trucks, as well as nighttime noise levels related to ongoing commercial and restaurant operations (e.g., vehicles entering and exiting the parking lot), would be significant and mitigation would be required. Permanent noise impacts were reduced to less than significant with the incorporation of mitigation measures NOI-3 and NOI-4, which required relocation of the driveway to the Wharf Development site and arranging pickup of the trash during business hours, respectively. All mitigation measures and specific conditions from the FEIR are included in Appendix A of this Addendum and applicable mitigation measures and specific conditions related to noise are included at the end of this section.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to noise, the proposed project includes a reduction in the buildout of the development analyzed in the FEIR. For construction, the proposed project would not involve the construction of an underground parking garage or nighttime construction as analyzed in the FEIR. Also, the proposed project would include the use of auger cast-in-place piles to support the proposed building foundation, which were not discussed in the FEIR. No other changes to the proposed project that relate to noise are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to noise has occurred since the FEIR was certified. Specifically, the proposed project site is no longer a developed and operational industrial boatyard but is instead a vacant graded commercial site. No new information of substantial importance related to noise since the FEIR was certified was identified during preparation of this Addendum to the FEIR.

# Impact Analysis

Would the project:

- a. Expose persons to or generate noise levels in excess of standards established in the City of Coronado's Noise Ordinance?
- c. Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The operational changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects or a substantial permanent increase in ambient noise levels. The operational changes in the proposed project are not expected to result in greater impacts than those analyzed in the FEIR because reduction in development and associated visitors, vehicles, and trash service pickup would result in a commensurate reduction in noise. For example, the project would result in lower levels of mobile sources (such as visitor and service vehicles) as well as less intensive stationary sources (such as heating, ventilation, and air conditioning equipment) that would generate noise at the project site.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to impacts on noise in excess of the City of Coronado Noise Ordinance. Specifically, the change in circumstances of the proposed project site from an industrial boatyard to a vacant graded commercial pad would not result in new significant or increased significant effects compared to the FEIR because the previous noises associated with the Wharf Development project area have been removed.

The FEIR identified significant impacts related to operational noise impacts and included mitigation measures NOI-3 and NOI-4 to reduce potential impacts associated with noise from vehicles entering and exiting the site. The proposed project would result in similar operational noise impacts; however, the project would not be required to implement mitigation NOI-3, which involves the relocation of the access/egress driveway and the construction of two noise walls, as this measure was previously implemented. To mitigate potential operational noise impacts, the proposed project would be required to implement mitigation measure NOI-4, which requires the arrangement of pick-up of the dumpster between 8:00 a.m. and 5:00 p.m. and would not result in any new or more severe significant impacts related to the exposure of persons to or generation of noise levels in excess of standards established in the City of Coronado's Noise Ordinance; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA compliance.

#### b. Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels. None of the components of the FEIR or the proposed project involve excessive ground-borne vibration or excessive ground-borne noise levels, and impacts would be similar to the Wharf Development evaluated in the FEIR because no new sources of ground-borne vibration are

included in the proposed project, including the cast-in-place piles, which would not be driven but would be installed using an auger. For a discussion of excessive noise levels, including excessive ground-borne noise levels, see the discussion below in threshold d), in subsection XI of Section 2.0 of this Addendum.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels. The area surrounding the project site is no longer a developed industrial boatyard and there is no generation of ground-borne vibration in the area or at the undeveloped project site.

The FEIR identified less than significant impacts related to the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels and no mitigation measures were included to reduce potential impacts. The proposed project would not result in any new or more severe significant impacts related to the exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# d. Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to temporary increases in ambient noise levels. Construction activities associated with the proposed project would generally involve fewer noise-related activities than what was analyzed in the FEIR because the project site has been graded and prepared for development. Some grubbing and minor grading would occur for the proposed project; however, most of the construction activities and related temporary noises would be related to preparing the building foundation and constructing the building. These activities would involve concrete trucks, an auger to install the cast-in-place piles, hydraulic cranes, and man-lifts, which produce similar noise levels as the construction equipment evaluated in the FEIR. The loudest equipment associated with the Wharf Development was reported in the FEIR to produce a noise of 85 dBA at 50 feet (see page IV-32 of the FEIR), while the loudest equipment associated with the groposed project (the auger) is estimated to produce a noise of 84 dBA at 50 feet (see page IV-32 of the FEIR). As a result, construction equipment noise levels associated with the proposed project (the auger) is estimated to produce a noise of 84 dBA at 50 feet (see Appendix D, *FHWA Roadway Construction Noise Model User's Guide*). As a result, construction equipment noise levels associated with the proposed project would be slightly reduced compared to the construction noise levels reported in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to substantial temporary increases in ambient noise levels. The area surrounding the proposed project site is no longer a developed industrial boatyard; however, the multi-family residences near the proposed project have remain unchanged and there are no new sensitive receptors in the area that would be subjected to construction noise associated with the proposed project. As a result, the changes in circumstances would not result in a new significant effect or a substantial increase in temporary construction noise impacts.

The FEIR identified potentially significant impacts related to substantial periodic increases in ambient noise levels and included mitigation measures NOI-1 and NOI-2 and specific condition SC-4 to require the construction contractor to work between the hours of 7:00 a.m. and 7:00 p.m. on weekdays, keep construction equipment as far as possible from sensitive receptors, and to provide acoustic shielding around night-operating equipment to reduce impacts to less than significant. The proposed project would be required to implement mitigation measures NOI-1 and NOI-2 and specific condition SC-4, each of which are modified for the proposed project to require acoustic shielding around equipment regardless of the time of day (see Appendix A of this Addendum), and would not result in any new or more severe significant impacts related to substantial period increases in ambient noise levels; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines EIR to achieve CEQA compliance.

- e. Be located within an airport land use plan area, or where such a plan has not been adopted, within 2 miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?
- *f.* Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to excessive noise levels associated with aircraft operations. Because the FEIR identified a restaurant at the proposed project site, and no changes to the location of the proposed project are requested, changes to the proposed project would not result in increased impacts from aircraft operations when compared to the Wharf Development evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to scenic resources. The area surrounding the proposed project site is no longer a developed industrial boatyard; however, this change in circumstances would not result in a new significant effect or a substantial increase in previously identified less-than-significant impacts.

The FEIR did not identify significant impacts related to aircraft operations and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts due to proximity to aircraft operations; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

# Applicable Mitigation Measures and Specific Conditions

**NOI-1:** The Applicant will require the construction contractor to: 1) restrict normal construction activities to the hours of 7 a.m. to 7 p.m. weekdays; 2) keep construction equipment as far as possible from sensitive receptors; and 3) provide acoustical shielding around <u>night-operating construction</u> equipment (10 p.m. to 7 a.m.).

**NOI-2**: To reduce short-term noise impacts during the construction phase of the project, the following measures will be implemented:

- a. Normal construction activities will be restricted to weekday daylight working house (7:00 a.m. to 7:00 p.m.). During any emergency operation at nighttime, special measures, such as using less noisy equipment (based on manufacturer's specifications and properly maintained) should be considered when possible to limit adverse noise impact on the residential areas.
- b. Construction equipment will be kept as far as possible from sensitive receptors; and
- c. Acoustic shielding (temporary walls and noise barriers) around night-operating (10:00 p.m. to 7:00 a.m.) construction equipment will be used.

**NOI-4**: The lessee will arrange for a business hour (8 a.m. to 5 p.m.) pick-up of the dumpster.

**SC-4**: That to minimize short term noise impacts during construction, the Applicant will require the construction contractor to (1) restrict normal construction activities to the hours 7 a.m. to 7 p.m. weekdays; (2) keep construction equipment as far as possible from sensitive receptors; and (3) provide acoustical shielding around night-operating construction equipment <u>(10 p.m. to 7 a.m.)</u>.

To minimize noise levels to adjacent residents from normal operations of the development, the Applicant will relocate the access/egress driveway, as originally shown in Figure 2.3, about 50 feet to the west (not within A Avenue). A 6-foot high sound attenuation wall will be built along the fenceline of the condominium's western border. An 8-foot high sound attenuation wall will be constructed at the property line on the east side of the project site. The lessee will arrange for business hour (8 a.m. to 5 p.m.) pick-up of trash dumpsters.

	Revision Requirec New or M Significa Cause Substantia	Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		New Information, Not Previously Known Resulting in:			
	The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis	
XII. POPULATION AND HOUSING Would the project:							
a) Induce substantial population gro in an area, either directly (for exa by proposing new homes and businesses) or indirectly (for exar through extension of roads or oth infrastructure)?	with mple, nple, ner						

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		N Not	t Impact/ ge From			
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significant No Substantial Chan, Previous Analysis	
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?							
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?							

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to population and housing, and a summary of changes in circumstances or new information of substantial importance as it relates to population and housing, followed by a discussion for the thresholds above. The following impact analysis is in response to questions XII.a through XII.c and does not include separate discussions for each threshold because the Wharf Development project area at the time the FEIR was an industrial boatyard and did not include any housing.

#### Summary of FEIR

The Wharf Development project area at the time the FEIR was certified was an industrial boatyard and no temporary or permanent impacts on population and housing were identified in the FEIR.

#### Changes in Project

A summary of changes to the proposed project compared to the Wharf Development is provided in Table 2. The proposed project involves less commercial development than what was evaluated in the FEIR, No other changes to the proposed project that relate to population and housing are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

No changes in circumstances or new information of substantial importance that are relevant to population and housing have occurred since the FEIR was certified. Approximately one-fourth of the square footage of the Wharf Development project area evaluated in the FEIR has been developed and the surrounding areas have generally been built out and have not substantially changed.

#### Impact Analysis

Would the project:

- a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
- c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

The FEIR did not identify significant impacts related to population and housing and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to the inducement of substantial population growth in the project area or the displacement of existing housing or people; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to population and housing.
	Revisio Require New or N Significa Caus Substantia	n to FEIR d Due to a lore Severe ant Impact ed by a al Change in:	Vew Significant mpacts Q	lew Inform t Previously Resulting Jacts S Jost S Jost Jost S Jost S Jost Jost S Jost S Jost Jost Jost Jost Jost Jost Jost Jost	Vew Feasible Vew Feasible Mitigation Measures or	.ess Than Significant Impact/ Vo Substantial Change From Previous Analysis
XIII. PUBLIC SERVICES		0				
Would the project:						
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:						
Fire protection?						$\square$
Police protection?						
Schools?						
Parks?						
Other public facilities?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to public services, and a summary of changes in circumstances or new information of substantial importance as it relates to public services, followed by a response to the threshold above.

#### Summary of FEIR

The FEIR concluded that there were no known significant public services impacts as the project design met the City of Coronado Fire Department Standard of allowing fire equipment to get within 300 feet of any portion of the property. The FEIR also concluded that police protection services from Harbor Police and City of Coronado police would be able to respond to emergencies within normal, acceptable response times. As a result, the FEIR concluded that impacts on public services would remain less than significant and no mitigation was required.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to public services, the proposed project site would be developed with a 7,500-sf restaurant building, and when combined with existing development, would equal 25,700 sf, which is approximately one-third of the Wharf Development floor area evaluated in the FEIR (75,000 sf). No other changes to the proposed project that relate to public services are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

There are no changes in circumstances related to public services that have occurred since the FEIR was adopted. While the project site was previously served by police and fire services when it was a boatyard, it would continue to be served by police and fire services as a commercial development. No new information of substantial importance related to public services was identified during the preparation of this Addendum to the FEIR.

#### Impact Analysis

#### Would the project:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire protection? Police protection? Schools? Parks? Other public facilities?

The changes to the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to public services because the proposed project involves a reduction in development, which corresponds to a general reduction in the demand for public services and would not result in additional impacts to public services beyond those identified in the FEIR.

The change in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified less-than-significant impacts on public services as fire and police services would continue to be provided to the proposed project site. Therefore, the change in circumstances is not substantial.

The FEIR did not identify significant impacts related to public services and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to the provision of new or physically altered public service facilities because construction and operations would involve less development and demand for public services generally; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines

Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance. No other changes to the proposed project that relate to public services are proposed.

#### Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to public services.

	Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		Ne Not I	t Impact/ ge From			
	The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or	Less Than Significan No Substantial Chan Previous Analysis	
XIV. RECREATION Would the project:							
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?							
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?							

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to recreation, and a summary of changes in circumstances or new information of substantial importance as it relates to recreation, followed by a response to thresholds XIV.a. and XIV.b, above.

#### Summary of FEIR

The Wharf Development project area at the time the FEIR was developed was an industrial boatyard and did not include recreational facilities in the immediate or surrounding area. As a result, the FEIR concluded that impacts on recreation would remain less than significant and no mitigation was required.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to recreation, the proposed project site would be developed with a 7,500-sf restaurant building, and when combined with existing development, would equal 25,700 sf, which is approximately one-third of the Wharf Development floor area evaluated in the FEIR (75,000 sf). No other changes to the proposed project that relate to recreation are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

There are no changes in circumstances related to recreation that has occurred since the FEIR was adopted because the areas surrounding the Wharf Development project area have generally remained developed and have not substantially changed since the FEIR was adopted. No new information of substantial importance related to recreation was identified during the preparation of this Addendum to the FEIR.

#### Impact Analysis

#### Would the project:

- a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- b. Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The FEIR did not identify significant impacts related to recreation and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to increase in the use of existing parks nor does it include the construction or expansion of recreational facilities; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to recreation.

		Revision Required New or Mo Significar Cause Substantial	to FEIR Due to a pre Severe nt Impact d by a Change in:	R ere lct New Information, Not Previously Known e in: Resulting in:			it Impact/ nge From
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
XV.	TRANSPORTATION/TRAFFIC Would the project:	1	1	1	1	1	
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?						
b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?						
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?						
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?						
e)	Result in inadequate emergency access?						

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		N Not	: Impact/ ge From		
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chan Previous Analysis
f)	Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?						
g)	Result in an insufficient supply of parking to meet the project demand?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of proposed project changes as they relate to traffic, and a summary of changes in circumstances or new information of substantial importance as it relates to traffic, followed by a discussion for each individual threshold question.

#### Summary of FEIR

The FEIR did not identify significant impacts related to conflicts with traffic plans, congestion management plans, or alternative transportation plans, changes in air traffic patterns, or emergency access; however, potential impacts related to safety hazards, parking deficiencies, and cumulative traffic impacts were identified.

The effectiveness of the circulation system was evaluated in the FEIR by considering LOS, which is established by the San Diego Traffic Engineers' Council (SANTEC) guidelines, and ranges from LOS A (best operating conditions) to LOS F (worst operating conditions). Intersections and street segments are considered to be acceptable if operating at LOS C or better, and are considered unacceptable at LOS D, E, or F. Significant impacts are identified when a project would degrade an intersection or street segment from LOS C or better to LOS D or worse. If existing operations are at LOS D or worse, then an increase in the volume to capacity ratio of up to 0.02 for street segments and an increase in intersection delay of two seconds is considered significant. The FEIR analyzed the potential for the Wharf Development to conflict with level of service (LOS) standards at six intersections in Coronado, including the following: (1) First Street and A Avenue; (2) First Street and B Avenue; (3) First Street and Orange Avenue; (4) Third Street and A Avenue; (5) Orange Avenue and Third Street; and (6) Orange Avenue and Fourth Street.

Increases in LOS were evaluated using trip generation estimates and estimated trip distribution on the six study area intersections during the a.m. and p.m. peak hours. A total of 3,000 daily trips were estimated in the FEIR, including 80 trips during the a.m. peak hour and 260 trips during the p.m. peak

hour. These additions were not concluded to substantially increase LOS at the six study area intersections, and no significant direct traffic impacts, including impacts on mass transit or non-motorized transit, air traffic patterns, emergency access, or public transportation were identified. However, impacts from contributions to regional traffic at the intersections of Third Street/Orange Avenue and Fourth Street/Orange Avenue were identified as potentially significant.

The parking analysis included in the FEIR relied on Urban Land Institute (ULI) and District guidelines. Specifically, the ULI and District parking requirements required 610 spaces and 539 spaces, respectively, to serve the ultimate development of the Wharf Development including 75,000 sf of office, retail, and restaurant uses. A shortfall of 148 and 57 spaces were identified based on the ULI and District parking requirements, respectively, and a significant and unavoidable parking impact was identified.

The FEIR included mitigation measures TRA-1 and TRA-2 and specific condition SC-2 to provide a fair share contribution for traffic improvements at First Street and Orange Avenue, and SR-75 and SR-282,<sup>3</sup> respectively, that would reduce impacts related to traffic congestion to less than significant. Mitigation measure TRA-3 and a part of specific condition SC-2 were included to reduce impacts related to safety to less than significant. Permanent impacts related to a deficiency in parking spaces were concluded to remain significant and unavoidable, despite the inclusion of mitigation measures TRA-4 and TRA-5 and specific condition SC-1, which includes either increasing the amount of parking spaces or reducing the amount of development at the Wharf Development site. All mitigation measures and specific conditions from the FEIR are included in Appendix A of this Addendum and applicable mitigation measures and specific conditions related to traffic are included at the end of this section.

#### Changes in Project

A summary of the changes from the proposed project compared to the Wharf Development is provided in Table 2. As these changes relate to traffic, the proposed project includes a reduction in the amount of square footage of the overall development considered in the FEIR, as well as a reduction in the amount of restaurant space anticipated in the FEIR. No other changes to the proposed project that relate to traffic are proposed.

No other changes to the proposed project that relate to transportation and parking are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

A traffic impact analysis (TIA) was prepared in 2018 by LLG Engineers that included an analysis of weekday and weekend traffic and parking counts to determine if changes in the surrounding roadway network or on-site parking supply would constitute a change in circumstances (see Appendix E). The TIA was prepared to evaluate if trips generated by the proposed project would result in significant impacts based on current traffic conditions in the area because even though the reduction in the project size as noted above would not exceed the trip generation totals in the FEIR, if traffic congestion in the area has increased since the FEIR was adopted, then this could qualify as a change in circumstances that could result in new impacts and potentially new mitigation measures. The results of the TIA indicated that existing traffic conditions are similar to those in the FEIR, and in some cases, traffic conditions have improved as the surrounding area has not experienced much development since the FEIR was certified,

<sup>&</sup>lt;sup>3</sup> SR-75 includes Orange Avenue, and SR-282 includes Third and Fourth streets.

and traffic improvements in the area, including those required of the FEIR that were implemented in the late 1990s, have improved conditions in some instances.

Regarding changes in circumstances to parking, 269 parking spaces have been constructed to serve an existing office building and restaurant within the Wharf Development project area, which is a reduction of 193 spaces from the 462 parking spaces identified to be included on-site in the FEIR. No new information of substantial importance related to traffic and parking has been identified during preparation of this Addendum to the FEIR.

#### **Impact Analysis**

#### Would the project:

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to conflicts with the effectiveness of a circulation system. While changes in the proposed project did not suggest that additional trips would exceed those that were estimated in the FEIR (due to a reduction in buildout from the FEIR), an additional trip generation analysis was conducted for the proposed project. To compare the average daily trips and a.m./p.m. peak hour trips from the FEIR to the proposed project, the existing development (18,200 sf, including 11,700 sf of restaurant and 6,5000 sf of office) within the Wharf Development was estimated to generate 1,300 daily trips based on current trip generation rates (e.g., 100 trips/1,000 sf for restaurant and 20 trips/1,000 for retail and office uses<sup>4</sup>). The proposed project, resulting in a combined total of 2,050 daily trips, which would not exceed the 3,000 trips that were analyzed in the FEIR. Also, the existing plus project a.m. and p.m. peak hour trips reported in the FEIR. As a result, the project-related traffic would not exceed the number of daily or a.m./p.m. peak hour trips evaluated in the FEIR.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to traffic impacts. The functioning of the roadway network surrounding the proposed project site is similar or better than it was in 1989 and would not result in a new significant effect or a substantial increase in previously identified less-than-significant impacts.

The FEIR identified significant impacts on the effectiveness of a circulation system that could be reduced to less than significant with the incorporation of mitigation measure TRA-2 and a component of specific

<sup>&</sup>lt;sup>4</sup> Rate is based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.

condition SC-2, both of which include fair-share payments for future improvements at the intersection of SR-75 and SR-282, which is also Orange Avenue and its intersection with Third and Fourth Streets.

Fair-share payments for improvements at the intersection of SR-75 and STR-282 (or Orange Avenue and Third and Fourth Streets) were identified in the FEIR because this intersection operated at a deficient LOS during the p.m. peak hour (LOS F), and the incremental contribution of the Wharf Development was concluded to be potentially significant. Under existing conditions and existing plus cumulative conditions, the intersection of SR-75 and SR-282 operates at an acceptable LOS in the p.m. peak hour (LOS B or C). As shown below in Table 3, *Existing Plus Project Intersection Operations*, the intersections of Orange Avenue with Third and Fourth Streets would experience a change of 0.2 seconds or less, which does not meet or exceed the threshold of 2 seconds of delay at LOS D, E, or F. Because conditions have improved, and the project would generate fewer trips, the proposed project would not be required to implement mitigation measure TRA-2 and would not result in any new or more severe significant impacts related to conflicts with applicable plans measuring the effectiveness of the circulation system. Therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

Furthermore, as shown below in Tables 3, 4, and 5, all study area intersections and street segments would operate at LOS C or better with operation of the proposed project, and no significant project-related traffic impacts would occur. As a result, the proposed project would result in fewer trips than what were analyzed in the FEIR. The surrounding roadway network has improved, resulting in reduced congestion, and the proposed project would not result in a conflict with LOS standards. Impacts associated with the proposed project on conflicts with applicable measurements of the transportation network would be less than significant.

# b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to conflicts with a congestion management program. The proposed project would involve less development than what was analyzed in the FEIR and would result in a reduction in construction and operational trips.

The changes in circumstances or new information of substantial importance identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to traffic impacts. The roadway network surrounding the proposed project site is similarly or less congested than it was in 1989 and the proposed project would result in a reduction in construction and operational trips.

The FEIR did not identify potentially significant impacts related to conflicts with a congestion management plan, and no mitigation measures were identified. The proposed project would not result in any new or more severe significant impacts related to congestion management plan conflicts; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the

conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

Interception	Control	Dook Hour	Existi	Existing		Existing Plus Project		
Intersection	Туре	Peak Hour	Delay <sup>a</sup>	LOS⁵	Delay	LOS	Change	
Orango Avenue / Ath Street	Signal	Weekend	27.1	С	27.2	С	0.1	
Ofalige Avenue / 4 Street	Signal	Saturday	15.0	В	15.2	В	0.2	
Orango Avonuo / 2rd Stroot	Signal	Weekend	17.3	В	17.5	В	0.2	
Ofalige Avenue / 5 Street	Signal	Saturday	17.2	В	17.4	В	0.2	
Orenze Augure / 1st Street	Signal	Weekend	7.7	А	8.0	А	0.3	
Ofalige Avenue / 1 Street	Signal	Saturday	6.9	А	7.2	А	0.3	
P Avenue / 1st Street	NACCOL	Weekend	12.0	В	12.4	В	0.4	
B Avenue / 1ª Street	IVISSC.	Saturday	16.1	С	17.0	С	0.9	
Project Driveway / 1st Street	MSSC	Weekend	10.4	В	10.8	В	0.4	
Project Driveway / 1 <sup>ad</sup> Street	IVISSC	Saturday	10.8	В	11.2	В	0.4	
A Avanua / 1st Straat	MSSC	Weekend	9.8	А	9.8	А	0.0	
A Avenue / 1º Street	IVISSC	Saturday	10.4	В	10.5	В	0.1	
A Avanua / 2rd Streat	MSSC	Weekend	9.3	А	9.3	Α	0.0	
A Avenue / 5 Street	MSSC	Saturday	9.3	А	9.3	А	0.0	

 Table 3

 EXISTING PLUS PROJECT INTERSECTION OPERATIONS

Source: LLG 2017.

a. Average delay expressed in seconds per vehicle.

b. Level of Service

c. Minor-Street Stop Controlled intersection. Minot street left turn delay is reported.

	Existing	Existing			Existir				
Street Segment	Capacity (LOS E) <sup>a</sup>	ADT⁵	LOS <sup>c</sup>	V/C <sup>d</sup>	ADT	LOS	V/C	Change	
Orange Avenue									
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	28,440	С	0.729	28,778	С	0.738	0.009	
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	20,680	В	0.530	21,055	В	0.540	0.010	
1 <sup>st</sup> Street									
Orange Avenue to Project Driveway	9,750	6,270	С	0.643	6,795	С	0.697	0.054	

#### Table 4 EXISTING PLUS PROJECT WEEKDAY STREET SEGMENT OPERATIONS

Source: LLG 2017.

a. Capacities based on City of Coronado Roadway Classifications and LOS Table.

b. Average Daily Traffic

c. Level of Service

d. Volume to capacity ratio

	Existing		Existing		Existing Plus Project				
Street Segment	t Segment Capacity (LOS E) <sup>a</sup> ADT <sup>b</sup>		LOS	V/C <sup>d</sup>	ADT	LOS	V/C	Change	
Orange Avenue									
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	21,830	В	0.560	22,168	В	0.568	0.008	
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	10,500	Α	0.269	10,875	Α	0.279	0.010	
1 <sup>st</sup> Street									
Orange Avenue to Project	0.750	F 420	р	0.556		D	0.610		
Driveway	9,750	5,420	В	0.550	5,945	В	0.010	0.054	
Source: LLG 2017									

Table 5 EXISTING PLUS PROJECT SATURDAY STREET SEGMENT OPERATIONS

ource: LLG 2017.

a. Capacities based on City of Coronado Roadway Classifications and LOS Table.

b. Average Daily Traffic

c. Level of Service

d. Volume to capacity ratio

#### c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to changes in air traffic patterns because the proposed project would involve less development than what was analyzed in the FEIR and would result in a reduction in construction and operational trips.

The changes in circumstances associated with similar and slightly improved traffic conditions identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to air traffic patterns.

The FEIR did not identify potentially significant impacts related to changes in air traffic patterns, and no mitigation measures were identified. The proposed project would not result in any new or more severe significant impacts related to changes in air traffic patterns; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to substantial increases in hazards due to a design feature or incompatible use. The proposed project would involve less development and does not include a proposal to modify or change the existing site access driveway or other design features that would result in substantial increases in hazards.

The changes in circumstances associated with similar and improved traffic conditions identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified effects related to substantial increases in hazards due to a design feature or incompatible use. Specifically, mitigation measure TRA-1, which mitigates potential safety concerns related to transportation improvements with the signalization of First Street and Orange Avenue, has been completed and has improved safety conditions in the area.

Mitigation measure TRA-3 included two improvements to improve safety conditions at the site, including installation of a left-turn lane into the project site from eastbound First Street and a right-turn lane from eastbound First Street onto "A" Street. The right-turn lane has been constructed within First Street per mitigation measure TRA-3 and would not apply to the proposed project; however, a dedicated left-turn lane has not been installed within First Street into the project driveway. Due to a decrease in the amount of development anticipated in the FEIR and the reduced traffic congestion on surrounding roadways and intersections, a dedicated left-turn lane is not necessary to achieve safe site access from First Street. To further support this conclusion, LLG conducted a non-signalized intersection evaluation at the intersection of the project driveway with First Street, with the purpose of determining if cars would have the potential to line up within First Street while waiting to turn left into the project site, thereby creating congestion and potential safety issues. The results of the non-signalized intersection analysis concluded that with and without the proposed project, LOS at the project driveway and First Street would remain at LOS B, which is an acceptable LOS, and potential safety issues were not anticipated (see Appendix E). As a result, due to changes in circumstances which included improved traffic circulation in the area, and due to a reduction in the intensity of the proposed project, potentially significant safety issues would be less than significant, and the portion of mitigation measure TRA-3 that identified a dedicated left-turn lane from First Street into the project site is not needed to reduce the potentially significant traffic safety impact identified in the FEIR. As a result, the proposed project would not result in any new or more severe significant impacts related to hazards due to a design feature or incompatible use; therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### e. Result in inadequate emergency access?

The FEIR did not identify significant impacts related to emergency access and did not identify mitigation measures or specific conditions. There are no changes to the project described in the FEIR as they relate to emergency access and because the surrounding roadway network is similar or improved in terms of congestion, access to the site is somewhat better, and no new or more severe significant impacts related to emergency access would occur. As a result, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

### f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

The FEIR did not identify significant impacts related to conflicts with public transit, bicycle, or pedestrian facilities and did not identify mitigation measures or specific conditions. There are no changes to the project described in the FEIR as they relate to public transit, bicycle, or pedestrian facilities, and no new or more severe significant impacts related to public transit, bicycle, or pedestrian facilities would occur.

As a result, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### g. Result in an insufficient supply of parking to meet the project demand?

The changes in the proposed project identified above would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified significant and unavoidable effects related to parking. The proposed project involves less development than what was evaluated in the FEIR and would therefore have a reduced demand for parking.

The changes in circumstances associated with parking would not require major revisions to the FEIR or result in new significant effects or a substantial increase in the severity of previously identified significant and unavoidable impacts related to insufficient parking supply. To determine if the construction of an office building, restaurant, and 269 surface parking spaces (instead of within an underground parking garage) constitutes a change in circumstances that could result in greater or new environmental impacts, the parking requirements included in SC-1 of the FEIR were reviewed to determine the required parking spaces for the existing plus the proposed project. As shown below in Table 6, *Existing Plus Project Parking Requirements*, 127 spaces are required to serve the existing office and restaurant, and an addition 70 spaces would be required to serve the proposed project. Together, a total of 197 spaces are required to serve the existing plus proposed project, which would be satisfied by the existing 269 spaces. As a result no resulting parking deficiencies were identified based on the changes in circumstances and new information. The significant and unavoidable parking impacts identified in the FEIR would be avoided.

The FEIR identified significant and unavoidable impacts related to a deficiency in parking and identified mitigation measures TRA-4 and TRA-5, which included consideration of public transportation as a means to reduce parking demand (TRA-4), and reducing the amount of development or increasing the amount of parking spaces so that a parking deficiency does not exist (TRA-5). The FEIR also determined that these mitigation measures would not reduce potential impacts to less than significant. However, the proposed project would not be required to implement mitigation measures TRA-4 and TRA-5 from the FEIR because no parking deficiencies would occur; therefore, the significant and unavoidable parking impacts identified in the FEIR would be avoided and the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

Land Lica	Sizo	Parking Require	ement <sup>a</sup>			
Lanu Ose	5120	Rate	Spaces			
Existing						
Office	6,500	5 spaces/1,000 sf	33			
Restaurant	11,700 (120 seats)	10 spaces/1,000 sf	117			
Proposed						
Restaurant	7,500(300 seats)	1 space/3 seats	100			
	Existing + Propos	ed Required Parking Spaces	250			
	Existing Parking Spaces 269					
	Net Required Spaces -19					

 Table 6

 EXISTING PLUS PROJECT PARKING REQUIREMENTS

a. Per specific condition SC-1 of the FEIR.

#### Applicable Mitigation Measures and Specific Conditions

**TRA-3**: To insure safe access, the Applicant will install a left-turn lane on east-bound First Street. Concurrently, a right-turn lane will be installed from eastbound First Street onto southbound "A" [Avenue]. Both turn lanes will be installed within the existing street width.

**TRA-4**: Ferry, water taxi, bus and shuttle service connect the project to Coronado and other points on San Diego Bay. The traffic consultant estimates a potential reduction in demand for parking of 12 to 15 percent. Onsite parking would still be less than the estimated demand between 6 p.m. and 9 p.m. of up to 57 spaces.

**TRA-5**: To eliminate a parking shortfall, either the number of parking spaces would need to be increased, the mix of restaurant use decreased in favor of retail, or the overall density of the project decreased.

**SC-1**: That any subsequent commercial recreation development will meet the District's on-site parking requirements as set forth in the Final EIR as follows: retail and associated office: 1 parking space per 200 square feet; restaurants: 1 parking space per 3 seats or 1 space per 100 square feet, whichever is greater; accommodation docks: 1 space per slip.

**SC-2**: That as mitigation for the incremental increase in traffic generated by the project and cumulative effects upon SR-75/SR-282, the District will require as a condition of any subsequent project approval of a commercial recreation development that the Applicant shall make appropriate; and reasonable monetary contributions for controls and improvements at the intersections of Fourth Street and Orange Avenue, if and when constructed and implemented by the responsible jurisdictions (CALTRANS and/or City of Coronado).

To improve access, the Applicant will install a left east-bound First Street. Concurrently, a right-turn installed from east-bound First Street onto southbound "A" Street. Both turn lanes will be installed within the existing; street width.

The implementation of the traffic circulation mitigation measures are within the purview of Coronado and CALTRANS. They have been recommended for implementation in the Memorandum of /Agreement among the City of Coronado, San Diego Association of Governments, California Department of Transportation District 11, NAS North Island, and the San Diego Branch, Western Division,

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		N Not	ıt Impact/ nge From		
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significar No Substantial Cha Previous Analysis
XV	UTILITIES AND SERVICE SYSTEMS Would the project:	·	·			·	
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?						
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?						
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?						
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?						
e)	Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?						
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?						

NAVFACENGCOM, dated July 20, 1984 and made part of the NAS North Island-Coronado Commuter Access Plan (July 1984), prepared by the San Diego Association of Governments.

		Revision to FEIR Required Due to a New or More Severe Significant Impact Caused by a Substantial Change in:		N Not	t Impact/ ige From		
		The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Char Previous Analysis
g)	Comply with federal, state, and local statutes and regulations related to solid waste?						

The following impact analysis includes an overview of what was analyzed in the FEIR, a summary of project changes as they relate to utilities and service systems, and a summary of changes in circumstances or new information of substantial importance as it relates to utilities and service systems. The following impact analysis is in response to questions XVI.a. through XVI.g. and does not include separate discussions for each threshold because the thresholds are concerned with the provision of adequate utilities and services, which were not concluded to result in any potentially significant impacts in the FEIR and do not warrant separate impact discussions.

#### Summary of FEIR

No temporary or permanent impacts on utilities and service systems were identified in the FEIR.

#### Changes in Project

A summary of changes to the proposed project compared to the Wharf Development is provided in Table 2. The proposed project involves less commercial development than was evaluated in the FEIR. No other changes to the proposed project that relate to utilities and service systems are proposed.

#### Changes in Circumstances or New Information of Substantial Importance

One change in circumstances related to utilities and service systems has occurred since the FEIR was certified. Specifically, the proposed project site is no longer a developed industrial boatyard, but is instead a vacant graded commercial site with existing utilities, including infrastructure for stormwater, potable water, sewer, irrigation, and natural gas. Most of the development evaluated in the FEIR has not yet been built, as the area currently includes approximately 18,200 sf of development, which is approximately one-quarter of the 75,000 sf of floor area of the Wharf Development analyzed in the FEIR. The proposed project site currently exists as a graded flat building pad, with an existing restaurant located to the west and an office to the southwest. No other change in circumstances or new information of substantial importance related to utilities and service systems was identified during preparation of this Addendum to the FEIR.

#### Impact Analysis

#### Would the project:

- a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?
- b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?
- d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?
- e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?
- *f.* Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

#### g. Comply with federal, state, and local statutes and regulations related to solid waste?

The FEIR did not identify significant impacts related to utilities and service systems and did not identify mitigation measures or specific conditions. The proposed project would not result in any new or more severe significant impacts related to utilities and service systems because project-related generation of waste, as well as demand for utility services including stormwater, wastewater, and potable water, would be reduced as the proposed project involves less development than was anticipated in the FEIR. As a result, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

#### Applicable Mitigation Measures and Specific Conditions

There are no mitigation measures or specific conditions from the FEIR identified to reduce impacts related to utilities and service systems.

	Revision Required New or Mo Significan Cause Substantial	to FEIR Due to a pre Severe at Impact d by a Change in:	No	it Impact/ nge From		
	The project	Circumstances	New Significant Impacts	More Severe Impacts	New Feasible Mitigation Measures or Alternatives	Less Than Significan No Substantial Chai Previous Analysis
XVII. MANDATORY FINDINGS OF SIGNIFIC	ANCE				·	
<ul> <li>a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?</li> </ul>						
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?						
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?						

#### Impact Analysis

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The FEIR identified less than significant impacts with mitigation related to biological and cultural resources. As discussed above under Sections IV and V, the proposed project would not result in any new or more severe significant impacts related to biological and cultural resources and mitigation measure CUL-1 from the FEIR would apply. While a mitigation measure and specific condition were identified for impacts to marine biological resources, they would not be required to be implemented related to the proposed project because no in-water work is proposed. As a result, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the IR to achieve CEQA compliance related to degrading the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory.

#### b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The FEIR did not identify potentially significant cumulative impacts and no mitigation measures for cumulative impacts or specific conditions were identified for any environmental resources. As discussed throughout the environmental analysis above for the 16 environmental resource topics, there are no changes to the project that indicate or suggest that a new or more severe significant environmental impact, including cumulative impacts on traffic, would occur. Likewise, there are no changes in circumstances or new information that would suggest a new or more severe significant environmental impact would occur. Therefore, the proposed project would not meet the conditions outlined in State CEQA Guidelines Section 15162 requiring the preparation of a subsequent EIR, and the proposed project would meet the conditions outlined in State CEQA Guidelines Section 15164, which allows the preparation of an addendum to a previously certified EIR to achieve CEQA compliance.

## c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The FEIR identified potentially significant impacts related to aesthetics, air quality, marine biological resources, cultural resources, hazards and hazardous materials, noise, and traffic, most of which were concluded to be reduced to less than significant with the incorporation of mitigation measures and/or specific conditions. Significant and unavoidable impacts related to aesthetics (obstruction of full or partial Bay views from multi-family residences) and parking (providing 462 spaces when 539 spaces

were required by the District's parking requirements in 1989) were identified in the FEIR, despite the inclusion of mitigation measures and specific conditions.

As discussed throughout the environmental analysis above for the 16 environmental resource topics, there are no changes to the proposed project that indicate or suggest that a new or more severe significant environmental impact would occur. As discussed in Section XV, due to changes in circumstances, which include an existing surface parking lot within the Wharf Development project area and updated parking requirements from the District, the significant and unavoidable parking impact would be reduced to less than significant under the proposed project. Also, the significant and unavoidable aesthetics impact would be reduced to less than significant under the proposed project because the proposed project would include less development in total area and in building height and would not preclude second and third story views from nearby multi-family residences. Therefore, the proposed project would result in reduced substantial adverse effects on human beings and would not increase any of the environmental impacts identified in the FEIR.

### 3.0 REFERENCES AND LIST OF PREPARERS

#### 3.1 REFERENCES

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## Appendix A

Mitigation, Monitoring, and Reporting Program

# New Restaurant at Ferry Landing

Mitigation, Monitoring, and Reporting Program

Prepared for:



San Diego Unified Port District 3165 Pacific Highway San Diego, CA 92101

July 2018

### 1.0 Mitigation, Monitoring, and Reporting Program

#### 1.1 Purpose

This Mitigation Monitoring and Reporting Program (MMRP) was prepared for the proposed New Restaurant at Ferry Landing Project (project or proposed project) to comply with Section 15097 of the California Environmental Quality Act (CEQA) and Public Resources Code Section 21081.6. Public Resources Code Section 21081.6 requires the Lead Agency for each project subject to CEQA to adopt a reporting or monitoring program for changes made to the project or conditions of approval adopted in order to mitigate or avoid significant effects on the environment. The Lead Agency must also monitor performance of the mitigation measure included in any environmental document to ensure that implementation takes place. The Lead Agency is responsible for review of all monitoring reports, enforcement actions, and document disposition. The Lead Agency will rely on information provided by a monitor as accurate and up to date and will field check mitigation measure status as required.

The purpose of the MMRP is to ensure that the mitigation measures, required by the Final Environmental Impact Report (FEIR), are properly implemented. As the Lead Agency for the project under CEQA, the San Diego Unified Port District (District) will monitor the mitigation measures for construction and operation of the proposed project. The District may modify how it will implement a mitigation measure, as long as the alternative means of implementing the mitigation still achieves the same or greater impact reduction. An effective reporting system shall be established prior to any monitoring efforts. Copies of the measures shall be distributed to the participants of the mitigation monitoring measures adopted. The MMRP includes specific conditions and mitigation measures listed in the FEIR for the Wharf Development, several of which have been completed in prior to previous development at the Wharf Development project area.

### 1.2 Mitigation Monitoring Checklist

The Mitigation Monitoring Checklist (Table MMRP-1) provides a mechanism for monitoring the mitigation measures in compliance with the FEIR. The Mitigation Monitoring Checklist is organized by categories of environmental impacts. Numbering has been added to the mitigation measures, which were not numbered in the FEIR, and the specific conditions are numbered similar to how they are presented in the FEIR. Potential impacts identified in the FEIR are summarized for each impact area and the required mitigation measures are listed. The checklist identifies the implementation schedule, who is responsible for verification of implementation. A description of these items is provided below.

**Mitigation Measure or Specific Condition**. The specific mitigation measure or specific condition language as described in the FEIR is listed in this category.

**Monitoring Requirement**. Specific requirements are provided for use by District staff to ensure that measures and specific conditions are appropriately implemented.

**Responsible Party for Mitigation Implementation**. This column explains who will ensure that the mitigation measure or specific condition is properly implemented. The District shall be responsible for either monitoring each measure or specific condition, or may delegate an agency or party at their discretion.

**Completion Requirement**. The mitigation measure or specific condition required for the project will be implemented at various times as construction proceeds and during operations.

**Agency Responsible for Verification**. This column describes who will be ultimately responsible for ensuring that each mitigation measure or specific condition is monitored and who will coordinate the final reporting program.

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification
<b>SC-1:</b> That any subsequent commercial recreation development will meet the District's on-site parking requirements as set forth in the Final EIR as follows: retail and associated office: 1 parking space per 200 square feet; restaurants: 1 parking space per 3 seats or 1 space per 100 square feet, whichever is greater; accommodation docks: 1 space per slip.	Prior to operation	Applicant	Prior to operation	District
<b>SC-2</b> : That as mitigation for the incremental increase in traffic generated by the project and cumulative effects upon State Route 75/State Route 282, the District will require as a condition of any subsequent project approval of a commercial recreation development that the Applicant shall make appropriate; and reasonable monetary contributions for controls and improvements at the intersections of Fourth Street and Orange Avenue, if and when constructed and implemented by the responsible jurisdictions (CALTRANS and/or City of Coronado).	Due to a reduction i proportional contril impact. Further imp	in development and impro oution of traffic has been r lementation and monitori	ved surrounding tra educed and would a ing is not warranted	ffic conditions, the avoid a significant
To improve access, the Applicant will install a left east-bound First Street. Concurrently, a right-turn installed from east-bound First Street onto southbound "A" Street. Both turn lanes will be installed within the existing; street width.	The right-turn lane from eastbound First Street onto southbound "A" Street has been completed. Due to a reduction in development, site access impacts have be avoided and the left-turn lane on east-bound First Street into the project site is no necessary to reduce impacts to less than significant. Further monitoring and verification is not warranted.			"A" Street has mpacts have been project site is not toring and
The implementation of the traffic circulation mitigation measures is within the purview of Coronado and CALTRANS. They have been recommended for implementation in the Memorandum of /Agreement among the City of Coronado, San Diego Association of Governments, California Department of Transportation District 11, \NAS North Island, and the San Diego Branch, Western Division, NAVFACENGCOM, dated July 20, 1984 and made part of the NAS North Island-Coronado Commuter Access Plan (July 1984), prepared by the San Diego Association of Governments.				

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification	
SC-3: That a mitigation plan for the transplantation of eelgrass on	No in-water work is	No in-water work is proposed and further monitoring and verification is not			
one-to-one area replacement basis for any that is impacted by in-	warranted.	warranted.			
water construction or development, including provisions for regular					
monitoring and subsequent transplantation over a three year period,					
shall be submitted by the Applicant for approval by the Department					
of Fish and Game, National Marine Fisheries Service, and the District.					
SC-4: That to minimize short term noise impacts during construction,	During	Applicant/Contractor	At the end of	District	
the Applicant will require the construction contractor to (1) restrict	construction		construction		
normal construction activities to the hours 7 a.m. to 7 p.m.					
weekdays; (2) keep construction equipment as far as possible from					
sensitive receptors; and (3) provide acoustical shielding around					
night-operating construction equipment (10 p.m. to 7 a.m.).					
To minimize noise levels to adjacent residents from normal	This specific conditi	on has been implemented	l and further monito	ring and	
operations of the development, the Applicant will relocate the	verification is not warranted.				
access/egress driveway, as originally shown in Figure 2.3, about 50					
feet to the west (not within A Avenue).					
A 6-foot high sound attenuation wall will be built along the fenceline	This specific condition has been implemented and further monitoring and				
of the condominium's western border.	verification is not warranted.				
An 8-foot high sound attenuation wall will be constructed at the	This specific condition was not implemented due to objections by residents and			residents and	
property line on the east side of the project site.	would not be required for the proposed project.				
The lessee will arrange for business hour (8 a.m. to 5 p.m.) pick-up of	During operations	Applicant	Ongoing	District	
trash dumpsters.					
SC-5: That to minimize fugitive air emissions during construction, the	During	Applicant/Contractor	At the end of	District	
Applicant will require the construction contractor to keep fugitive	construction		construction		
dust down by regular wetting of work areas.					
SC-6: To minimize nuisance odors from restaurants, the lessee will	During operations	Applicant	Ongoing	District	
require vendors to use and regularly maintain after-burners or					
carbon filters to reduce odorous emissions from food					
establishments.					

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification
SC-7: That to minimize nuisance effects from light or glare, the	During	Applicant/Contractor	At the end of	District
contractor will use sodium vapor lights during construction, and	construction		construction	
shield and direct night lighting away from residences. The proposed				
project design includes cowls on light standards to control off-site				
spillage of night lighting and sky glow. Landscaping will be used along				
the project perimeter to cut down the effects of night lighting and				
glare from passing and parked vehicles.				
SC-8: As the existing site is contaminated with hazardous wastes and	This specific conditi	on has been implemented	and further monito	ring and
to determine the extent of subsurface contamination and	verification is not w	arranted.		
alternatives for site remediation, the Applicant will prepare a Site				
Assessment and Remediation Plan to the satisfaction of the County				
Department of Health Services, Regional Water Quality Control				
Board, Air Pollution Control District, and District. Site remediation				
shall be required to be implemented prior to or concurrent with				
construction of the development.				1
<b>AES-1:</b> The Wharf on San Diego Bay includes the following design	During project	Applicant	During project	District
features which mitigate impacts resulting from the visual intrusion of	review		review	
the project into a largely residential area:				
1) extensive landscaping;				
<ol><li>solid fences and landscape buffer along edges of the project;</li></ol>	During project	Applicant	During project	District
<u> </u>	review		review	
3) below grade parking;	A surface parking lo	t has been constructed at	the project site and	no additional
	parking is proposed. Further monitoring and verification is not warranted.			
<ol><li>waterfront/nautical design theme; and</li></ol>	During project	Applicant	During project	District
	review		review	
5) an apron wharf for public access to view of the Bay.	The apron wharf ha	s been implemented and	further monitoring a	nd verification is
	not warranted.			
AES-2: The Applicant will use sodium vapor light bulbs during	Upon completion	Applicant	Prior to	District
construction and shield direct night lighting away from homes. The	of landscaping		occupancy	
proposed project design includes cowls on light standards to control	improvements			

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification
off-site spillage of night lighting and sky glow. Trees will be used along the project perimeter to cut down the effects of night lighting and glare from passing and parked vehicles.				
<b>AES-3:</b> None planned by the Applicant. The project could be redesigned to preserve some private Bay views. This would require a lower density development and positioning of buildings to allow view corridors. A lower density development with view corridors would only partially mitigate the impact to private adjacent residences.	The proposed project has been redesigned to include a single-story building that is reduced in height and no further implementation or monitoring of this measure is necessary.			
<b>AES-4:</b> Project implementation, however, would provide a significant increase in opportunity for the public to view the bay and San Diego skyline. Public views to the bay would be provided from the piers, the bayside promenade and bicycle path, and the proposed bayside dining and commercial establishments.	Previous development of the Ferry Landing site has included increased public views of the Bay from the piers, the bayside promenade, and existing restaurants, and no further implementation or monitoring of this measure is necessary.			eased public views staurants, and no y.
<b>AQ-1:</b> The Applicant will require the construction contractor to keep fugitive dust down by regular wetting of work areas.	During construction	Applicant/Contractor	At the end of construction	District
<b>AQ-2:</b> To reduce short-term impacts from construction activities for the project, the Applicant will require the construction contractor to control fugitive dust by regular wetting of work areas.	During construction	Applicant/Contractor	At the end of construction	District
<b>AQ-3:</b> To reduce natural gas and energy consumption, the Applicant will design structures for efficient energy use. Energy-saving devices will be installed as part of the proposed project.	During project review	Applicant	During project review	District
<b>AQ-4:</b> Design the structures for efficient energy use to reduce natural gas and electrical consumption.	During construction	Applicant	Prior to issuance of occupancy permits	District
<b>AQ-5:</b> Install energy saving devices such as setback thermostats, solar lighting, and solar water heaters.	During construction	Applicant	Prior to issuance of occupancy permits	District
<b>AQ-6:</b> The lessee will require vendors to use and regularly maintain after-burners or carbon filters to reduce odorous emissions from food establishments.	During operations	Applicant	Ongoing	District

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification
<b>AQ-7:</b> Require vendors to use and regularly maintain afterburners or carbon filters to reduce odorous emission from food establishments	During operations	Applicant	Ongoing	District
<b>BIO-1:</b> The Applicant will relocate or replace lost eelgrass to the sandy bottom area at the northern-most end of the site where the planned "L" dock is set from the project boundary. Alternatively, the Applicant will join in off-site transplant program, as approved by appropriate resource agencies.	No in-water work is proposed and further monitoring and verification is not warranted.			
<b>CUL-1:</b> Any previously unidentified historical resources discovered during project construction will be afforded full protection by the Applicant until qualified personnel can assess their importance.	During construction	Applicant/Contractor	At the end of construction	District
<b>HAZ-1:</b> To determine the extent of subsurface contamination and alternatives for site remediation, the Applicant will prepare a site Assessment and Remediation Report. Site remediation recommendation(s) contained in this document will be implemented.	This mitigation measure has been implemented and further monitoring and verification is not warranted.			
<ul> <li>HAZ-2: A Site Assessment and Remediation report will be prepared to determine the extent of subsurface contamination and alternatives for site remediation. Specific tasks to be undertaken as part of the Site Assessment and Remediation analysis would include the following:</li> <li>a. Preparation of a thorough site history review to target additional areas of potential waste accumulation.</li> <li>b. Additional subsurface investigations which may include drilling, soil and groundwater sampling, geophysical exploration, and monitoring.</li> <li>c. Laboratory analysis of selected samples; and d. Preparation of site remediation alternatives.</li> </ul>	This mitigation measure has been implemented and further monitoring and verification is not warranted.			
<b>NOI-1:</b> The Applicant will require the construction contractor to: 1) restrict normal construction activities to the hours of 7 a.m. to 7 p.m. weekdays; 2) keep construction equipment as far as possible from	During construction	Applicant/Contractor	At the end of construction	District

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification
sensitive receptors; and 3) provide acoustical shielding around night-				
<del>operating <u>construction</u> equipment <del>(10 p.m. to 7 a.m.)</del>.</del>				
NOI-2: To reduce short-term noise impacts during the construction	During	Applicant/Contractor	At the end of	District
phase of the project, the following measures will be implemented:	construction		construction	
a. Normal construction activities will be restricted to weekday				
daylight working house (7:00 a.m. to 7:00 p.m.). During any				
emergency operation at nighttime, special measures, such as using				
less noisy equipment (based on manufacturer's specifications and				
properly maintained) should be considered when possible to limit				
adverse noise impact on the residential areas.				
b. Construction equipment will be kept as far as possible from				
sensitive receptors, and				
c. Accustic sine uning (temporary waits and noise partiers) around night-operating (10:00 p m to 7:00 p m) construction equipment				
will be used				
NOL3: The Applicant will relocate the access/egress driveway as	This mitigation mea	sure has been implement	ad and further moni	toring and
originally shown in Figure 2.3, about 50 feet to the west A 6-foot	verification is not warranted			
sound wall will be built along the fenceline of the condominium's	vernication is not warranced.			
western border. An 8-foot noise wall will be constructed at the				
property line on the south and east side of the proposed project site.				
<b>NOI-4:</b> The lessee will arrange for a business hour (8 a.m. to 5 p.m.)	During operations	Applicant	Ongoing	District
pick-up of the dumpster.	0 1		0 0	
TRA-1: The Applicant will contribute a fair share to the cost of	This mitigation mea	sure has been implemente	ed and further moni	toring and
recommended improvements, if and when the City of Coronado	verification is not w	arranted.		
decides to signalize this intersection [First Street and Orange				
Avenue]. The Applicant's share is expected to be based upon no				
more than their proportional contribution to the total traffic at the				
impacted intersection.				

FEIR Mitigation Measure or Specific Condition	Monitoring Requirement	Responsible Party for Mitigation Implementation	Completion Requirement	Agency Responsible for Verification
<b>TRA-2:</b> The Applicant will contribute a fair share to the cost of recommended improvements, if and when CALTRANS decides to improve the junction of SR75 and 282. The Applicant's share is expected to be based upon no more than their proportional contribution to the total traffic at the impacted intersection.	Due to a reduction in development and improved surrounding traffic conditions, to proportional contribution of traffic has been reduced and would avoid a significan impact. Further implementation and monitoring is not warranted.			iffic conditions, the avoid a significant
<b>TRA-3:</b> To insure safe access, the Applicant will install a left-turn lane on east-bound First Street. Concurrently, a right-turn lane will be installed from eastbound First Street onto southbound "A" Street. Both turn lanes will be installed within the existing street width.	The right-turn lane from eastbound First Street onto southbound "A" Street has been completed. Due to a reduction in development, site access impacts have been avoided and the left-turn lane on east-bound First Street into the project site is not necessary to reduce impacts to less than significant. Further monitoring and verification is not warranted.			
<b>TRA-4:</b> Ferry, water taxi, bus and shuttle service connect the project to Coronado and other points on San Diego Bay. The traffic consultant estimates a potential reduction in demand for parking of 12 to 15%. Onsite parking would still be less than the estimated demand between 6 p.m. and 9 p.m. of up to 57 spaces.	Due to a reduction mitigation measure	in development, parking ir does not apply.	npacts have been av	voided and this
<b>TRA-5:</b> To eliminate a parking shortfall, either the number of parking spaces would need to be increased, the mix of restaurant use decreased in favor of retail, or the overall density of the project decreased.	Due to a reduction mitigation measure	in development, parking ir does not apply.	npacts have been av	voided and this

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# Appendix B

### Geotechnical Report
## UPDATE GEOTECHNICAL INVESTIGATION

## FERRY LANDING EXPANSION CORONADO, CALIFORNIA



GEOTECHNICAL ENVIRONMENTAL MATERIALS PREPARED FOR

FERRY LANDING ASSOCIATES LLC SAN DIEGO, CALIFORNIA

> MARCH 30, 2016 PROJECT NO. 06032-52-03

GEOTECHNICAL ENVIRONMENTAL MATERIALS



Project No. 06032-52-03 March 30, 2016

Ferry Landing Associates LLC 990 North Harbor Drive San Diego, California 92101

Attention: Mr. George Palermo

Subject: UPDATE GEOTECHNICAL REPORT FERRY LANDING EXPANSION CORONADO, CALIFORNIA

Reference: Geotechnical Investigation, Ferry Landing Expansion, Coronado Steakhouse, Coronado, California, prepared by Geocon Incorporated, dated May 6, 2008 (Project No. 06032-52-02).

Dear Mr. Palermo:

In accordance with your request, we are pleased to submit this update geotechnical report. The conclusions and recommendations presented in the referenced report remain applicable for the design and construction of the planned improvements. However, this letter provides updated seismic design parameters in accordance with the 2013 California Building Code (CBC), liquefaction evaluation, and recommendations for deep foundations and retaining walls.

#### SEISMIC DESIGN CRITERIA

We used the computer program *U.S. Seismic Design Maps*, provided by the USGS. Table 1 summarizes site-specific design criteria obtained from the 2013 California Building Code (CBC; Based on the 2012 International Building Code [IBC] and ASCE 7-10), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.3.2 of the 2013 CBC and Table 20.3-1 of ASCE 7-10. The site is classified as a Site Class F in accordance with the 2013 CBC Section 1613. However, we expect the period of the structure is less than 0.5 seconds and a Site Class E can be used to design the planned structure in accordance with ASCE 7-10 Section 20.3.1. We should perform a site-specific seismic analysis if the planned structures possess a period of greater than 0.5. The values presented in Table 1 are for the risk-targeted maximum considered earthquake (MCE<sub>R</sub>).

Parameter	Value	2013 CBC Reference
Soil Site Class	E	Table 1613.3.2
MCE <sub>R</sub> Ground Motion Spectral Response Acceleration – Class B (short), S <sub>S</sub>	1.228g	Figure 1613.3.1(1)
MCE <sub>R</sub> Ground Motion Spectral Response Acceleration – Class B (1 sec), S <sub>1</sub>	0.472g	Figure 1613.3.1(2)
Site Coefficient, F <sub>A</sub>	0.900	Table 1613.3.3(1)
Site Coefficient, $F_V$	2.400	Table 1613.3.3(2)
Site Class Modified MCE <sub>R</sub> Spectral Response Acceleration (short), S <sub>MS</sub>	1.106g	Section 1613.3.3 (Eqn 16-37)
Site Class Modified MCE <sub>R</sub> Spectral Response Acceleration (1 sec), S <sub>M1</sub>	1.133g	Section 1613.3.3 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (short), S <sub>DS</sub>	0.737g	Section 1613.3.4 (Eqn 16-39)
5% Damped Design Spectral Response Acceleration (1 sec), S <sub>D1</sub>	0.755g	Section 1613.3.4 (Eqn 16-40)

 TABLE 1

 2013 CBC SEISMIC DESIGN PARAMETERS

Table 2 presents additional seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-10 for the mapped maximum considered geometric mean ( $MCE_G$ ).

Parameter	Value	ASCE 7-10 Reference
Site Class	E	CBC Table 1613.3.2
Mapped MCE <sub>G</sub> Peak Ground Acceleration, PGA	0.551g	Figure 22-7
Site Coefficient, F <sub>PGA</sub>	0.900	Table 11.8-1
Site Class Modified $MCE_G$ Peak Ground Acceleration, $PGA_M$	0.496g	Section 11.8.3 (Eqn 11.8-1)

TABLE 2 2013 CBC SEISMIC DESIGN PARAMETERS

Conformance to the criteria in Tables 1 and 2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

### SOIL LIQUEFACTION AND LATERAL SPREAD POTENTIAL

Liquefaction typically occurs when a site is located in a zone with seismic activity, onsite soil is cohesionless/silt or clay with low plasticity, groundwater is encountered within 50 feet of the surface, and soil relative densities are less than about 70 percent. If the four previous criteria are met, a seismic event could result in a rapid pore-water pressure increase from the earthquake-generated ground accelerations. A potential for liquefaction exists at the site due to existing surficial soil and a shallow groundwater depth of approximately 9 feet.

We used the methods presented in the Journal of Geotechnical Engineering and NCEER (Youd, *et al*, 2001) to perform a liquefaction evaluation. We used a design-level seismic event with a magnitude of 7.5 and the peak site acceleration PGA<sub>m</sub> of 0.496g calculated from ASCE 7-10 Section 11.8.3 and a deaggregated modal magnitude of 6.64 corresponding to a 50-year exposure with a 10 percent exceedance or a 475-year return period. We performed the liquefaction analysis using the data from the exploratory borings performed during our field investigation.

We used the blow counts for the liquefaction analysis based on the sampling operations in the field. In addition, we adjusted blow counts using a modified California sampler by two-thirds to obtain equivalent Standard Penetration Test (SPT) values. The blow counts were also adjusted for boring diameter, sampling method, rod length, overburden pressure, and energy delivered to the sampler corresponding to a driving-energy of 60 percent ( $N_1|_{60}$ ). We further adjusted the blow counts for estimated fines content and calculated a factor of safety. A site is considered to be susceptible to liquefaction when the computed factor of safety is less than 1.0. The results of our liquefaction analysis indicate factors of safety ranging from approximately 0.31 to 0.75 within the liquefiable soil layers below the groundwater table.

Based on our analysis, a potential for liquefaction exists within the loose, granular portions of the hydraulic fill and bay deposits below groundwater level. The zone of liquefiable soil beneath the site generally ranges from approximately groundwater level at 9 feet to a depth of 29 feet. Manifestation of liquefaction at the ground surface is expected to be approximately 4 to 4½ inches of settlement. Appendix A presents the output of the spreadsheets used and the adjusted profile of the blow count data prior to the adjustment for fines.

Lateral spreading occurs when liquefiable soil is in the immediate vicinity of a free face such as a slope. Factors controlling lateral displacement include earthquake magnitude, distance from the earthquake epicenter, thickness of liquefiable soil layer, grain size characteristics, fines content of the soil and SPT blow counts. Bartlett and Youd (1995) have concluded that lateral spreading is restricted to sediments with corrected SPT blowcounts of 15 or less for earthquake magnitudes less than or equal to 8.0. The potential of lateral spreading in the liquefiable soil below the groundwater table is

on the order of a few feet along the shoreline. The displacement would likely drop to few inches at a distance of 50 feet from the crest of the shoreline.

Surface manifestation due to liquefaction may consist of surface rupture and/or sand boils, and surface settlement. Sand boils occur where liquefiable soil is extruded upward through the soil deposit to the ground surface. Providing an increase in overburden pressure and a compacted fill mat can mitigate surface manifestation. Research presented by Ishihara (1985) indicates that the presence of a non-liquefiable surface layer typically results in the effects of at-depth liquefaction from reaching the surface. Modifications to Ishihara's chart have been made to include higher ground accelerations (Ishihara's 1985 chart was based on a 0.25 ground acceleration) by Youd and Garris (1995). Based on Youd's modified curves and the thickness of the non-liquefiable soil layer (layer above the assumed groundwater table), the potential for surface manifestation may be possible.

### DEEP FOUNDATIONS

A deep foundation system should be used to support the proposed building and to mitigate potential soil movement from soil liquefaction and lateral spreading due to an earthquake under the structure. Because groundwater exists at a relatively shallow depth, drilled piers would require water- or slurry-displacement methods of construction and would likely not be cost effective. Therefore, driven precast concrete piles (PCCPs) will likely be the most economical. Recommendations for the other types of piles such as driven steel H piles or auger cast-in-place piles can be provided if required.

Piles can develop support by both friction and by end bearing in the Old Paralic Deposits (formerly named Bay Point Formation). The piles should be embedded at least 10 feet into the formational materials. The Old Paralic Deposits are located at a depth of about 29 feet; therefore, the minimum pile depths should be at least 39 feet. Capacities are commonly limited to 70 tons for 12-inch-square piles and 100 tons for 14-inch-square piles due to structural and drivability concerns.

Figures 1 and 2 present the calculated allowable end bearing, allowable skin friction, and total allowable bearing (skin friction plus end bearing) axial pile capacities for driven 12-inch and 14-inch square pre-cast concrete piles. A factor of safety of 2 was used for end bearing and side friction for the driven piles.

Single pile uplift capacity can be taken as 60 percent of the allowable downward skin friction capacity.

If pile spacing is at least three times the maximum dimension of the pile, a reduction in axial capacity for group effects is not considered necessary. If piles are spaced between 2 and 3 pile diameters (center to center), the single pile axial capacity should be reduced by 25 percent. Geocon

Incorporated should be contacted to provide single-pile capacity if piles are spaced closer than 2 diameters.

Pile settlement is expected to be on the order of  $\frac{1}{2}$ -inch for PCCPs. Settlement should be essentially complete shortly after completion of the structure.

The design tip elevation of the driven piles should be determined by the project structural engineer based on the elevation of the pile cap or grade beam and Figure 2. Some variation should be expected during drilling and driving operations.

Negative skin friction (downdrag) occurs when the settlement of the surrounding soil exceeds the downward movement of the pile shaft. Should liquefaction occur in the site subsurface soils, negative skin friction could result due to settlement of the liquefiable soil. The allowable capacities provided on Figures 1 and 2 have been reduced to account for negative skin friction. Negative skin friction should be accounted for when determining allowable capacities based on static or dynamic loads tests. Due to the potential for liquefaction, the allowable bearing material should not begin until a depth of about 35 feet below existing grade. Table 3 presents the estimated downdrag loads for the planned pile types and sizes.

TABLE 3 DOWNDRAG LOAD ON PILES

Pile Type	Downdrag Load on Piles (kips)
12-inch Square Precast Concrete	38
14-inch Square Precast Concrete	44

The allowable downward capacity and allowable uplift capacity may be increased by one-third when considering transient wind or seismic loads.

The geotechnical engineer (a representative of Geocon Incorporated) should observe pile driving to evaluate if adequate capacity has been attained. If unexpected soil and driving conditions are encountered, foundation modification may be required.

A pile hammer that develops a minimum energy of 40,000 foot-pounds per blow should be used. Predrilling or jetting should not be used during the pile installation, if possible. Jetting could be used to a depth of about 5 feet above the Old Paralic Deposits or 24 feet. On-site soils are considered corrosive with respect to steel and concrete. The groundwater is saltwater and is considered a brackish environment. The structural engineer should take this into account when selecting cement quantities and types for piles. Adequate concrete cover over reinforcing steel should be provided in accordance with applicable construction practices and design standards.

Due to the relatively uniform subsurface condition and limited number of piles planned for the project, a static pile load testing program to evaluate pile axial capacity is not considered necessary. However, a dynamic pile load testing program based on the wave equation analyses and CAPWAP to evaluate whether specified tip elevations are appropriate to meet design capacities is recommended. At least 4 piles should be tested and the tests should be performed in accordance with Caltrans criteria and/or ASTM procedures, as appropriate. Both end of driving (EOD) and beginning of restrike (BOR) data should be collected to assess how much soil setup or relaxation occurred after initial driving.

Based on discussions with the structural engineer, we performed the lateral pile analyses for 12-inchsquare PCCPs using the LPILE computer program. The lateral loads at the ground surface that would produce a deflection at the pile cap on a 12-inch square PCCP for a free head condition for both static and liquefied conditions are presented in Table 4. We assumed an axial load of 100 kips and a 45foot-long pile. We assumed concrete with a modulus of elasticity of 4,415 kips per square inch (ksi). If greater capacities than those shown in Table 4 are needed, if different pile types are chosen, or if additional data are needed, Geocon Incorporated should be contacted. Shear, moment, and deflection diagrams from our analyses are located in Appendix B of this report.

Min. Pile Length (feet)	Condition	Axial Load (kips)	Deflection (inches)	Lateral Load (kips)	Maximum Moment (in-kips)
			1/4	12	316
45	Static	100	1/2	23	632
			1	36	1,210
			1⁄4	11	288
45	Liquefied	100	1/2	22	577
			1	34	1,107

TABLE 4 LATERAL LOAD/DEFLECTION FOR 12-INCH SQUARE PCCP FREE HEAD CONDITION

### **RETAINING WALLS**

The recommendations herein for retaining walls (except for the seawall) are provided based on our experience with similar site and soil conditions. Modifications may be required depending on actual site conditions.

Retaining walls not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid density of 35 pounds per cubic foot (pcf). Where the backfill will be inclined at 2:1 (horizontal:vertical), an active soil pressure of 50 pcf is recommended. Soil with an expansion index (EI) of greater than 50 should not be used as backfill material behind retaining walls.

Unrestrained walls are those that are allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall) at the top of the wall. Where walls are restrained from movement at the top, an additional uniform pressure of 7H psf should be added to the active soil pressure. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to 2 feet of fill soil should be added.

The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The recommendations herein assume a properly compacted granular (EI of 50 or less) freedraining backfill material with no hydrostatic forces or imposed surcharge load. Figure 3 presents a typical retaining wall drainage detail. If conditions different than those described are expected, or if specific drainage details are desired, Geocon Incorporated should be contacted for additional recommendations.

The structural engineer should determine the seismic design category for the project. If the project possesses a seismic design category of D, E, or F, the proposed retaining walls should be designed with seismic lateral pressure. A seismic load of 14H should be used for design on walls that support more than 6 feet of backfill in accordance with Section 1803.5.12 of the 2013 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall. We used the peak site acceleration, PGA<sub>M</sub>, of 0.496g calculated from ASCE 7-10 Section 11.8.3 and applied a pseudo-static coefficient of 0.3.

Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The retaining walls and improvements above the retaining walls should be designed to incorporate an appropriate amount of lateral deflection as determined by the structural engineer.

The recommendations presented herein are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 8 feet. In the event that walls higher than 8 feet or other types of walls are planned, such as crib-type walls, Geocon Incorporated should be consulted for additional recommendations.

In general, wall foundations having a minimum depth and width of 1 foot and founded on a minimum of 2 feet of properly compacted fill may be designed for an allowable soil bearing pressure of 2,000 psf. Retaining walls that are structurally tied into the planned restaurant should be supported on a pile foundation. The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, retaining wall foundations should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

Soil contemplated for use as retaining wall backfill, including import materials, should be identified in the field prior to backfill. At that time, Geocon Incorporated should obtain samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength. City or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may or may not meet the values for standard wall designs. Geocon Incorporated should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs will be used.

Should you have questions regarding this letter, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Kell: a.J. 45SIONAL GEO Ali Sadr Kelli A. James Shawn Foy Weedon CEG 1778 RCE 79438 GE 2714 PROF SADR No. 1778 S GIS7 No. 79438 CERTIFIED  $\bigstar$ STRAGELLEO ENGINEERING OF KAJ:SFW:AS:dmc (2)Addressee (e-mail) Wiseman and Rohy Structural Engineers Attention: Mr. Jim Wiseman



KJ/SW

FIG. 1



KJ/SW

DATE 3-30-2016

PROJECT NO. 06032-52-03

FIG. 2



Plotted:03/31/2016 8:50AM | By: JONATHAN WILKINS | File Location: Y:\PROJECTS\06032-52-03 Ferry Landing Expansion\DETAILS\Typical Retaining Wall Drainage Detail (RWDD7A).dwg



### APPENDIX A

### LIQUEFACTION ANALYSES

FOR

FERRY LANDING EXPANSION CORONADO, CALIFORNIA

PROJECT NO. 06032-52-03



#### Hammer Energy Correction Factors

Reference: Youd, et al, Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10

Project Name:

Project Number:

#### FERRY LANDING EXPANSION 06032-52-03

Date: 3/10/2016

Hole Diameter, Inches:

Average Unit Weight, y (pcf):

Adjustment Factor for 350 LB Hammer Above Groundwater Adjustment Factor for 350 LB Hammer Below Groundwater Approximate Depth to Groundwater in Boring B-1

Approximate Depth to Groundwater in Boring B-2

8 125 1.00 1.00 9

Hole Diameter Correction, CB: 1.15

<--- Enter 1.0 if an adjustment is not required; Applied to "MC" Samples

<-- Enter 1.0 if an adjustment is not required; Applied to "MC" Samples

9

\*Auto, Cathead, or Downhole Hammer

	,				Adjust for each	GWT Level	Energy Correction, C <sub>E</sub> (1.0 Safe-T-Driver/Cathead, 1.3 Automatic)									
Sample	Depth, Feet	Field Blow Count (per Foot)	Type of Sampler (MC or SPT)	Hammer Type* (A/C/D)	Equiv. SPT Blow Count, N	SPT ount, o', psf Overburden Pressure Correction, C <sub>N</sub>		Energy Ratio Correction, C <sub>E</sub>	Rod Length Correction, C <sub>R</sub>	Sampling Correction, C <sub>S</sub>	N1 60 Blowcounts (Prior to Fines)					
B1-2	3.0	43	MC	А	28.7	375.0	1.70	1.3	0.75	1.00	54.64					
B1-3	5.0	110	MC	А	73.3	625.0	1.70	1.3	0.75	1.00	100.00					
B1-4	10.5	64	MC	A	42.7	1218.9	1.28	1.3	0.85	1.00	69.45					
B1-5	15.0	4	SPT	A	4.0	1500.6	1.15	1.3	0.85	1.10	6.45					
B1-6	20.5	14	MC	А	9.3	1844.9	1.04	1.3	0.95	1.00	13.80					
B1-7	26.0	13	SPT	A	13.0	2189.2	0.96	1.3	0.95	1.10	19.41					
B1-8	30.5	31	MC	А	20.7	2470.9	0.90	1.3	1.00	1.00	27.80					
B1-9	36.0	36	SPT	А	36.0	2815.2	0.84	1.3	1.00	1.10	49.90					
B1-10	40.5	57	MC	А	38.0	3096.9	0.80	1.3	1.00	1.00	45.65					
B1-11	46.0	76	SPT	A	76.0	3441.2	0.76	1.3	1.00	1.10	95.28					
B1-12	50.5	25	MC	А	16.7	3722.9	0.73	1.3	1.00	1.00	18.26					
B2-2	3.0	42	MC	А	28.0	375.0	1.70	1.3	0.75	1.00	53.37					
B2-3	5.0	120	MC	A	80.0	625.0	1.70	1.3	0.75	1.00	100.00					
B2-4	11.0	72	SPT	А	72.0	1250.2	1.26	1.3	0.85	1.10	100.00					
No. #	15.5	16	MC	A	10.7	1531.9	1.14	1.3	0.85	1.00	15.49					
B2-5	21.0	4	SPT	А	4.0	1876.2	1.03	1.3	0.95	1.10	6.45					
B2-6	25.5	16	MC	А	10.7	2157.9	0.96	1.3	0.95	1.00	14.58					
B2-7	30.0	23	SPT	А	23.0	2439.6	0.91	1.3	1.00	1.10	34.25					
B2-8	35.5	52	MC	A	34.7	2783.9	0.85	1.3	1.00	1.00	43.93					
B2-9	41.0	34	SPT	A.	34.0	3128.2	0.80	1.3	1.00	1.10	44.71					
B2-10	45.5	68	MC	A	45.3	3409.9	0.77	1.3	1.00	1.00	51.90					
B2-11	51.0	84	SPT	A	84.0	3754.2	0.73	1.3	1.00	1.10	100.00					

Boring B-1 N1|60 Blowcounts Depth, Feet m N1/60 BLOWCOUNT DATA GEOCON INCORPORATED FERRY LANDING EXPANSION GEOTECHNICAL CONSULTANTS 6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974 PHONE 858 558-6900 - FAX 858 558-6159 CORONADO, CALIFORNIA KJ/SW PROJECT NO. 06032-52-03



# Liquefaction Analysis Using SPT References 1. Youd, et al, I

1. Youd, et al, Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10

nd Consistant Framework, 2003.

	2. Seed, et al, Recent Advances in Soil Liquefaction Engir	ieering: A Unified ar
Project Name:	Ferry Landing Expansion	
Project Number:	06032-52-03	
Boring:	B-1	
PGAm	0.496	
Magnitude	6.64	
Groundwater Depth, H	et 9.0	
Reference Pressure, I	p <sub>a</sub> 2000	
Unit Weight of Water	62.4	
Soil Unit Weight, pcf	130	
	Enter for Fine-Grained Materials	New

Include K<sub>G</sub> (Y/N) N P NCEER CRR7.5 (1) or Rauch CRR7.5 (2) 2 Minimum Factor of Safety for Liquefaction 1.1

Use NCEER CRR7.5 (1) or Rauch CRR7.5 (2)

			-					_																	
	Settlement, in.													0.348	0.348	0.348	0.348	0.348	0.348	0.348	0.348	0.216	0.216	0.216	0.216
From Graph	Volumetric Strain, %													2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	1.8	1.8	1.8	1.8
	Factor of Safety	3.390	3.397	3.405	3.413	3.421	3.429	3.437	3.445	3.453	3.294	3.165	3.058	0.354	0.344	0.337	0.330	0.324	0.319	0.314	0.310	0.524	0.519	0.515	0.511
	Liquefaction Potential	Above GWT	NL	NL	NL	NL	LIQUEFIABLE																		
M) <sup>2 56</sup> /10 <sup>2 24</sup>	Fines Liquefiable (Y/N)	-	-	1	-	1	1	-	1	ŀ	ſ	:	1	1	-	1	1	1	1	1	;				1
s(1997) = (I	CSR M=7.5	0.236	0.235	0.235	0.234	0.234	0.233	0.233	0.232	0.232	0.243	0.253	0.262	0.270	0.277	0.283	0.289	0.294	0.299	0.303	0.307	0.310	0.314	0.316	0.319
MWF Idris	RAUCH CRR <sub>7.5</sub>	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.095	0.095	0.095	0.095	0,095	0.095	0.095	0.095	0.163	0.163	0.163	0.163
	NCEER CRR <sub>7.5</sub>	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.089	0.166	0.166	0.166	0.166
	K	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	P	1.00	1.00	0.99	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98	0.97	0.97	0.97	0.97	0.97	0.96	0.96	0.96	0.96	0.95	0.95	0.95	0.95
	ơ', psf	130.0	260.0	390.0	520.0	650.0	780.0	910.0	1040.0	1170.0	1237.6	1305.2	1372.8	1440.4	1508.0	1575.6	1643.2	1710.8	1778.4	1846.0	1913.6	1981.2	2048.8	2116.4	2184.0
	a, psf	130.0	260.0	390.0	520.0	650.0	780.0	910.0	1040.0	1170.0	1300.0	1430.0	1560.0	1690.0	1820.0	1950.0	2080.0	2210.0	2340.0	2470.0	2600.0	2730.0	2860.0	2990.0	3120.0
New	N <sub>1</sub> l <sub>60</sub> , Adj. for Fines	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	55.0	69.0	69.0	69.0	7.9	7.9	7.9	7.9	7.9	7.9	7.9	6.7	15.3	15.3	15.3	15.3
	Plasticity Index	1	:	1	I	I	1	4	I	ı	I	:	1	1	1	;	1	1	l	1	ı	ı	ł	1	ı
I Materials	Plastic Limit	1	1	1	1	1	1	1	1	1	+	1	r	1	1	1	1	I	I	1	1	1	ł	1	I
ine-Grained	Liquid Limit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	I	1	1	1	1	I.	1	1	1	I
Enter for F	Water Content, w <sub>c</sub> (%)	8.0	8.0	8.0	6.0	6.0	6.0	6.0	6.0	17.0	17.0	17.0	17.0	17.0	25.0	25.0	25.0	25.0	25.0	25.0	22.0	22.0	22.0	22.0	22.0
	Fines Content, FC (%)	3	3	3	З	Э	3	3	3	3	Э	3	3	26	26	26	26	26	26	26	26	12	12	12	12
	N <sub>1</sub>  60	55	55	55	55	55	55	55	55	55	69	69	69	9	6	9	9	9	9	9	9	14	14	14	14
	Depth, ft	1	2	е	4	5	9	7	8	6	10	11	12	13 .	14	15	16	17	18	19	20	21	22	23	24



# Liquefaction Analysis Using SPT References 1. Youd, et al, I.

- 1. Youd, et al. Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10
  - 2. Seed, et al, Recent Advances in Soil Liquefaction Engineering: A Unified and Consistant Framework, 2003.

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Project Name:	Ferry Landing Expansion
Project Number:	06032-52-03
Boring:	B-1
PGA <sub>m</sub>	0.496
Magnitude	6.64
Groundwater Depth, Ft	0.0
Reference Pressure, p <sub>a</sub>	2000
Unit Weight of Water	62.4
Soil Unit Weight, pcf	130

Include K<sub>α</sub> (Y/N) N r Rauch CRR7.5 (2) 2 fety for Liquefaction 1.1

Minimum Factor of Safety for Liquefaction Use NCEER CRR7.5 (1) or Rauch CRR7.5 (2)

	1
Materials	
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ш	Ł

MWF  $Idriss(1997) = IM^{2.56}/10^{2.24}$ 

		1	1	T	1		-	-			-		-			-	-	-	-	-	-	-		-	
	Settlement, in.	0.216	0.168	0.168	0.168	0.168																			
From Graph	Volumetric Strain, %	1.8	1.4	1.4	1.4	1.4																			
	Factor of Safety	0.507	0.723	0.720	0.717	0.715	2.444	2.441	2.440	2.440	2.443	2.448	2.455	2.464	2.474	2.487	2.501	2.517	2.535	2.554	2.575	2.598	2.622	2.647	2.674
	Liquefaction Potential	LIQUEFIABLE	LIQUEFIABLE	LIQUEFIABLE	LIQUEFIABLE	LIQUEFIABLE	NL	NL	NL	NL	N	Ъ	N	NL	Z										
M) <sup>2.56</sup> /10 <sup>2.24</sup>	Fines Liquefiable (Y/N)	1	-	-	:	:	1	-	-		1	1	1	-		1	1	1	-	1	-	1	1	1	:
s(1997) = (I	CSR M=7.5	0.321	0.323	0.324	0.326	0.327	0.327	0.328	0.328	0.328	0.327	0.327	0.326	0.325	0.323	0.322	0.320	0.318	0.316	0.313	0,311	0.308	0.305	0.302	0.299
MWF Idris	RAUCH CRR <sub>7.5</sub>	0.163	0.234	0.234	0.234	0.234	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
v	NCEER CRR <sub>7.5</sub>	0.166	0.234	0.234	0.234	0.234	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
	Ka	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	, P	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.91	0.90	06.0	0.89	0.88	0.88	0.87	0.86	0.85	0.84	0.83	0.82	0.81	0.80	0.79	0.78	0.77
	ơ', psf	2251.6	2319.2	2386.8	2454.4	2522.0	2589.6	2657.2	2724.8	2792.4	2860.0	2927.6	2995.2	3062.8	3130.4	3198.0	3265.6	3333.2	3400.8	3468.4	3536.0	3603.6	3671.2	3738.8	3806.4
	a, psí	3250.0	3380.0	3510.0	3640.0	3770.0	3900.0	4030.0	4160.0	4290.0	4420.0	4550.0	4680.0	4810.0	4940.0	5070.0	5200.0	5330.0	5460.0	5590.0	5720.0	5850.0	5980.0	6110.0	5240.0
New	N <sub>1</sub>   <sub>60</sub> , Adj. for Fines	15.3	21.4	21.4	21.4	21.4	32.5	32.5	32.5	32.5	32.5	32.5	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0	51.0
	Plasticity Index	1	1	1	I	I	1	I	1	-	1	;	ł	;	1	;	T	1	;	1	1	-	1		:
d Materials	Plastic Limit	1	1	1	1	1	ł	1	1	1	1	ł	1	1	ŀ	1	1	1	1	1	1	1	ł	1	1
ine-Graine	Liquid Limit	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	ţ	1	1	1	1		1	ł
Enter for F	Water Content, w <sub>c</sub> (%)	22.0	22.0	22.0	22.0	22.0	26.2	26.2	26.2	26.2	26.2	25.2	25.2	25.2	25.2	25.2	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0	22.0
	Fines Content, FC (%)	12	19	19	19	19	28	28	28	28	28	28	45	45	45	45	45	45	45	45	45	45	45	45	45
	N1 60	14	19	19	19	19	28	28	28	28	28	28	45	45	45	45	45	45	45	45	45	45	45	45	45
	Depth, ft	25	26	27	28	29	30	31	32	33	34	35	36	. 37	38	39	40	41	42	43	44	45	46	47	48



# Liquefaction Analysis Using SPT References

- 1. Youd, et al, Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10
  - Consistant Framework, 2003. 00 0

7	oeeu, et al, recent Auvances In Soll Liquetaction Engineering: A Unit	fied and
Project Name:	Ferry Landing Expansion	
Project Number:	06032-52-03	
Boring:	B-1	
PGA <sub>m</sub>	0.496	
Magnitude	6.64	
Groundwater Depth, Ft	9.0	
Reference Pressure, p <sub>a</sub>	2000	
Unit Weight of Water	62.4	
Soil Unit Weight, pcf	130	
	Enter for Fine-Grained Materials	

z 9 1:

Minimum Factor of Safety for Liquefaction Use NCEER CRR7.5 (1) or Rauch CRR7.5 (2)

Include Kg (Y/N)

		Construction of the local division of the lo	_	_	_				
		Settlement, in.							
Erom Crook		Volumetric Strain, %					ALL AND ALL ALL ALL ALL ALL ALL ALL ALL ALL AL		
		Factor of Safety		CUT C	2117	9 731	1.1.0	0.760	7.1 UU
		Liquefaction Potential		NI	14	IN	-11-	IN	
MV <sup>2.56</sup> /10 <sup>2</sup> 24	N1 / 10	Fines Liquefiable (Y/N)		1		1		I	
c/1007/ - //	1-linnin	CSR M=7.5		0 296	00-1-0	0.293		0.290	0.1.0
MME Idrie		RAUCH CRR <sub>7.5</sub>		0.800		0.800		0.800	200
		NCEER CRR <sub>7.5</sub>		0.800		0.800		0.800	
		Κ <sub>α</sub>		1.00		1.00		1.00	
		P		0.76		0.75		0.74	
		ơ', psí	ĺ	3874.0	Ì	3941.6	Ī	4009.2	
		o, psf		6370.0		6500.0		6630.0	
New		N <sub>1</sub> l <sub>60</sub> , Adj. for Fines		51.0		51.0		51.0	the second se
		Plasticity Index		ł		1		-	
d Materials		Plastic Limit		1		I		ł	our second
ine-Graine		Liquid Limit		I		1	No. of the second se	ł	and the second se
Enter for F		Water Content, w <sub>c</sub> (%)	000	77.0	000	N.22	000	0.22	Name of Concession, Name of Co
		Fines Content, FC (%)	AF	640	AC	40	AC AC	640	
		N160	AC.	11	AC	04	AF	64	
		Depth, ft	VU	43	50	nn	ŭ	51	
				_	_	_	-	_	

4.536 17 Total Settlement, S<sub>Lia</sub> (in.) = Total Liquifiable Layers =



Volumetric Strain, %

KJ/SW

Factor of Safety - Boring B-1 0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 0 5 10 15 20 25 Depth, Feet 30 35 40 45 50 55 60 LIQUEFACTION - FACTOR OF SAFETY GE( )( )( JN INCORPORATED FERRY LANDING EXPANSION GEOTECHNICAL CONSULTANTS 6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974 PHONE 858 558-6900 - FAX 858 558-6159 CORONADO, CALIFORNIA

kj / SW

PROJECT NO. 06032-52-03

Boring B-2 N1|60 Blowcounts F h Depth, Feet N1/60 BLOWCOUNT DATA GEOCON INCORPORATED FERRY LANDING EXPANSION GEOTECHNICAL CONSULTANTS 6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974 PHONE 858 558-6900 - FAX 858 558-6159 CORONADO, CALIFORNIA KJ/SW PROJECT NO. 06032-52-03



# Liquefaction Analysis Using SPT References

- 1. Youd, et al. Liquefaction Resistance of Soils: Summary Report from the 1996 NCEERINSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10
  - Jnified and Consistant Framework, 2003.

Project Name: Project Number:	Ferry Landing Expansion 06032-52-03	
Boring:	B-2	
PGA <sub>m</sub>	0.496	
Magnitude	6.64	
Groundwater Depth, Ft	0.0	
Reference Pressure, p <sub>a</sub>	2000	
Unit Weight of Water	62.4	
Soil Unit Weight, pcf	130	
	Enter for Fine-Grained Materials	MeM

Include Ko (Y/N) N e NCEER CRR7.5 (1) or Rauch CRR7.5 (2) 2 Minimum Factor of Safety for Liquetaction 1.1

Use NCEER CRR7.5 (1) or Rauch CRR7.5 (2)

MWF ldriss(1997) =  $(M)^{2.56}/10^{2.24}$ 

| CONTRACTOR ADDRESS OF THE OWNER WATER OF THE          |   | -   | -   |  |   | -   | -   |   |  |  
   
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| Settlement,<br>in.                                    | 1   |   | -   |  |   |   |   |   |  |  
   
  | 0.192  
            | 0.192   | 0.192  
   | 0.192   
   
   | 0.192   
   | 0,192  | 0.192  
   
   | 0.192   | 0.192  | 0.276   | 0.276  
  | 0.276   | 0.276   | 0.276   |   |   |
| Volumetric<br>Strain, %                               |   |   |   |  |   |   |   |   |  |  
   
  | 1.6  
            | 1.6   | 1.6  
   | 1.6   
   
   | 1.6   
   | 1.6  | 1.6  
   
   | 1.6   | 1.6  | 2.3   | 2.3  
  | 2.3   | 2.3   | 2.3   |   |   |
| Factor of<br>Safety                                   | 3.390   | 3.397   | 3.405   | 3.413  | 3.421   | 3.429   | 3.437   | 3.445   | 3.453  | 3.294  
   
  | 0.751  
            | 0.726   | 0.704  
   | 0.686   
   
   | 0.671   
   | 0.657  | 0.646  
   
   | 0.635   | 0.626  | 0.427   | 0.423  
  | 0.418   | 0.415   | 0.411   |   |   |
| Liquefaction<br>Potential                             | Above GWT   | Above GWT   | Above GWT   | Above GWT  | Above GWT   | Above GWT   | Above GWT   | Above GWT   | NL   | NL   
   
  | LIQUEFIABLE  
            | LIQUEFIABLE   | LIQUEFIABLE  
   | LIQUEFIABLE   
   
   | LIQUEFIABLE   
   | LIQUEFIABLE  | LIQUEFIABLE  
   
   | LIQUEFIABLE   | LIQUEFIABLE  | LIQUEFIABLE   | LIQUEFIABLE  
  | LIQUEFIABLE   | LIQUEFIABLE   | LIQUEFIABLE   |   |   |
| Fines<br>Liquefiable<br>(Y/N)                         | -   | :   | -   | 1  | :   | 1   | 1   | 1   | -  | 1  
   
  | 1  
            |   | 1  
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   | 1   
   | 1  | ;  
   
   | . 1   | -  | :   | 1  
  |   | 1   | -   |   |   |
| CSR<br>M=7.5  | 0.236   | 0.235   | 0.235   | 0.234  | 0.234   | 0.233   | 0.233   | 0.232   | 0.232  | 0.243  
   
  | 0.253  
            | 0.262   | 0.270  
   | 0.277   
   
   | 0.283   
   | 0.289  | 0.294  
   
   | 0.299   | 0.303  | 0,307   | 0.310  
  | 0.314   | 0.316   | 0.319   |   |   |
| RAUCH<br>CRR <sub>7.5</sub>                           | 0.800   | 0.800   | 0.800   | 0.800  | 0.800   | 0.800   | 0.800   | 0.800   | 0.800  | 0.800  
   
  | 0.190  
            | 0.190   | 0.190  
   | 0.190   
   
   | 0.190   
   | 0.190  | 0.190  
   
   | 0.190   | 0.190  | 0.131   | 0,131  
  | 0.131   | 0.131   | 0.131   |   |   |
| NCEER<br>CRR <sub>7.5</sub>                           | 0.800   | 0.800   | 0.800   | 0.800  | 0.800   | 0.800   | 0.800   | 0.800   | 0.800  | 0.800  
   
  | 0.194  
            | 0.194   | 0.194  
   | 0.194   
   
   | 0.194   
   | 0.194  | 0.194  
   
   | 0.194   | 0.194  | 0.131   | 0.131  
  | 0.131   | 0.131   | 0.131   |   |   |
| Ka  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  | 1.00  | 1.00  | 1.00   | 1.00   
   
  | 1.00   
            | 1.00  | 1.00   
   | 1.00  
   
   | 1.00  
   | 1.00   | 1.00   
   
   | 1.00  | 1.00   | 1.00  | 1.00   
  | 1.00  | 1.00  | 1.00  |   |   |
| , PJ  | 1.00  | 1.00  | 0.99  | 0.99   | 0.99  | 0.99  | 0.99  | 0.98  | 0.98   | 0.98   
   
  | 0.98   
            | 0.97  | 0.97   
   | 0.97  
   
   | 0.97  
   | 0.97   | 0.96   
   
   | 0.96  | 0.96   | 0.96  | 0.95   
  | 0.95  | 0.95  | 0.95  |   |   |
| ơ', psí   | 130.0   | 260.0   | 390.0   | 520.0  | 650.0   | 780.0   | 910.0   | 1040.0  | 1170.0   | 1237.6   
   
  | 1305.2   
            | 1372.8  | 1440.4   
   | 1508.0  
   
   | 1575.6  
   | 1643.2   | 1710.8   
   
   | 1778.4  | 1846.0   | 1913.6  | 1981.2   
  | 2048.8  | 2116.4  | 2184.0  |   |   |
| ơ, psí  | 130.0   | 260.0   | 390.0   | 520.0  | 650.0   | 780.0   | 910.0   | 1040.0  | 1170.0   | 1300.0   
   
  | 1430.0   
            | 1560.0  | 1690.0   
   | 1820.0  
   
   | 1950.0  
   | 2080.0   | 2210.0   
   
   | 2340.0  | 2470.0   | 2600.0  | 2730.0   
  | 2860.0  | 2990.0  | 3120.0  |   |   |
| N <sub>1</sub> l <sub>60</sub> ,<br>Adj. for<br>Fines | 80.6  | 80.6  | 80.6  | 80.6   | 80.6  | 80.6  | 80.6  | 80.6  | 80.6   | 80.6   
   
  | 17.8   
            | 17.8  | 17.8   
   | 17.8  
   
   | 17.8  
   | 17.8   | 17.8   
   
   | 17.8  | 17.8   | 12.0  | 12.0   
  | 12.0  | 12.0  | 12.0  |   |   |
| Plasticity<br>Index                                   | +   | I   | 1   | 1  | -   | 1   | ł   | I   | 1  | 1  
   
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| Plastic<br>Limit                                      | 1   | Ĩ   | t   | ſ  | 1   | 1   | 1   | 1   | 1  | J  
   
  | 1  
            | 1   | 1  
   | ł   
   
   | 1   
   | 1  | ł  
   
   | I   | J  | 1   | 1  
  | 1   | 1   | 1   |   |   |
| Liquid<br>Limit                                       | 1   | t   | ł   | 1  | 1   | 1   | 1   | 1   | ł  | 1  
   
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   | }   | ţ.   | 1   | 1  
  | 1   | 1   | 1   |   |   |
| Water<br>Content,<br>w <sub>c</sub> (%)               | 9.0   | 9.0   | 9.0   | 6.0  | 6.0   | 6.0   | 6.0   | 6.0   | 6.0  | 21.0   
   
  | 21.0   
            | 21.0  | 21.0   
   | 21.0  
   
   | 21.0  
   | 21.0   | 21.0   
   
   | 21.0  | 21.0   | 30.0  | 30.0   
  | 30.0  | 30.0  | 30.0  |   |   |
| Fines<br>Content,<br>FC (%)                           | 16  | 16  | 16  | 16   | 16  | 16  | 16  | 16  | 16   | 16   
   
  | 16   
            | 16  | 16   
   | 16  
   
   | 16  
   | 16   | 16   
   
   | 16  | 16   | 37  | 37   
  | 37  | 37  | 37  |   |   |
| N1160   | 75  | 75  | 75  | 75   | 75  | 75  | 75  | 75  | 75   | 75   
   
  | 16   
            | 16  | 16   
   | 16  
   
   | 16  
   | 16   | 16   
   
   | 16  | 16   | 9   | 9  
  | 9   | 9   | 9   |   |   |
| Depth, ft   | -   | 2   | 3   | 4  | 5   | 9   | 7   | 8   | 6  | 10   
   
  | 11   
            | 12  | 13   
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   | 15  
   | 16   | 17   
   
   | 18  | 19   | 20  | 21   
  | 22  | 23  | 24  |   |   |
|   | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | Depth, ftNumber<br>NoticeWater<br>LiquetPlasticity<br>IntegrationNumber<br>NoticeNumber<br>NoticeNumber<br>NoticeNumber<br>NoticeNumber<br>NoticeNumber<br>NoticeNumber<br>NoticeNumber<br>SetterNumber<br>SetterNumber<br>SetterNumber<br>SetterNumber<br>SetterNumber<br>SetterNumber<br>SetterNumber<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br>SetterNumer<br> | Depth, fr<br>beth, from<br>$(v_c(v_b)$ Water<br>LiquidLiquidPlasticity<br>holesN <sub>1[610</sub><br>Adj. for<br>bethN <sub>1[610</sub><br>( $v_c(v_b)$ Fines<br>( $v_c(v_b)$ Liqueffaction<br>( $v_c(v_b)$ Ratch<br>Adj. for<br>( $v_c(v_b)$ N <sub>1[610</sub><br>Adj. for<br>( $v_c(v_b)$ N <sub>1[610</sub><br>( $v_c(v_b)$ Plasticity<br>( $v_c(v_b)$ N <sub>1[610</sub><br>Adj. for<br>( $v_c(v_b)$ Ruch<br>( $v_c(v_b)$ Fines<br>( $v_c(v_b)$ Iqueffaction<br>( $v_c(v_b)$ Ratch<br>( $v_c(v_b)$ Ruch<br>( $v_c(v_b)$ Fines<br>( $v_c(v_b)$ Iqueffaction<br>( $v_c(v_b)$ Ratch<br>( $v_c(v_b)$ Ruch<br>( $v_c(v_b)$ Fines<br>( $v_c(v_b)$ Ruch<br>( | Perturbation         Mater beat         Mater bea         Mater bea         Mater | Perturbation         Mater Nater Nat Nater Nat Nat Nater Nater Nater Nater Nat Nater Nater Nater Na | Here         Water         Water         Induct         Plasticity         Nulles         Nulles         Value         Fines         Nulles         Plasticity         Nulles         Nulles         Plasticity         Nulles         Nulles         Plasticity         Plasticity         Nulles         Plasticity         Nulles         Plasticity         Nulles         Plasticity         Nulles         Plasticity         Plasticity         Nulles         Plasticity         Plasticity         Plasticity         Plasticity         Plasticity         Plasticity         Plasticity         Plasticity         Plasticity         Plasticity | Here         Water         Water         Iquid         Pasticity         Males         Nales         Nales | Here         Water         Water <th< td=""><td>Perturbation         Fines         Value         Liquid         Plasticity         Mulus         Value         Mulus         Value         Mulus         Value         Plasticity         Mulus         Mul</td><td>Perturt         Fines         Water         Vater         Vater</td><td>Here         Water         <th< td=""><td>Here         Water         <th <="" td=""><td>Perturn         Hand         Fander         Valuer         Valuer&lt;</td><td>Here         Here         Here         Here         Here         Neur         <!--</td--><td>Perform         Fines         Wate         Wate         Particle         Wate         Wate</td><td>Depth         Files         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        Fines         Water<br/>water         Water<br/>bia         W</td><td>Depth         Fine         Water         <th <="" td=""><td>Physic         Physic         Physic&lt;</td><td>Partial         Free free free free free free free free</td><td>Protection         France         Value         Value     &lt;</td><td>Protection         Free contract         Free conttract          111<!--</td--></td></th></td></td></th></td></th<></td></th<> | Perturbation         Fines         Value         Liquid         Plasticity         Mulus         Value         Mulus         Value         Mulus         Value         Plasticity         Mulus         Mul | Perturt         Fines         Water         Vater         Vater | Here         Water         Water <th< td=""><td>Here         Water         <th <="" td=""><td>Perturn         Hand         Fander         Valuer         Valuer&lt;</td><td>Here         Here         Here         Here         Here         Neur         <!--</td--><td>Perform         Fines         Wate         Wate         Particle         Wate         Wate</td><td>Depth         Files         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<td>Depth         Fines         Water<br/>water         Water<br/>bia         W</td> <td>Depth         Fine         Water         <th <="" td=""><td>Physic         Physic         Physic&lt;</td><td>Partial         Free free free free free free free free</td><td>Protection         France         Value         Value     &lt;</td><td>Protection         Free contract         Free conttract          111<!--</td--></td></th></td> | Perform         Fines         Wate         Wate         Particle         Wate         Wate | Depth         Files         Wate,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>were,<br>wer | Depth         Fines         Water<br>water         Water<br>bia         W | Depth         Fine         Water         Water <th <="" td=""><td>Physic         Physic         Physic&lt;</td><td>Partial         Free free free free free free free free</td><td>Protection         France         Value         Value     &lt;</td><td>Protection         Free contract         Free conttract          111<!--</td--></td></th> | <td>Physic         Physic         Physic&lt;</td> <td>Partial         Free free free free free free free free</td> <td>Protection         France         Value         Value     &lt;</td> <td>Protection         Free contract         Free conttract          111<!--</td--></td> | Physic         Physic< | Partial         Free free free free free free free free | Protection         France         Value         Value     < | Protection         Free contract         Free conttract          111 </td |



# Liquefaction Analysis Using SPT References

- 1. Youd, et al, Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10
  - A Unified and Consistant Framework, 2003.

	-	
Project Name:	Ferry Landing Expansion	
Project Number:	06032-52-03	
Boring:	B-2	
PGA <sub>m</sub>	0.496	
Magnitude	6.64	
Groundwater Depth, F	Ft 9.0	
Reference Pressure, p	p <sub>a</sub> 2000	
Unit Weight of Water	62.4	
Soil Unit Weight, pcf	130	

Use NCEER CRR7.5 (1) or Rauch CRR7.5 (2)

Materials	
ne-Grained	
Enter for F	

MWF Idriss(1997) =  $(M)^{2.56}/10^{2.24}$ 

| Settlement,<br>in.                                    | 0.216  | 0.216   | 0.216   | 0.216  |  |   |   
   
   
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| Volumetric<br>Strain, %                               | 1.8  | 1.8   | 1.8   | 1.8  |  |   |   
   
   
   |  |   |   |  |   |   
   
   |   
   
   |   
  |  |   
   
  |  |   
   |   
   |   |  |  
   |  |   |
| Factor of<br>Safety                                   | 0.537  | 0.534   | 0.532   | 0.530  | 2.449  | 2.444   | 2.441   
   
   
   | 2.440  | 2.440   | 2.443   | 2.448  | 2.455   | 2.464   
   
   | 2.474   
   
   | 2.487   
  | 2.501  | 2.517   
   
  | 2.535  | 2.554   
   | 2.575   
   | 2.598   | 2.622  | 2.647  
   | 2.674  |   |
| Liquefaction<br>Potential                             | LIQUEFIABLE  | LIQUEFIABLE   | LIQUEFIABLE   | LIQUEFIABLE  | NL   | NL  | NL  
   
   
   | NL   | NL  | NL  | NL   | NL  | NL  
   
   | NL  
   
   | N   
  | NL   | NL  
   
  | N  | NL  
   | NL  
   | N   | NL   | Ъ  
   | N  |   |
| Fines<br>Liquefiable<br>(Y/N)                         |  | :   |   | 1  | 1  | -   | ;   
   
   
   |  | 1   | 1   | 1  | 1   | 1   
   
   | 1   
   
   | 1   
  | 1  | 1   
   
  | 1  | 1   
   |   
   | 1   | -  | -  
   |  |   |
| CSR<br>M=7.5  | 0.321  | 0.323   | 0.324   | 0.326  | 0.327  | 0.327   | 0.328   
   
   
   | 0.328  | 0.328   | 0.327   | 0.327  | 0.326   | 0.325   
   
   | 0.323   
   
   | 0.322   
  | 0.320  | 0.318   
   
  | 0,316  | 0.313   
   | 0.311   
   | 0.308   | 0.305  | 0.302  
   | 0.299  |   |
| RAUCH<br>CRR <sub>7.5</sub>                           | 0.172  | 0.172   | 0.172   | 0.172  | 0.800  | 0.800   | 0.800   
   
   
   | 0.800  | 0.800   | 0.800   | 0.800  | 0.800   | 0.800   
   
   | 0.800   
   
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  | 0.800  | 0.800   
   | 0.800   
   | 0.800   | 0.800  | 0.800  
   | 0.800  |   |
| NCEER<br>CRR <sub>7.5</sub>                           | 0.176  | 0.176   | 0.176   | 0.176  | 0.800  | 0.800   | 0.800   
   
   
   | 0.800  | 0.800   | 0.800   | 0.800  | 0.800   | 0.800   
   
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  | 0.800  | 0.800   
   
  | 0.800  | 0.800   
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   | 0.800   | 0.800  | 0.800  
   | 0.800  |   |
| Å   | 1.00   | 1.00  | 1.00  | 1.00   | 1.00   | 1.00  | 1.00  
   
   
   | 1.00   | 1.00  | 1.00  | 1.00   | 1.00  | 1.00  
   
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  | 1.00   | 1.00  
   
  | 1.00   | 1.00  
   | 1.00  
   | 1.00  | 1.00   | 1.00   
   | 1.00   |   |
| Ld<br>d   | 0.94   | 0.94  | 0.93  | 0.93   | 0.93   | 0.92  | 0.92  
   
   
   | 0.91   | 06.0  | 06.0  | 0.89   | 0.88  | 0.88  
   
   | 0.87  
   
   | 0.86  
  | 0.85   | 0.84  
   
  | 0.83   | 0.82  
   | 0.81  
   | 0.80  | 0.79   | 0.78   
   | 0.77   |   |
| ơ', psf   | 2251.6   | 2319.2  | 2386.8  | 2454.4   | 2522.0   | 2589.6  | 2657.2  
   
   
   | 2724.8   | 2792.4  | 2860.0  | 2927.6   | 2995.2  | 3062.8  
   
   | 3130.4  
   
   | 3198.0  
  | 3265.6   | 3333.2  
   
  | 3400.8   | 3468.4  
   | 3536.0  
   | 3603.6  | 3671.2   | 3738.8   
   | 3806.4   |   |
| ơ, psí  | 3250.0   | 3380.0  | 3510.0  | 3640.0   | 3770.0   | 3900.0  | 4030.0  
   
   
   | 4160.0   | 4290.0  | 4420.0  | 4550.0   | 4680.0  | 4810.0  
   
   | 4940.0  
   
   | 5070.0  
  | 5200.0   | 5330.0  
   
  | 5460.0   | 5590.0  
   | 5720.0  
   | 5850.0  | 5980.0   | 6110.0   
   | 6240.0   |   |
| N <sub>1</sub> l <sub>60</sub> ,<br>Adj. for<br>Fines | 16.2   | 16.2  | 16.2  | 16.2   | 35.5   | 35.5  | 35.5  
   
   
   | 35.5   | 35.5  | 35.5  | 48.9   | 48.9  | 48.9  
   
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| Plasticity<br>Index                                   | 1  | ł   | 1   | 1  | 1  | I   | 1   
   
   
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| Plastic<br>Limit                                      | 1  | 1   | 1   | 1  | 1  | ł   | 1   
   
   
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| Liquid<br>Limit                                       | 1  | 1   | 1   | 1  | 1  | 1   | 1   
   
   
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   | 1   
  | 1  | 1   
   
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   | 1   
   | 1   | 1  | 1  
   | 1  |   |
| Water<br>Content,<br>w <sub>c</sub> (%)               | 19.0   | 19.0  | 19.0  | 19.0   | 24.0   | 24.0  | 24.0  
   
   
   | 24.0   | 24.0  | 24.0  | 25.1   | 25.1  | 25.1  
   
   | 25.1  
   
   | 25.1  
  | 20.0   | 20.0  
   
  | 20.0   | 20.0  
   | 20,0  
   | 25.0  | 25.0   | 25.0   
   | 25.0   |   |
| Fines<br>Content,<br>FC (%)                           | 11   | 11  | Ę   | 11   | 8  | 8   | 8   
   
   
   | 8  | 8   | 8   | 8  | 8   | 8   
   
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   | 8  |   |
| Nileo   | 15   | 15  | 15  | 15   | 34   | 34  | 34  
   
   
   | 34   | 34  | 34  | 47   | 47  | 47  
   
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  | 47   | 47  
   
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   | 47  
   | 47  | 47   | 47   
   | 47   |   |
| Depth, ñ  | 25   | 26  | 27  | 28   | 29   | 30  | 31  
   
   
   | 32   | 33  | 34  | 35   | 36  | 37  
   
   | 38  
   
   | 39  
  | 40   | 41  
   
  | 42   | 43  
   | 44  
   | 45  | 46   | 47   
   | 48   |   |
|   | Depth, ft Ni-liso Frines Water Liquid Plastic Plasticity Adj. for o, psf o', psf r <sub>d</sub> K <sub>o</sub> NCEER RAUCH CSR Liquefaction Factor of Volumetric Settlement,<br>FC (%) W <sub>c</sub> (%) Limit Limit Limit Fines Fine | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | $ \begin{array}{c c c c c c c c c c c c c c c c c c c $ | Depth, $\mathbf{h}^{1}$ Fines<br>$\mathbf{b}^{(u)}$ Water<br>$\mathbf{h}^{(u)}$ Plastic<br>$\mathbf{h}^{(u)}$ Mellon<br>$\mathbf{d}^{(1)}$ $\mathbf{v}^{(u)}$ $\mathbf{h}^{(u)}$ $\mathbf{K}^{(u)}$ $\mathbf{K}^{$ | Depth, fr         Fines         Water         Liquid         Plasticity         Nulso.         Content, content, bin         Rauch         Rauch | Depth, fr<br>beth, fr<br>$V_{0}$ Free<br>$V_{0}$ Wate<br>$V_{0}$ Hasticity<br>$V_{0}$ Males<br>Adj. for<br>$V_{0}$ Males<br>$V_{0}$ Males<br> | Depth, the<br>beth, the<br>bethHine<br>bethWater<br>bethHasticity<br>bethMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMale<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicityMales<br>basicity <th< td=""><td>Depth, free<br/>beth, free<br/>bethHastic<br/>bethMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMaleu<br/>busMal</td><td>Perturbation         Fines         Water         Water         Pasticity         Malus         Nulso         Content, conte</td><td>Depth, frage         Water         Value         Pasticity         Males         Male         Males         Male         Males         Male         Males         Male         Males         Male         &lt;</td><td>Hule         Fines         Wate         Lique         Plastic         Mules         Mules         Matrix         Mules         &lt;</td><td>Hole         Fines         Water         Water         Pastic for loading         Pastic /td><td>Here         Water         Water         User         Water         Water         Water         Water         Water         Water         Water         Water         Mater         Water         Water         Mater         Water         Mater         Water         <th <="" td=""><td>Hart         Fines         Water         <th< td=""><td>Public function         Function</td><td>Papph.rh         Fines         Water<br/>Content         Water<br/>Level         Patter<br/>Level         Male<br/>Linit         Male         Male         Male         <t< td=""><td>Pather, the fines         Water, the fines         Patier, the fines</td><td>Path.th         Math.th         Wath.th         Math.th         <t< td=""><td>Path         Three         Wate         Wate         Main         <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<></td></t<></td></t<></td></th<></td></th></td></th<> | Depth, free<br>beth, free<br>bethHastic<br>bethMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMaleu<br>busMal | Perturbation         Fines         Water         Water         Pasticity         Malus         Nulso         Content, conte | Depth, frage         Water         Value         Pasticity         Males         Male         Males         Male         Males         Male         Males         Male         Males         Male         < | Hule         Fines         Wate         Lique         Plastic         Mules         Mules         Matrix         Mules         < | Hole         Fines         Water         Water         Pastic for loading         Pastic | Here         Water         Water         User         Water         Water         Water         Water         Water         Water         Water         Water         Mater         Water         Water         Mater         Water         Mater         Water         Water <th <="" td=""><td>Hart         Fines         Water         <th< td=""><td>Public function         Function</td><td>Papph.rh         Fines         Water<br/>Content         Water<br/>Level         Patter<br/>Level         Male<br/>Linit         Male         Male         Male         <t< td=""><td>Pather, the fines         Water, the fines         Patier, the fines</td><td>Path.th         Math.th         Wath.th         Math.th         <t< td=""><td>Path         Three         Wate         Wate         Main         <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<></td></t<></td></t<></td></th<></td></th> | <td>Hart         Fines         Water         <th< td=""><td>Public function         Function</td><td>Papph.rh         Fines         Water<br/>Content         Water<br/>Level         Patter<br/>Level         Male<br/>Linit         Male         Male         Male         <t< td=""><td>Pather, the fines         Water, the fines         Patier, the fines</td><td>Path.th         Math.th         Wath.th         Math.th         <t< td=""><td>Path         Three         Wate         Wate         Main         <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<></td></t<></td></t<></td></th<></td> | Hart         Fines         Water         Water <th< td=""><td>Public function         Function</td><td>Papph.rh         Fines         Water<br/>Content         Water<br/>Level         Patter<br/>Level         Male<br/>Linit         Male         Male         Male         <t< td=""><td>Pather, the fines         Water, the fines         Patier, the fines</td><td>Path.th         Math.th         Wath.th         Math.th         <t< td=""><td>Path         Three         Wate         Wate         Main         <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<></td></t<></td></t<></td></th<> | Public function         Function | Papph.rh         Fines         Water<br>Content         Water<br>Level         Patter<br>Level         Male<br>Linit         Male         Male         Male <t< td=""><td>Pather, the fines         Water, the fines         Patier, the fines</td><td>Path.th         Math.th         Wath.th         Math.th         <t< td=""><td>Path         Three         Wate         Wate         Main         <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<></td></t<></td></t<> | Pather, the fines         Water, the fines         Patier, the fines | Path.th         Math.th         Wath.th         Math.th         Math.th <t< td=""><td>Path         Three         Wate         Wate         Main         <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<></td></t<> | Path         Three         Wate         Wate         Main         Main <t< td=""><td>Path         Hats         Path         <!--</td--><td>Path         Final         Value         Value</td><td>Public free         Free biling b</td><td>Physic         Fines         Wate         Wate</td><td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td></td></t<> | Path         Hats         Path         Path </td <td>Path         Final         Value         Value</td> <td>Public free         Free biling b</td> <td>Physic         Fines         Wate         Wate</td> <td>Physic         Frees         Wate<br/>bare         Wate bare         Wate&lt;</td> | Path         Final         Value         Value | Public free         Free biling b | Physic         Fines         Wate         Wate | Physic         Frees         Wate<br>bare         Wate bare         Wate< |



# Liquefaction Analysis Using SPT

- 1. Youd, et al. Liquefaction Resistance of Soils: Summary Report from the 1996 NCEER/NSF Workshops on Evaluation of Liquefaction Resistance of Soils, Journal of Geotechnical and Environmental Engineering, October, 2001, Vol. 127, No. 10 References
  - Seed, et al, Recent Advances in Soil Liquefaction Engineering: A Unified and Consistant Framework, 2003.

		)
Project Name:	Ferry Landing Expansion	
Project Number:	06032-52-03	
Boring:	B-2	
PGAm	0.496	
Magnitude	6.64	
Groundwater Depth, Ft	9.0	
Reference Pressure, p <sub>a</sub>	2000	
Unit Weight of Water	62.4	
Soil Unit Weight, pcf	130	

Include Ko (Y/N) N Use NCEER CRR7.5 (1) or Rauch CRR7.5 (2) 2 Minimum Factor of Safety for Liquetaction 1.1

Enter for Fine-Grained Materials

New

MWF Idriss(1997) =  $(M)^{2.56}/10^{2.24}$ 

From Graph

Settlement, in.			
Volumetric Strain, %			
Factor of Safety	2.702	2.731	2.760
Liquefaction Potential	NL	NL	NL
Fines Liquefiable (Y/N)		-	
CSR M=7.5	0.296	0.293	0.290
RAUCH CRR <sub>7,5</sub>	0.800	0.800	0.800
NCEER CRR <sub>7.5</sub>	0.800	0.800	0.800
Κa	1.00	1.00	1.00
PJ	0.76	0.75	0.74
ơ', psf	3874.0	3941.6	4009.2
a, psf	6370.0	6500.0	6630.0
N <sub>1</sub> l <sub>60</sub> , Adj. for Fines	48.9	48.9	48.9
Plasticity Index	F	1	-
Plastic Limit	1	1	T
Liquid Limit	1	1	1
Water Content, w <sub>c</sub> (%)	25.0	25.0	25.0
Fines Content, FC (%)	8	8	8
Nileo	47	47	47
Depth, ft	49	50	51

Total Settlement, S<sub>LIQ</sub> (in.) = 3.972 Total Liquifiable Layers = 18



Volumetric Strain, %

KJ/SW

PROJECT NO. 06032-52-03





Fig.1 Conditions of subsurface soil stratification discriminating conditions causing or not causing ground rupturing due to liquefaction

Ishihara (1995)



### APPENDIX B

### LATERAL PILE ANALYSES

FOR

FERRY LANDING EXPANSION CORONADO, CALIFORNIA

PROJECT NO. 06032-52-03

Shear Force (kips)



Static Condition, 45 ft. long, 12-inch Square Driven Concrete Pile

.



Static Condition, 45 ft. long, 12-inch Square Driven Concrete Pile



Static Condition, 45 ft. long, 12-inch Square Driven Concrete Pile

06063-52-03-Ferry Landing Expansion-STATIC 45ft.lpo LPILE Plus for Windows, Version 5.0 (5.0.35) Analysis of Individual Piles and Drilled Shafts Subjected to Lateral Loading Using the p-y Method (c) 1985-2007 by Ensoft, Inc. All Rights Reserved This program is licensed to: Engineering Machine Geocon, Inc. Path to file locations: X: ETC\EngrgPrg\LPile\06032-52-03\ Name of input data file: 06 Name of output file: 06 Name of plot output file: 06 Name of runtime file: 06 X:\Engineering and Geology\ENGINEER PROGRAMS, GUIDES, 06063-52-03-Ferry Landing Expansion-STATIC 45ft.lpd 06063-52-03-Ferry Landing Expansion-STATIC 45ft.lpo 06063-52-03-Ferry Landing Expansion-STATIC 45ft.lpp 06063-52-03-Ferry Landing Expansion-STATIC 45ft.1pr Time and Date of Analysis Date: March 21, 2016 Time: 14:22:24 Problem Title Ferry Landing Expansion \_\_\_\_\_ Program Options Units Used in Computations - US Customary Units: Inches, Pounds Basic Program Options: Analysis Type 1: - Computation of Lateral Pile Response Using User-specified Constant EI Computation Options: Computation options: - Only internally-generated p-y curves used in analysis - Analysis does not use p-y multipliers (individual pile or shaft action only) - Analysis assumes no shear resistance at pile tip - Analysis for fixed-length pile or shaft only - No computation of foundation stiffness matrix elements - Output pile response for full length of pile - Analysis assumes no soil movements acting on pile - No additional p-y curves to be computed at user-specified depths Solution Control Parameters: - Number of pile increments = = Maximum number of iterations allowed = 90 100 Deflection tolerance for convergence =
 Maximum allowable deflection = 1.0000E-05 in 1.0000E+02 in Printing Options: Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile. Printing Increment (spacing of output points) = 1 Pile Structural Properties and Geometry Pile Length 540.00 in =

Depth (	of ground su	0606 urface below to	3-52-03-Ferry op of pile =	Landi -30	ng Expan 6.00 in	sion-STATIC	45ft.lpo			
slope a	angle of gro	ound surface	=		.00 deg					
Struct	ural propert	ties of pile d	efined using	2 poi	nts					
Point	Depth X ìn	Pile Diameter in	Moment of Inertia in**4	P A Sq	ile rea .in	Modulus of Elasticity lbs/Sq.in				
1 2	0.0000 540.0000	13.50000000 13.50000000	1728.0000 1728.0000	144 144	4.0000 4.0000	4415000. 4415000.				
		Soil and I	Rock Layering	Inform	nation					
The soil profile is modelled using 4 layers										
Layer Distano Distano p-y sul p-y sul	l is silt w ce from top ce from top ograde modul ograde modul	vith cohesion a of pile to to of pile to bo us k for top o us k for botto	and friction p of layer ttom of layer of soil layer om of layer	= = =	-36.000 108.000 25.000 25.000	) in ) in ) lbs/in**3 ) lbs/in**3				
Layer Distand Distand p-y sub p-y sub	2 is silt w ce from top ce from top ograde modul ograde modul	vith cohesion a of pile to top of pile to bo us k for top o us k for botto	and friction o of layer ttom of layer of soil layer om of layer	= = =	108.000 144.000 60.000 60.000	) in ) in ) lbs/in**3 ) lbs/in**3				
Layer Distand Distand p-y sub p-y sub	3 is silt w ce from top ce from top ograde modul ograde modul	vith cohesion a of pile to top of pile to boo us k for top a us k for botta	and friction 5 of layer ttom of layer 5f soil layer 5m of layer	= = =	144.000 360.000 20.000 20.000	) in ) in ) lbs/in**3 ) lbs/in**3				
Layer Distand Distand p-y sub p-y sub	4 is silt w ce from top ce from top ograde modul ograde modul	vith cohesion a of pile to top of pile to bot us k for top o us k for botto	and friction 5 of layer ttom of layer 5f soil layer 5m of layer	= = =	360.000 720.000 125.000 125.000	) in ) in ) lbs/in**3 ) lbs/in**3				

(Depth of lowest layer extends 180.00 in below pile tip)

Effective Unit Weight of Soil vs. Depth

Effective unit weight of soil with depth defined using 8 points

Point No.	Depth X in	Eff. Unit Weight lbs/in**3
1	-36.00	.06800
2	108.00	.06800
3	108.00	.03800
4	144.00	.03800
5	144.00	.03800
6	360.00	.03800
7	360.00	.03800
8	720.00	.03800

## Shear Strength of Soils

Shear strength parameters with depth defined using 8 points

Point	Depth X	Cohesion c	Angle of Friction	E50 or	RQD
No.	in	lbs/in**2	Deg.	k_rm	%
1	-36.000	1.39000	28.00	.00700	.0
2	108.000	1.39000	28.00		.0

06063-52-03-Ferry Landing Expansion-STATIC 45ft.lpo 39000 28.00 .00700 .0 39000 28.00 .00700 .0 3 108.000 1.39000 4 144.000 1.39000 1.04000 5 144.000 .02000 24.00 .0 1.04000 6 360.000 24.00 .02000 .0 360.000 720.000 2.08000 40.00 .00400 7 .0 8 2.08000 40.00 .00400 .0 Notes: Cohesion = uniaxial compressive strength for rock materials. Values of E50 are reported for clay strata. Default values will be generated for E50 when input values are 0. RQD and k\_rm are reported only for weak rock strata. (1) (2) (3) (4). Loading Type Static loading criteria was used for computation of p-y curves. Pile-head Loading and Pile-head Fixity Conditions Number of loads specified = 3 Load Case Number 1 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Deflection at pile head = .250 in Bending moment at pile head = .000 in-lbs Axial load at pile head = 100000.000 lbs Load Case Number 2 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Deflection at pile head = .500 in Bending moment at pile head = .000 in-lbs Axial load at pile head = 100000.000 lbs Load Case Number 3 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Deflection at pile head = 1.000 in Bending moment at pile head = .000 in-lbs Axial load at pile head = 100000.000 lbs = Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 1 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Specified deflection at pile head = .250000 in Specified moment at pile head = .000 in-lbs Specified axial load at pile head = 100000.000 lbs Deflect. Depth Moment Shear slope Total Soil Res. Es\*h s Stress lbs/in\*\*2 p lbs/in X y in M v lbs F/L in lbs-in Rad. lbs/in ------------ --------- --------.250000 .226815 .203957 0.000 0.0000 11828.6582 -.0038642 694.4444 -225.0000 2700.0000 -225.0000 -238.1557 -244.7479 -245.3100 -240.4841 69240.4561 129875. 10439.1912 8990.4804 -.0038370 6300.0000 6.000 964.9150 12.000 18.000 -.0037587 1201.7672 7200.0000 7520.3067 6062.9246 4648.5042 3302.7594 2046.7503 .181711 -.0036362 181637. 1403.9624 8100.0000 -.0034765 24.000 .160323 224482. 1571.3261 9000.0000 .139994 .120885 -230.9894 -217.5922 -201.0775 30.000 258563. 1704.4579 9900.0000 36.000 284208. -.0030731 1804.6303 10800.0000 42.000 -.0028426 .103117 301884. 1873.6798 11700.0000 48.000 .086773 312180. 896.8463 -.0026011 1913.8964 -182.2239 12600.0000 54.000 .071903 315768. -135.1704 -.0023542 1927.9123 -161.7817 13500.0000 60.000 .058523 313383. -1041.8790 -.0021068 1918.5957 -140.4545 14400.0000

Page 3
cc 000	046604	0606	3-52-03-Fer	ry Landing E	xpansion-STA	TIC 45ft.lpo	
66.000	.046621	305/93.	-1819.8951	-,0018633	1888.9499	-118.8842	15300.0000
78.000	027090	295760.	-2994 0076	- 0016276	1780 8229	-97.0394	17100 0000
84.000	.019331	259535.	-3399.6068	0011913	1708.2534	-57.9918	18000.0000
90.000	.012795	238747.	-3694.4989	0009953	1627.0504	-40.3055	18900.0000
96.000	.007387	216395.	-3888.5448	0008163	1539.7393	-24.3764	19800.0000
102.000	.002999	193064.	-3992.7169	0006553	1448.6014	-10.34/6	20/00.0000
114 000	- 003155	145550	-3908 5922	- 0003128	1263 0000	4.3239	54595 U525 56555 0523
120.000	005146	122833.	-3668.3119	0002835	1174.2610	50.3560	58715.0523
126.000	006557	101871.	-3317.6626	0001952	1092.3769	66.5272	60875.0523
132.000	007488	83255.2722	-2882.0882	0001224	1019.6604	78.6643	63035.0523
144 000	008025	6/432.4/26	-2384.48/3	-6.3104E-05	957.8525	87.2027	65195.0523
150.000	008206	43212.1952	-1811.3613	2.3437E-05	863.2421	35 1622	24900.0029
156.000	007964	32952.6899	-1600.6391	5.3388E-05	823.1659	35.0785	26428.8629
162.000	007566	23940.4601	-1392.7050	7.5760E-05	787.9619	34.2329	27148.8629
168.000	00/055	16149.3177	-1191.7051	9.1524E-05	757.5277	32.7671	27868.8629
180 000	- 005835	4015 8814	-1000.9575	.0001016	731.0717	28 5033	20308 8620
186.000	005184	-474.1831	-659.6577	.0001083	696.2967	25.9445	30028.8629
192.000	004535	-4030.0210	-512.1013	.0001066	710.1867	23.2409	30748.8629
198.000	003905	-6747.2835	-380.9344	.0001023	720.8010	20.4814	31468.8629
204.000	00330/	-8/24.0334	-266.2662	9.6249E-05	/28.522/	17.7414	32188.8629
216,000	-002730	-10844 1606	-107.7909	8 0644F-05	735.7554	12 5583	32908.8629
222.000	001782	-11173.1274	-16.5789	7.1986E-05	738.0895	10,2037	34348.8629
228.000	001377	-11129.4901	38.1736	6.3216E-05	737.9190	8.0472	35068.8629
234.000	001024	-10790.9033	80.6348	5.4596E-05	736.5964	6.1066	35788.8629
240.000	000722	-1022/.38//	112.12/9	4.6331E-05	/34.3952	4.3911	36508.8629
252.000	000259	-8665.5691	147.6266	3.1430F-05	728 2943	2.9020	37948 8629
258.000	-9.06E-05	-7767.1625	154.2891	2.4968E-05	724.7849	.5841408	38668.8629
264.000	4.08E-05	-6844.0617	155.2371	1.9222E-05	721.1791	2681336	39388.8629
270.000	.000140	-5927.3842	151.6245	1.4200E-05	717.5983	9360742	40108.8629
276.000	.000211	-5041.6084	134 8175	9.8868E-06	714.1382	-1.43/5	40828.8629
288.000	.000235	-3431.2987	123,3939	3.2478E-06	707.8480	-2.0166	42268 8629
294.000	.000298	-2728.3731	110.9464	8.2563E-07	705.1022	-2.1326	42988.8629
300.000	.000296	-2100.9327	98.0762	-1.0734E-06	702.6512	-2.1575	43708.8629
306.000	.000285	-1550.1/04	85.2779	-2.5091E-06	700.4998	-2.1086	44428.8629
318 000	.000200	-670 5688	61 3837	-4 2275E-06	697 0639	-2.0020	45140.0029
324.000	.000215	-332.9099	50.8116	-4.6221E-06	695.7449	-1.6719	46588.8629
330.000	.000187	-55.2837	41.3770	-4.7747E-06	694.6604	-1.4729	47308.8629
336.000	.000158	169.3435	33.1633	-4.7299E-06	695.1059	-1.2650	48028.8629
342.000	.000130	240.2220 280 1587	20.1900	-4.5263E-00	695.8052	- 8550677	48/48.8629
354.000	7.97E-05	598.9520	15.8989	-3.7691E-06	696.7841	6665247	50188.8629
360.000	5.85E-05	684.4679	8.2508	-3.2644E-06	697.1181	-1.8828	193176.
366.000	4.05E-05	701.8784	-1.4016	-2.7193E-06	697.1862	-1.3346	197676.
372,000	2.58E-05	6/0.9120	-8.0184	-2.1/95E-06	697.0652	8/10139	2021/6.
384.000	5.73E-06	527.5446	-14.2036	-1.2298E-06	696.5052	2017376	200070.
390.000	-4.02E-07	439.3051	-14.7654	-8.4961E-07	696.1605	.0144621	215676.
396.000	-4.46E-06	351.3790	-14.2307	-5.3869E-07	695.8170	.1637929	220176.
402.000	-6.8/E-06	269.1836	-12.9679	-2.9467E-07	695.4959	.2571271	224676.
414.000	-8.21E-06	133,9591	-9 4043	1 8101F-08	694 9677	3196280	229170.
420.000	-7.78E-06	83.2439	-7.5187	1.0351E-07	694.7696	.3089256	238176.
426.000	-6.96E-06	43.6107	-5.7468	1.5340E-07	694.6148	.2816986	242676.
432.000	-5.94E-06	14.0981	-4.1674	1.7609E-07	694.4995	.2447677	247176.
438.000	-4.85E-06	-0.0095	-2.8220	1.7903E-07 1.6857E-07	694.4703	.2035114	2510/0. 256176
450.000	-2.83E-06	-27.5260	8716183	1.4989E-07	694.5520	.1229026	260676.
456.000	-1.99E-06	-30.6269	2384692	1.2702E-07	694.5641	.0881472	265176.
462.000	-1.30E-06	-30.5400	.2018797	1.0297E-07	694.5637	.0586358	269676.
468.000	-/.59E-07	-28.32/9	.4818119	7.9821E-08	694.5551	.0346749	274176.
480.000	-5.19F-08	-20.7888	.6898109	4.0961F-08	694.5415	.0101040	2/80/0. 283176
486.000	1.45E-07	-16.6255	.6763331	2.6248E-08	694.5094	0069427	287676.
492.000	2.63E-07	-12.7043	.6170745	1.4715E-08	694.4941	0128102	292176.
498.000	3.21E-07	-9.2383	.5309712	6.0863E-09	694.4805	0158909	296676.
510,000	3.21F-07	-0.3399 -4 N46N	.4520058 3330768	-3.9034E-11 -4 1236F-00	094.4092 694 4607	U108/U9 - 0163488	3011/0. 305676
516.000	2.87E-07	-2.3387	.2395295	-6.6342E-09	694.4536	0148170	310176.
522.000	2.41E-07	-1.1637	.1571139	-8.0114E-09	694.4490	0126549	314676.
528.000	1.90E-07	4436833	.0887510	-8.6435E-09	694.4462	0101328	319176.
554.000	⊥.3ŏE-0/	U882/64	.0360883	-8.852/E-09	694.4448	0074214	323676.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection	=	.25000000 in
Computed slope at pile head	=	00386418
Maximum bending moment	=	315767.77968 lbs-in
Maximum shear force	=	11828.65818 lbs
Depth of maximum bending moment	=	54.00000000 in
Depth of maximum shear force	=	0.00000 in
Number of iterations	=	5
Number of zero deflection points	=	4

Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 2

Pile-head Specified Specified	boundary conditions are deflection at pile head moment at pile head	Displace = =	ement and Moment (BC Type 4) .500000 in .000 in-1bc
	momente de prite neud		.000 IN-105
Specified	axial load at pile head	=	100000.000 lbs

Depth X in	Deflect. y in	Moment M lbs-in	Shear V lbs	Slope S Rad.	Total Stress lbs/in**2	Soil Res. p lbs/in	Es*h F/L lbs/in
$\begin{array}{c} 111\\ 0.000\\ 6.000\\ 12.000\\ 12.000\\ 12.000\\ 30.000\\ 36.000\\ 36.000\\ 48.000\\ 54.000\\ 60.000\\ 60.000\\ 60.000\\ 60.000\\ 72.000\\ 78.000\\ 84.000\\ 90.000\\ 90.000\\ 102.000\\ 102.000\\ 102.000\\ 102.000\\ 102.000\\ 102.000\\ 126.000\\ 228.000\\ 224.000\\ 224.000\\ 224.000\\ 224.000\\ 224.000\\ 224.000\\ 224.000\\ 224.000\\ 224.000\\ 225.000\\ 258$	$\begin{array}{c} 1 \\ & . 500000 \\ & . 453630 \\ & . 407913 \\ & . 363422 \\ & . 320645 \\ & . 279987 \\ & . 241769 \\ & . 206233 \\ & . 173547 \\ & . 143806 \\ & . 117045 \\ & . 093242 \\ & . 072325 \\ & . 072325 \\ & . 054181 \\ & . 038661 \\ & . 025591 \\ & . 014774 \\ & . 005599 \\ & . 000954 \\ & . 000954 \\ & . 000954 \\ & . 006310 \\ & . 010292 \\ & . 013114 \\ & . 014975 \\ & . 016413 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 015927 \\ & . 016413 \\ & . 0016413 \\ & . 0007810 \\ & . 0007810 \\ & . 0007810 \\ & . 0007810 \\ & . 0007810 \\ & . 0002754 \\ & . 000248 \\ & . 000936 \\ & . 000518 \\ & . 0000518 \end{array}$	$\begin{array}{c} 105-1n\\ 0.0000\\ 138481.\\ 259749.\\ 363273.\\ 448963.\\ 517127.\\ 568415.\\ 603769.\\ 624359.\\ 624359.\\ 624359.\\ 624359.\\ 631536.\\ 626765.\\ 611587.\\ 587560.\\ 556226.\\ 519070.\\ 477494.\\ 432791.\\ 386128.\\ 338539.\\ 291100.\\ 245666.\\ 203741.\\ 166511.\\ 134865.\\ 109434.\\ 86424.3903\\ 65905.3799\\ 47880.9202\\ 32298.6357\\ 19060.3387\\ 8031.7628\\ -948.3662\\ -8060.0421\\ -13494.5670\\ -17448.0668\\ -20115.9529\\ -21688.3211\\ -22346.3259\\ -21688.3211\\ -22348.9801\\ -21581.8066\\ -20454.7755\\ -19001.9327\\ -17331.1381\\ -15534.3250\end{array}$	Ibs           23435.4045           20878.3823           17980.9608           15040.6135           12125.8493           9297.0085           6605.5187           4093.5005           1793.6925           -270.3408           -2083.7581           -3639.7902           -4938.9314           -5988.0151           -6799.2136           -7388.9978           -777.0896           -7985.4339           8021.5644           -7817.1844           -7336.6239           -6635.3252           -5764.1765           -4768.9745           -4039.7722           -3622.7225           -3201.2783           -2785.4101           -2383.4102           -2001.9149           -1646.0023           -1319.3154           -1024.2026           -761.8689           -335.5819           -169.7297           -33.1577           766.3472           161.2696           224.2557           268.0732           308.5781	Rad. 0077284 0076739 0075173 0075173 0065730 0065730 0061462 0056852 0052023 0047084 0042136 0037267 0032855 0019906 0013107 0010257 0013107 001267 0003903 0002447 0001262 -3.0143E-05 4.6875E-05 .00010830 .0002139 .0002131 .000247 .0001267 .0001267 .0001267 .0001267 .0002131 .0002131 .000247 .0001267 .0001267 .0001267 .0001267 .0001267 .0001267 .0002131 .0002131 .000247 .0001267 .0001	1bs/in**2           694.4444           1235.3855           1709.0900           2113.4804           248.2078           2714.4714           2914.8161           3052.9152           3133.3484           3161.3802           3142.7469           3083.4554           2989.6005           2867.2014           2722.0623           2359.6563           2385.0342           2202.7584           2016.8607           1831.5556           1654.0775           1490.3093           1344.8763           1221.2606           1121.9222           1032.0397           951.8873           881.4793           820.6110           768.8989           725.9290           747.1576           768.6010           773.0224           779.1644           781.3936           778.7484           774.3459           768.6707           762.1442           755.1254	1bs/in 	1bs/in 2256.1763 6300.0000 9000.0000 9000.0000 10800.0000 1700.0000 12600.0000 13500.0000 14400.0000 15300.0000 14400.0000 15300.0000 18900.0000 18900.0000 18900.0000 18900.0000 18900.0000 20700.0000 18900.0000 24395.0523 56555.0523 56555.0523 56555.0523 56575.0523 63035.0523 630
							20000020

164088.

		0606	53-52-03-Feri	rv Landing F:	xpansion-sta	TTC 45ft lpo	
264.000	8.17E-05	-13688.1234	310,4742	3.8445E-05	747 0137	E262671	20200 0620
270.000	.000280	-11854.7684	303,2489	2 8400E-05	740 7521	-,JJUZU/I	39366.6029
276.000	.000422	-10083.2167	289 0075	1 0774 = 05	722 0220	~1.0/21	40108.8629
282.000	.000517	-8410 4063	260 6351	1 2501- 05	733.0320	-2.8/50	40828.8629
288.000	000573	-6867 5075	205.0551	1.2301E-03	121.29/6	-3.5825	41548.8629
294 000	000505		240.7079	0.4956E-06	721.2515	-4.0332	42268.8629
300 000	000593	4201 0054	221.8928	1.6513E-06	715.7599	-4.2651	42988.8629
206.000	.000592	-4201.8654	196.1524	-2.1468E-06	710.8580	-4.3150	43708 8629
212 000	.000570	-3100.340/	1/0.5558	-5.0182E-06	706.5552	-4.2173	44428 8620
312.000	.000532	-2149.1744	145.8920	-7.0825E-06	702.8397	-4 0040	15118 8620
318.000	.000485	-1341.1377	122.7674	-8.4550E-06	699,6833	-3 7042	45868 8620
324.000	.000431	-665.8198	101.6231	-9.2442E-06	697 0453	-2 2/20	46500.0029
330.000	.000374	-110.5674	82.7540	-9.5495E-06	69/ 8763	- J. J4 J9	40300.0029
336.000	.000316	338.6870	66 3266	-9 45985-06	605 7674	-2,9436	4/308.8629
342.000	.000260	696 7041	52 3073		093.7074	-2.5299	48028.8629
348,000	000207	978 3173	40 0772	- 9.0320E-00	097.1059	-2.1132	48748.8629
354,000	000159	1107 00/0	21 7077	-0.3940E-00	698.2660	-1.7101	49468.8629
360 000	000117	1260 0257	31.7977	-7.5382E-06	699.1238	-1.3330	50188.8629
366 000	000117 0 10r 0r	1402 7500	10.2012	-6.5289E-06	699.7918	-3.7657	193176.
373 000	0.10E-05	1403.7569	-2.8032	-5.4386E-06	699.9279	-2.6692	197676
372.000	5.1/E-05	1341.8241	-16.0369	-4.3589E-06	699.6859	-1.7420	202176
3/8.000	2.8/E-05	1216.5451	-24.2299	-3.3529E-06	699,1966	- 9889691	206676
384.000	1.15E-05	1055.0891	-28.4072	-2.4596E-06	698 5659	-4034751	200070.
390.000	-8.05E-07	878.6102	-29.5309	-1.6992E-06	697 8765	0700747	2111/0.
396.000	-8.93E-06	702,7579	-28.4613	-1.0774E-06	607 1806	.0209242	215076.
402.000	-1.37E-05	538.3672	-25,9358	-5 89335-07	606 5474	· JZ/ JOJO	220176.
408.000	-1.60E-05	392 2355	-22 5597		090.34/4	.5142543	224676.
414,000	-1.64E-05	267 0183	_10 0007	2 62025 00	095.9/00	.61109/8	229176.
420.000	-1 56E-05	166 4979	15 0274	3.0202E-08	695.4910	.6392560	233676.
426 000	-1 305-05	200.4070 07 001E	~13.05/4	2.0/02E-0/	695.0948	.6178511	238176.
432 000	-1 100 05	0/.2210	-11.4936	3.06/9E-07	694.7852	.5633972	242676.
420 000	-1.19E-05	20.1903	-8.3348	3.5218E-07	694.5546	.4895354	247176
438.000	-9.70E-06	-13.2190	-5.6451	3.5807E-07	694.4961	4070229	251676
444.000	-7.59E-06	-39.9752	-3.4524	3.3715E-07	694.6006	3239042	256176
450.000	-5.66E-06	-55.0519	-1.7432	2.9978E-07	694.6595	2458051	260676
456.000	-3.99E-06	-61.2537	4769383	2.5405E-07	694 6837	1762042	200070,
462.000	-2.61E-06	-61.0801	.4037594	2.0594E-07	694 6830	1177716	203170.
468.000	-1.52E-06	-56.6558	9636239	1 5964F-07	604 6658	.11/2/10	209076.
474.000	-6.93E-07	-49.7081	1.2683	1 1782 = 07	604 6206	.0093499	2/41/6.
480.000	-1.04E-07	-41.5776	1 2706	8 1021E 00	604 6060	.0322080	278676.
486.000	2.90F-07	-33 2510	1 3577	5 2406r 00	094.0009	.0049002	283176.
492.000	5 26E-07	-25 /086	1 22/1	3.2490E-08	694.5/43	0138853	287676.
498 000	6 43 = 07	10 4765	1.2541	2.9429E-08	694.5437	0256204	292176.
504 000	6 72 - 07	-10.4/05	1.0619	1.21/3E-08	694.5166	0317818	296676.
510 000	0.72E-07	-12.6/99	.8653/1/ -	-7.9068E-11	694.4940	0337418	301176
516,000	0.42E-07	-8.0919	.6660535 -	-8.2472E-09	694.4761	0326976	305676
70.000	5./3E-U/	-4.6//3	.4790590 -	1.3268E-08	694,4627	0296339	310176
522.000	4.83E-07	-2.3273	.3142278 -	1.6023E-08	694.4535	0253098	31/676
528.000	3.81E-07	8873666	.1775019 -	1.7287E-08	694 4479	- 0202655	210176
534.000	2.75E-07	1765528	.0721767 -	1.7705E-08	694 4451	- 01/2/20	2121/0.
540.000	1.68E-07	0.0000	0.0000 -	1 7775E-08	601 1111	0140429	523676.
	-		0.0000		034.4444	0095100	164088.

#### Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

Pile-head deflection	=	50000000	in
Computed slope at pile head	=	- 00772836	
Maximum bending moment	=	631535 55936	lhs-in
Maximum shear force	=	23435 40449	lhs
Depth of maximum bending moment		54 00000000	in
Depth of maximum shear force	=		in
Number of iterations	=	5.00000	
Number of zero deflection points	=	4	

	Compute for	d Values of Load	oad Distr ing for L	ibution and De oad Case Numbe	eflection er 3		
Pile-head Specified Specified Specified	boundary co deflection moment at axial load	onditions are at pile head pile head at pile head	Displace = = =	nent and Momer 1.000000 ir .000 ir 100000.000 lb	nt (BC Typ )  -lbs  s	e 4)	
Depth X	Deflect. y	Moment M	Shear V	slope S	Total Stress	Soil Res. p	Es*h F/L

in	in	0600 lbs-in	63-52-03-Fer 1bs	ry Landing Ex Rad.	kpansion-STAT lbs/in**2	IC 45ft.lpo lbs/in	lbs/in
0.000 6.000 12.000 18.000 24.000	1.000000 .910525 .822085 .735643 .652080	0.0000 219336. 423421. 610020. 777034	36184.2865 33802.4250 31099.5930 28050.2280	0149125 0148262 0145735 0141671	694.4444 1551.2271 2348.4311 3077.3337	-373.1575 -420.7963 -480.1477 -536.3073	1119.4726 2772.8810 3504.3643 4374.1898
30.000 36.000 42.000 48.000	.572183 .496634 .425991 .360658	921333. 1039666. 1125327. 1180552.	20591.4970 15781.2029 10607.3318 5843.1409	0129538 0121827 0113314 0104246	5729.6938 4293.4027 4755.6413 5090.2530 5305.9757	-620.2232 -709.4899 -893.9415 -830.6823 -757.3814	7439.8176 10800.0000 11700.0000 12600.0000
60.000 66.000 72.000 78.000	.246833 .198483 .155752 .118461	1210414. 1190976. 1152755. 1098852.	-2268.2907 -5563.8806 -8343.8614 -10618.2895	0094854 0085344 0075901 0066685 0057831	5413.0156 5422.6237 5346.6945 5197.3955 4986.8346	-677.0148 -592.3996 -506.1304 -420.5298 -337.6129	13500.0000 14400.0000 15300.0000 16200.0000 17100.0000
90.000 96.000 102.000 108.000	.080333 .059120 .036396 .017788 .002880	955886. 872341. 784061. 693201.	-12408.3209 -13744.1966 -14663.1964 -15207.6165 -15470.0397	0049451 0041633 0034443 0027930 0022121	4726.7714 4428.3745 4102.0274 3757.1825 3402.2626	-259.0642 -186.2277 -120.1056 -61.3678 -26.1066	18000.0000 18900.0000 19800.0000 20700.0000 54395.0523
114.000 120.000 126.000 132.000 138.000	008757 017558 023944 028311 031010	601075. 511637. 428142. 353192. 288782.	-15300.7230 -14537.6250 -13293.3529 -11672.2623 -9769.1307	0017031 0012656 0008960 0005888 0003364	3042.3936 2693.0247 2366.8749 2074.0990 1822.4976	82.5455 171.8205 242.9369 297.4266 336.9506	56555.0523 58715.0523 60875.0523 63035.0523 65195.0523
144.000 150.000 156.000 162.000 168.000 174.000	032347 032568 031899 030542 028674	236366. 188688. 145945. 108192. 75362.1880	-8354.1232 -7531.3203 -6691.1411 -5855.0219 -5040.8842	0001299 3.7291E-05 .0001689 .0002688 .0003410	1617.7476 1431.5068 1264.5422 1117.0679 988.8280	134.7186 139.5490 140.5107 138.1957 133.1835	24988.8629 25708.8629 26428.8629 27148.8629 27868.8629
174.000 180.000 186.000 192.000 198.000	026450 024003 021444 018864 016337	47291.8105 23736.1458 4390.2742 -11094.0322 -23092.7545	-4263.2479 -3533.4127 -2859.6935 -2247.6946 -1700.6108	.0003892 .0004172 .0004282 .0004256 .0004121	879.1781 787.1638 711.5940 737.7805 784.6505	$126.0286 \\ 117.2498 \\ 107.3232 \\ 96.6764 \\ 85.6849$	28588.8629 29308.8629 30028.8629 30748.8629 31468.8629
204.000 210.000 216.000 222.000 228.000	013919 011651 009564 007676 005995	-31995.9226 -38195.8169 -42077.0764 -44008.6568 -44337.5463	-1219.5414 -803.8091 -451.2729 -158.6272 78.3168	.0003905 .0003629 .0003313 .0002975 .0002627	819.4285 843.6469 858.8080 866.3533 867.6380	74.6715 63.9059 53.6062 43.9423 35.0390	32188.8629 32908.8629 33628.8629 34348.8629 35068.8629
234.000 240.000 246.000 252.000 258.000	004523 003256 002185 001296 000576	-43384.1107 -41438.9177 -38760.8737 -35576.4988 -32080.1633	264.3742 404.7560 504.8675 570.1353 605.8646	.0002282 .0001949 .0001633 .0001341 .0001075	863.9136 856.3152 845.8541 833.4151 819.7576	$\begin{array}{r} 26.9802 \\ 19.8138 \\ 13.5567 \\ 8.1992 \\ 3.7105 \end{array}$	35788.8629 36508.8629 37228.8629 37948.8629 38668.8629
270.000 276.000 282.000 288.000	-0.49E-06 .000429 .000747 .000965 .001099	-28435.1116 -24775.1088 -21206.5546 -17810.9256 -14647.4191	617.1239 608.6567 584.8174 549.5291 506.2609	8.3693E-05 6.2769E-05 4.4688E-05 2.9345E-05 1.6581E-05	805.5191 791.2222 777.2825 764.0184 751.6609	.0425924 -2.8650 -5.0814 -6.6813 -7.7414	39388.8629 40108.8629 40828.8629 41548.8629 42268.8629
294.000 300.000 306.000 312.000 318.000	.001164 .001173 .001140 .001073 .000984	-11755.6921 -9158.6040 -6864.8880 -4871.6956 -3166.9695	458.0212 407.3645 356.4098 306.8657 260.0629	6.1989E-06 -2.0252E-06 -8.3261E-06 -1.2941E-05 -1.6102E-05	740.3651 730.2202 721.2604 713.4745 706.8154	-8.3385 -8.5471 -8.4379 -8.0768 -7.5241	42988.8629 43708.8629 44428.8629 45148.8629 45868.8629
324.000 330.000 336.000 342.000 348.000	.000880 .000768 .000653 .000540 .000433	-1/31.6180 -541.4745 430.9616 1215.0002 1840.4371	216.9884 178.3227 144.4763 115.6244 91.7396	-1.8029E-05 -1.8922E-05 -1.8966E-05 -1.8319E-05 -1.7117E-05	701.2086 696.5596 696.1279 699.1905 701.6337	-6.8340 -6.0545 -5.2276 -4.3897 -3.5719	46588.8629 47308.8629 48028.8629 48748.8629 49468.8629
354.000 360.000 366.000 372.000 378.000	.000335 .000248 .000173 .000112 6.39E-05	2336.4156 2730.4499 2836.2844 2735.4895 2497.5181	72.6203 40.3075 7093675 -29.1408 -47.0637	-1.5475E-05 -1.3482E-05 -1.1293E-05 -9.1023E-06 -7.0445E-06	703.5711 705.1103 705.5237 705.1300 704.2004	-2.8012 -7.9698 -5.7025 -3.7746 -2.1997	50188.8629 193176. 197676. 202176. 206676.
390.000 396.000 402.000 408.000	2.75E-05 1.39E-06 -1.61E-05 -2.66E-05 -3.18E-05	2179.1788 1824.9862 1468.1292 1131.8304 830.9075	-56.5649 -59.6172 -57.9966 -53.2332 -46.5911	-5.2055E-06 -3.6309E-06 -2.3360E-06 -1.3136E-06 -5.4179E-07	702.9569 701.5733 700.1793 698.8657 697.6902	9673609 0500900 .5903036 .9974997 1.2165	211176. 215676. 220176. 224676. 229176.
420.000 426.000 432.000 438.000	-3.31E-05 -3.17E-05 -2.86E-05 -2.46E-05 -2.02E-05	5/3.38/4 362.0606 195.8991 71.2893 -16.9415	-39.0695 -31.4195 -24.1712 -17.6664 -12.0942	1.0419E-08 3.7827E-07 5.9767E-07 7.0274E-07 7.2411E-07	696.6842 695.8587 695.2097 694.7229 694.5106	1.2907 1.2593 1.1568 1.0115 .8459576	233676. 238176. 242676. 247176. 251676.
444.000 450.000 456.000	-1.59E-05 -1.19E-05 -8.47E-06	-/4./098 -108.0605 -122.7308	-7.5244 -3.9401 -1.2648	6.8807E-07 6.1620E-07 5.2545E-07	694.7363 694.8666 694.9239	.6772901 .5174820 .3742817	256176. 260676. 265176.

		06063	-52-03-Feri	ry Landing Ex	pansion-STAT	IC 45ft.lpo	
462.000	-5.61E-06	-123.8690	.6138545	4.2847E-07	694.9283	.2519481	269676.
468.000	-3.33E-06	-115.8787	1.8258	3.3420E-07	694.8971	.1520295	274176.
474,000	-1.60E-06	-102.3606	2.5041	2.4838E-07	694.8443	.0740899	278676.
480.000	-3.46E-07	-86.1270	2.7755	1.7426E-07	694.7809	.0163490	283176.
486.000	4.96E-07	-69.2642	2.7532	1.1316E-07	694.7150	0237791	287676.
492.000	1.01E-06	-53.2248	2.5341	6.4990E-08	694.6524	0492548	292176.
498.000	1.28E-06	-38.9334	2.1970	2.8751E-08	694.5965	0630853	296676.
504.000	1.36E-06	-26.8947	1.8035	2.8655E-09	694.5495	0680903	301176.
510.000	1.31E-06	-17.2945	1.3990	-1.4511E-08	694.5120	0667509	305676.
516.000	1.18E-06	-10.0893	1.0154	-2.5279E-08	694.4839	0611231	310176.
522.000	1.01E-06	-5.0797	.6735875	-3.1244E-08	694.4643	0528067	314676.
528.000	8.07E-07	-1.9687	.3863115	-3.4016E-08	694.4521	0429520	319176.
534.000	5.99E-07	4031086	.1605648	-3.4948E-08	694.4460	0322969	323676.
540.000	3.88E-07	0.0000	0.0000	-3.5107E-08	694.4444	0212247	164088.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 3:

Pile-head deflection	=	1.00000000	in
Computed slope at pile head	=	01491248	
Maximum bending moment	=	1210414.	lbs-in
Maximum shear force	=	36184.28652	lbs
Depth of maximum bending moment	=	60.0000000	in
Depth of maximum shear force	=	0.00000	in
Number of iterations	=	5	
Number of zero deflection points	=	4	

Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

Туре Туре Туре Туре Туре	1 = 2 = 3 = 4 = 5 =	Shear and Shear and Shear and Deflectio Deflectio	d Momen d Slope d Rot. on and f on and s	t, Stiffne Moment Slope,	) M 255, \ 5 F	/ = pi] 1 = Pi] / = Pi] 5 = Pi] 8 = Rot	e-head d e-head M e-head S e-head S . Stiffn	ispl Iomen hear lope ess	acment in t lbs-in Force lbs , radians of Pile-head	in-lbs/rad
Load Type	Pi Coi	le-Head ndition 1	Pile-I Condi <sup>-</sup> 2	Head tion	A> LC T	(ial bad lbs	Pile-He Deflect in	ad ion	Maximum Moment in-lbs	Maximum Shear lbs
4 4 4	y= y= y=	.250000 .500000 1.000000	M= M= M=	0.000 0.000 0.000	100000 100000 100000	).0000 ).0000 ).0000	.2500 .5000 1.0000	0000	315768. 631536. 1210414.	11828.6582 23435.4045 36184.2865

The analysis ended normally.

Shear Force (kips)



Seismic (Liquefied) Condition, 45 ft. long, 12-inch Square Driven Concrete Pile



#### Bending Moment (in-kips)

Seismic (Liquefied) Condition, 45 ft. long, 12-inch Square Driven Concrete Pile



Seismic (Liquefied) Condition, 45 ft. long, 12-inch Square Driven Concrete Pile

Lateral Deflection (in)

06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lpo LPILE Plus for Windows, Version 5.0 (5.0.35) Analysis of Individual Piles and Drilled Shafts Subjected to Lateral Loading Using the p-y Method (c) 1985-2007 by Ensoft, Inc. All Rights Reserved This program is licensed to: Engineering Machine Geocon, Inc. Path to file locations:X:\Engineering and Geology\ENGINEER PROGRAMS, GUIDESETC\EngrgPrg\LPile\06032-52-03\Name of input data file:06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lpdName of output file:06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lpoName of plot output file:06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lpoName of runtime file:06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lppName of runtime file:06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lpr X:\Engineering and Geology\ENGINEER PROGRAMS, GUIDES, \_\_\_\_\_ Time and Date of Analysis Date: March 21, 2016 Time: 14:24:46 ------\_\_\_\_\_ Problem Title Ferry Landing Expansion Program Options \_\_\_\_\_ Units Used in Computations - US Customary Units: Inches, Pounds Basic Program Options: Analysis Type 1: - Computation of Lateral Pile Response Using User-specified Constant EI Computation Options: - Only internally-generated p-y curves used in analysis - Analysis does not use p-y multipliers (individual pile or shaft action only) - Analysis assumes no shear resistance at pile tip - Analysis for fixed-length pile or shaft only - No computation of foundation stiffness matrix elements - Output pile response for full length of pile - Analysis assumes no soil movements acting on pile - No additional p-y curves to be computed at user-specified depths Solution Control Parameters: - Number of pile increments 90 Maximum number of iterations allowed =
 Deflection tolerance for convergence =
 Maximum allowable deflection = 100 1.0000E-05 in 1.0000E+02 in Printing Options:
- Values of pile-head deflection, bending moment, shear force, and soil reaction are printed for full length of pile.
- Printing Increment (spacing of output points) = 1 Pile Structural Properties and Geometry Pile Length 540.00 in -----

Depth o	f ground su	06063 rface below to	-52-03-Ferry p of pile =	Landing Expa -36.00 in	nsion-SEISM:	IC 45ft.lpo		
slope a	ngle of grou	und surface	=	.00 de	α.			
Structu	ral propert	ies of pile de	fined using	2 points	5-			
Point	Depth X in	Pile Diameter in	Moment of Inertia in**4	Pile Area Sq.in	Modulus o Elasticit lbs/sq.in	f y		
1 2	0.0000 540.0000	13.5000000 13.5000000	1728.0000 1728.0000	144.0000 144.0000	441500 441500	0. 0.		
		Soil and R	ock Layering	Information				
The soi	l profile is	modelled usi	ng 4 layers					
Layer Distance Distance p-y sube p-y sube	l is silt wi e from top c e from top c grade modulu grade modulu	th cohesion a of pile to top of pile to bot us k for top o us k for botto	nd friction of layer tom of layer f soil layer n of layer	= -36.0 = 108.0 = 25.0 = 25.0	00 in 00 in 00 lbs/in** 00 lbs/in**	3		
Layer 2 Distance Distance	2 is liquefi e from top o e from top o	able sand, by f pile to top f pile to bott	Rollins et a of layer tom of layer	$\begin{array}{rcl} 1, & 2004 \\ = & 108.00 \\ = & 144.00 \\ \end{array}$	00 in 00 in			
Layer Distance Distance	3 is liquefi e from top o e from top o	able sand, by f pile to top f pile to bott	Rollins et a of layer tom of layer	1, 2004 = 144.00 = 360.00	00 in 00 in			
Warning for usir Please c informat	: The depth ng the p-y c consult the cion regardi	of this layer riteria for l LPile Technica ng limitations	r is deeper t iquefied sand al Manual for s on the use	han the recon additional h of the lique	nmended dept background fied sand cr	ch limit riteria.		
Layer 4 Distance Distance p-y subg p-y subg	is silt wi from top o from top o rade modulu rade modulu	th cohesion ar f pile to top f pile to bott s k for top of s k for botton	nd friction of layer com of layer soil layer n of layer	= 360.00 = 720.00 = 125.00 = 125.00	00 in 00 in 00 lbs/in**3 00 lbs/in**3	3		
(Depth c	of lowest la	yer extends 1	80.00 in bel	ow pile tip)				
		Effective Unit	Weight of S	oil vs. Depth				
Effectiv	e unit weig	ht of soil wit	h depth defi:	ned using 8	points			
Point No.	Depth : in	X Eff. Unit lbs/in	: Weight **3					
1 2 3 4 5 6 7 8	-36.00 108.00 108.00 144.00 144.00 360.00 360.00 720.00	0 .068 0 .068 0 .038 0 .038 0 .038 0 .038 0 .038 0 .038 0 .038	00 00 00 00 00 00 00 00 00 00					
	Shear Strength of Soils							
Shear st	rength param	neters with de	pth defined u	using 8 poin	its			
Point No.	Depth X in	Cohesion c lbs/in**2	Angle of P Dec	riction	E50 or k_rm	RQD %		
1	-36.000	1.39000	28.0	00	.00700	.0		
				Page 2				

06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lpo 39000 28.00 .00700 .0  $108.000 \\ 108.000$ 2 1.39000 .00700 .0 3 .00000 .00 -----4 144.000 .00000 .00 144.000 360.000 360.000 5 .00000 .00 -----------6 .00000 .00 -----7 2.08000 40.00 .00400 .0 8 720.000 2.08000 40.00 .00400 .0 Notes: Cohesion = uniaxial compressive strength for rock materials. Values of E50 are reported for clay strata. Default values will be generated for E50 when input values are 0. RQD and k\_rm are reported only for weak rock strata. (1)(2)(3) (4) Loading Type Static loading criteria was used for computation of p-y curves. Pile-head Loading and Pile-head Fixity Conditions Number of loads specified = 3Load Case Number 1 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Deflection at pile head = .250 in Bending moment at pile head = .000 in-lbs Axial load at pile head = 100000.000 lbs = Load Case Number 2 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Deflection at pile head = .500 in Bending moment at pile head = .000 in-lbs Bending moment at pile head = Axial load at pile head = Axial load at pile head = 100000.000 lbs Load Case Number 3 Pile-head boundary conditions are Displacement and Moment (BC Type 4) Deflection at pile head = 1.000 in Bending moment at pile head = .000 in-lbs Axial load at pile head = 100000.000 lbs Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 1 Pile-head boundary conditions are Displacement and Moment (BC Type 4) specified deflection at pile head = .250000 in Specified moment at pile head = .000 in-lbs 100000.000 lbs Specified axial load at pile head = Depth Deflect. slope Moment Shear Total Soil Res. Es\*h Х y in Stress lbs/in\*\*2 v lbs S p lbs/in F/L in lbs-in Rad. lbs/in 0.0000 11199.6626 33.7718 9812.3151 122488. 8370.6318 170633. 6913.8245 209968. 5477.7964 240701. 4094.6427 263225. 2792.3317 278002 1594 5562 ----0.000 .250000 -.0039763 694.4444 -225.0000 2700.0000 -.0039763 -.0039506 -.0038766 -.0037614 -.0036117 -.0034345 -.0032363 6.000 12.000 65533.7718 122488. .226142 950.4357 1172.9150 -237.4491 6300.0000 7200.0000 .202593 -243.1120 170633. 18.000 .179623 8100.0000 9000.0000 1360.9808 -242.4905 24.000 30.000 209968. 240701. .157457 1514.6318 -236.1855 .136282 9900.0000 10800.0000 1634.6823 -224.8657 36.000 .116243 263225. 1722.6673 -209.237942.000 1594.5562 520.7350 .097446 278092. -.0030235 -.0028016 1780.7431 1811.5846 1818.2852 -190.0206 -167.9198 11700.0000 48.000 .079962 285988. 12600.0000 287703. 54.000 .063827 -413.8550 -.0025760 -143.6102 13500.0000

60 000	040040	0606	3-52-03-Ferr	'y Landing Ex	pansion-SEISM	IC 45ft.lpo		
66.000	035612	204113.	-1197.8400	0023512	1804.2604	-117.7182	14400.0000	
72.000	.023479	264789.	-2286.0414	0019182	1728.7756	-63 3974	16200.0000	
78.000	.012594	251020.	-2583.9005	0017153	1674.9909	-35.8940	17100.0000	
84.000	.002895	235840.	-2717.6341	0015239	1615.6959	-8.6839	18000.0000	
90.000	005692	220237	-2689.8937	0013445	1554.7451	17.9307	18900.0000	
102 000	-013240	2051/5. 101580	-2505.0265	0011//3	1495.9097	43.6917	19800.0000	
108.000	025495	180375	-2100.0200	0010212	1200 0222	68.3/69	20700.0000	
114.000	030319	169145.	-1944.0587	-0007375	1355 1656	1.9329	454.8850	
120.000	034345	157931.	-1925.5841	0006089	1311.3627	3 4802	529,9007 607 9788	
126.000	037626	146768.	-1902.1642	0004891	1267.7582	4.3265	689.9155	
132.000	040214	135692.	-1873.5717	0003780	1224.4915	5.2043	776.4908	
138.000	042162	124/39.	-1839.6538	0002756	1181.7065	6.1016	868.3063	
150 000	043522	113947.	-1800.3298	0001818	1139.5496	7.0063	965.9094	
156.000	044677	92995,4106	-1705 4979	-9.0310E-05 -1.9096E-05	1098.1080	7.9066	1069.8280	
162.000	044573	82910.1791	-1650.1807	5.0072E-05	1018.3123	9 6481	1208 7/53	
168.000	044077	73133.1554	-1589.8350	.0001114	980.1208	10,4672	1424.8593	
174.000	043235	63698.4397	-1524.7198	.0001652	943.2665	11.2379	1559.5387	
180.000	042094	54638.2307	-1455.1542	.0002118	907.8750	11.9506	1703.4307	
102 000	040694	45982.4618	-1381.5130	.0002513	874.0634	12.5964	1857.2321	
198.000	- 037283	29990 6726	-1223 7532	.0002843	841.9385	13.1672	2021.6973	
204.000	035347	22700.3357	-1140 6176	.0003109	011.0900 783 1176	14 0561	2197.6465	
210.000	033303	15905.3056	-1055.3604	.0003468	756.5745	14 3630	2503.9/4/	
216.000	031185	9619.8378	-968.5534	.0003568	732.0219	14.5727	2803.7838	
222.000	029021	3854.4468	-880.7881	.0003621	709.5009	14.6824	3035.5267	
228.000	026839	-1384.1950	-792.6680	.0003631	699.8515	14.6909	3284.2008	
234.000	024664	-6093.3107	-/04.8015	.0003602	718.2464	14.5979	3551.2590	
246.000	- 020419	-13931 3260	-01/./930	.0003537	734.5//4	14.4046	3838.3174	
252.000	018386	-17073.9670	-448.7146	.0003442	761 1396	13 7781	4147.1800	
258.000	016435	-19714.3384	-367.7697	.0003176	771.4536	13 2535	4479.0004	
264.000	014576	-21868.2807	-289.9221	.0003012	779.8674	12.6957	5226.1190	
270.000	012820	-23554.8592	-215.6495	.0002834	786.4556	12.0618	5645.1748	
276.000	~.0111/5	-24/96.09/0	-145.3836	.0002643	791.3042	11.3601	6099.1646	
282.000	009040	-20010.0091	-/9.504L	.0002445	794.5096	10.5997	6591.9304	
294,000	006958	-26105 7096	37 8676	.0002242	790.1771	9.7905	/12/.9258	
300.000	005797	-25833.5846	88,9032	.0001833	790.4199	8 0687	//12.359/ 8251 2002	
306.000	004758	-25258.7947	134.6463	.0001632	793.1116	7.1789	9052 3813	
312.000	003839	-24413.6437	175.0398	.0001436	789.8102	6.2856	9824.2996	
318.000	003035	-23330.6918	210.0982	.0001249	785.5800	5.4006	10678.2572	
324.000	- 002340	-22042.3104	239.90/1	.00010/0	/80.5472	4.5357	11628.3977	
336.000	001750	-18975 1683	204.0221	9.0209E-05 7 4714E-05	768 5662	3.7026	12693.3583	
342.000	000854	-17256.3060	299.7253	6.0467E-05	761 8519	2.9121	15298.9338	
348.000	000532	-15451.0252	310.7426	4.7606E-05	754.8000	1.4981	16911 5688	
354.000	000282	-13584.5217	317.9072	3.6188E-05	747.5090	.8900951	18916.2026	
360.000	-9.73E-05	-11679.5646	330.8392	2.6253E-05	740.0677	3.4206	211035.	
372 000	3.27E-05 000117	-9045.9555	33/.5/50	1./868E-05	732.1240	-1.1751	215535.	
378.000	.000117	-5805 3067	289 6901	5 7751E-06	724.3276	-4.2965	220035.	
384.000	.000186	-4180.7476	249.7561	1.8483E-06	710.7755	-0.1937	224535.	
390.000	.000188	-2810.4515	206.4874	-9.0086E-07	705.4228	-7.3052	233535	
396.000	.000176	-1701.8172	163.6663	-2.6752E-06	701.0922	-6.9685	238035.	
402.000	.000156	-843.2451	123.8937	-3.6760E-06	697.7384	-6.2891	242535.	
414 000	000132	-210.0819	88.//92	-4.0905E-06	695.2674	-5.4157	247035.	
420.000	8.25E-05	503 8747	35 1788	-4.0040E-00 -3.7966E-06	095.3312 606 4127	-4.464/	251535.	
426.000	6.09E-05	653.7149	16.6752	-3.3414E-06	696 9980	-2.5217	250035.	
432.000	4.24E-05	707.9869	3.1139 -	-2.8060E-06	697.2100	-1.8743	265035	
438.000	2.73E-05	694.4484	-6.1839 -	-2.2545E-06	697.1571	-1.2249	269535.	
444.000	1.54E-05	636.4857	-11.9657	-1.7311E-06	696.9307	7023797	274035.	
450.000	0.49E-06 2 18E-07	552.9370	-14.9//2 -	-1.2634E-06	696.6044	3014500	278535.	
462.000	-3.90E-06	363 0271	-15 3832	-8,65/6E-0/ -5 4280E-07	696.2346	0102745	283035.	
468.000	-6.30E-06	274.3284	-13.9038 -	-2.9217E-07	695 5160	306/310	20/535.	
474.000	-7.40E-06	196.5318	-11.8871 -	-1.0702E-07	695.2121	.3658045	296535	
480.000	-7.58E-06	131.8114	-9.6488	2.2099E-08	694.9593	.3803064	301035	
485.000	-/.14E-06	80.7198	-7.4177	1.0567E-07	694.7598	.3634027	305535.	
492.000 498 000	-0.31E-U0	42.0/2/	-5.3490	1.5419E-07	694.6111	.3261518	310035.	
504.000	-4.18F-06	0108165	-3.3392 -2 0406	1 8383c_07	094.5083 601 1115	.2//1081	314535.	
510.000	-3.08E-06	-8.3612	8750810	1.8053F-07	694,4771	1660885	373535 373035.	
516.000	-2.02E-06	-10.7284	0460489	1.7303E-07	694.4864	.1102555	328035	
522.000	-1.00E-06	-9.1214	.4516169	1.6522E-07	694.4801	.0556331	332535.	
520.000	-3.4UE-U8	-2.50/3	.0242435	1.594/E-07	694.4660	.0019091	337035.	

		06063-	-52-03-Ferr	y Landing Ex	pansion-SEISM	AIC 45ft.lpo	
534.000	9.10E-07	$-1.8219 \\ 0.0000$	.4745998	1.5659E-07	694.4516	0517903	341535.
540.000	1.85E-06		0.0000	1.5587E-07	694.4444	1064096	173018.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 1:

Pile-head deflection	=	.25000000	in
Computed slope at pile head	=	00397633	
Maximum bending moment	=	287703.24144	lbs-in
Maximum shear force	=	11199.66255	lbs
Depth of maximum bending moment	=	54.00000000	in
Depth of maximum shear force	=	0.00000	in
Number of iterations	=	5	
Number of zero deflection points	=	4	

Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 2

Pile-head boundary conditions are Displacement and Moment (BC Type 4) Specified deflection at pile head = .500000 in Specified moment at pile head = .000 in-lbs Specified axial load at pile head = 100000.000 lbs

		0606	3-52-03-Ferry	/ Landing Ex	pansion-SETSN	ATC 45ft lpo	
258.00	0031688	-39494.2078	-692.9670	.0006179	848 7187	76 0862	1020 2050
264.00	0028074	-43543.8969	-540.1026	0005853	864 5270		4959.2950
270.00	024665	-46677 7736	~30/ 0522	0005400	004.00/0	24.8685	5314.9318
276 00	-021476	-18013 0074	750 7075	.0005498	876.7795	23.5146	5720.1701
282 000		E0201 0024	-200,2020	.0005122	885.6284	22.0423	6158.1324
	J010319	-50391.8034	-130./442	.0004731	891.2874	20.4705	6632,4131
200.000	7 012/99	-510/9./941	-12.8750	.0004332	893.9749	18.8193	7147 1830
294.000	J013320	-51066.1877	94.9125	.0003931	893,9217	17 1099	7707 3264
300.000	)011082	-50412.5278	192.3348	.0003532	891 3684	15 3642	9210 GDE1
306.000	0009082	-49181.9684	279,2408	0003140	886 5615	12 6045	0210-0125
312.000	007314	-47438.4407	355 6134	0002760	870 7500	11 0501	0900.0135
318.000	005770	-45245 8165	121 5600	.0002700	079.7509	11.8531	9723.9442
324 000	-004430	-42667 0762	477 2501	.0002590	8/1.1859	10.1324	10536.9322
330 000	-002210	20762 4072	4//.5591	.0002050	861.1127	8.4640	11440.4116
336.000	003310	-39/03.49/3	523.35/9	.0001726	849.7706	6.8689	12452.1758
	002368	-36593.8/43	560.0641	.0001426	837.3893	5.3665	13597.0246
342.000	001599	-33213.7897	588.0868	.0001151	824,1858	3 9744	14012 2602
348.000	)000987	-29674.9534	608.1328	9.0371E-05	810 3622	2 7076	16461 4000
354.000	)000515	-26024.6419	620.9851	6.8468E-05	796 1032	1 5765	10701.4099
360.000	000165	-22305.2945	643 1521	1 94645-05	790.1032	1.5/05	183/9.4548
366.000	7.89E-05	-18366 1733	652 0866	2 2470F 0F	701.3743	5.8125	211035.
372 000	000236	-14520 4100		3.34/UE-US	/00.18/3	-2.8343	215535.
378 000		10070 0004	01/.5/0/	2.0538E-05	/51.1648	-8.6690	220035.
284 000	.000323	-10979.8994	555.0421	1.0511E-05	737.3347	-12.1758	224535.
364.000	.000363	-/8/2.5283	476.9994	3.0976E-06	725.1965	-13.8384	229035
390.000	.000363	-5259.6232	393.1523 -	2.0664E-06	714.9898	-14,1107	222525
396.000	.000338	-3152.2211	310.6250 -	5.3741E-06	706 7578	-13 308/	228025
402.000	.000298	-1525.6741	234.2869 -	7.2136E-06	700 4041	-12 0476	230033.
408.000	.000251	-332.1225	167 1211 -	7 94425-06	605 7/10	10 7400	242555.
414.000	.000203	489.3117	110 6035 -	7 88245-06	606 2550	-10.5409	247035.
420.000	000157	1004 5780	65 0649	7 20405 00	090.3338	-8.4982	251535.
426 000	000115	1770 0421		7.2949E-06	698.3686	-6.6814	256035.
432 000	7 085-05	1270.0431	50.0175 -	0.39/0E-06	699.4399	-5.0011	260535.
438 000		1372.4033	4.43/9 -	5.3544E-06	699.8056	-3.5253	265035.
438,000	3.09E-05	1338.5234	-13.0005 -	4.2884E-06	699.6731	-2.2875	269535
444.000	2.83E-05	1221.6032	-23.7471 -	3.2817E-06	699.2163	-1.2947	274035
450.000	1.15E-05	1057.4968	-29.2383 -	2.3855E-06	698.5753	- 5357139	278535
456.000	-2.78E-07	873.6056	-30.8062 -	1.6261E-06	697 8570	0131060	200005
462.000	-7.97E-06	689.7741	-29.6206 -	1.0113E-06	697 1380	2820007	203033.
468.000	-1.24E-05	519.3726	-26.6616 -	5 3586F-07	606 1727	- JOZU557	20/000.
474.000	-1.44E-05	370.4777	-22 7134 -	1 85055-07	60E 001C	.0042132	292035.
480,000	-1.46E-05	247 0351	-18 2724		093.0910	./118631	296535.
486 000	-1 37E-05	1/0 0797	-10.3734 14 0730	3.000UE-00	695.4094	./34/860	301035.
492 000		77 0040	-14.0729	Z.1298E-07	695.0301	.6987110	305535.
402.000	1 015 05	77.9042	-10.1027	3.025/E-07	694.7488	.6246926	310035.
498.000	-1.01E-05	28.3323	-6.6418	3.4434E-07	694.5551	.5289558	314535
504.000	-7.96E-06	-2.2105	-3.7856	3.5462E-07	694.4531	.4231113	319035
210.000	-2.83E-06	-17.5203	-1.5724	3.4686E-07	694.5129	3146298	323535
210.000	-3.80E-06	-21.4951	0060217	3.3151E-07	694.5284	2074847	328035
522.000	-1.86E-06	-17.9903	.9251363	3.1599F-07	694 5147	1020012	220033.
528.000	-3.19E-09	-10.7726	1,2344	3.0468F-07	694 1965	0001201	222222.
534.000	1.80E-06	-3.5434	9276250	2 99055-07	604 4500	1024202	33/035.
540,000	3.59E-06	0,000	0 0000		094.4383	1024299	341535.
	5.552 00	0.0000	0.0000	2.9/03E-U/	094.4444	2067785	173018.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 2:

Depth Deflect. Moment

Pile-head deflection	=	.5000000 in
Computed slope at pile head	=	00794869
Maximum bending moment	=	576889,31389 lbs-in
Maximum shear force	=	22208 94164 Ths
Depth of maximum bending moment	=	54.0000000 in
Depth of maximum shear force	=	0 00000 in
Number of iterations	=	6100000 111
Number of zero deflection points	=	4

Computed Values of Load Distribution and Deflection for Lateral Loading for Load Case Number 3

Pile-head boundary conditions are Displacement and Moment (BC Type 4) Specified deflection at pile head = 1.000000 in Specified moment at pile head = .000 in-lbs Specified axial load at pile head = 100000.000 lbs

Shear

Total So

Soil Res. Es\*h

slope

06063-52-03-Ferry Landing Expansion-SEISMIC 45ft.lno

456.000 8.28E-08 462.000 -1.49E-05 468.000 -2.36E-05 474.000 -2.76E-05 480.000 -2.81E-05 480.000 -2.81E-05 480.000 -2.81E-05 498.000 -1.95E-05 504.000 -1.54E-05 510.000 -1.13E-05 516.000 -7.37E-06 528.000 -3.64E-06 528.000 3.42E-08	$\begin{array}{r} 06063\\ 1686.9039\\ 1333.9517\\ 1006.0879\\ 719.1056\\ 480.8016\\ 293.0336\\ 153.5064\\ 57.2371\\ -2.3116\\ -32.4180\\ -40.5738\\ -34.2006\\ -20.5567\\ -6723\end{array}$	-52-03-Ferr -59.0635 -56.9320 -51.3425 -43.8114 -35.4963 -27.2345 -19.5921 -12.9189 -7.4032 -3.1218 0846861 1.7290 2.3439 1.7709	y Landing Exp -3.1617E-06 -1.9738E-06 -1.0536E-06 -3.7519E-07 9.6651E-08 4.0095E-07 5.7654E-07 6.5941E-07 6.8101E-07 6.6735E-07 6.3865E-07 6.0925E-07 5.8771E-07 5.765C-07	Pansion-SEIS 701.0339 699.6552 698.3745 697.2535 696.3226 695.0441 694.6680 694.4535 694.5711 694.6029 694.5780 694.5247	4IC 45ft.lpo 0039052 .7143855 1.1488 1.3616 1.4101 1.3439 1.2036 1.0208 .8178128 .6093120 .4030538 .2015152 .0034377	283035. 287535. 292035. 301035. 310035. 314535. 319035. 328035. 328035. 328035. 32535. 337035.
528.000 -6.12E-08	-20.5567	2.3439	5.8771E-07	694.5247	.0034377	337035.
534.000 3.42E-06	-6.7793	1.7708	5.7696E-07	694.4709	1944803	341535.
540.000 6.86E-06	0.0000	0.0000	5.7430E-07	694.4444	3957701	173018.

Output Verification:

Computed forces and moments are within specified convergence limits.

Output Summary for Load Case No. 3:

Pile-head deflection	=	1.00000000	in
Computed slope at pile head	=	01532537	
Maximum bending moment	=	1106612.	lbs-in
Maximum shear force	=	34104.70268	lbs
Depth of maximum bending moment	=	54.00000000	in
Depth of maximum shear force	=	0.00000	in
Number of iterations	=	6	
Number of zero deflection points	=	4	

Summary of Pile Response(s)

Definition of Symbols for Pile-Head Loading Conditions:

			-			
Туре	1 = Shear an	d Moment,	y = pi]	le-head displ	acment in	in-lbs/rad
Туре	2 = Shear an	d Slope,	M = Pi]	le-head Momen	t lbs-in	
Туре	3 = Shear an	d Rot. Stiffn	ess, V = Pi]	le-head Shear	Force lbs	
Туре	4 = Deflecti	on and Moment	, S = Pi]	le-head Slope	, radians	
Туре	5 = Deflecti	on and Slope,	R = Rot	. Stiffness	of Pile-head	
Load Type	Pile-Head Condition 1	Pile-Head Condition 2	Axial Load lbs	Pile-Head Deflection in	Maximum Moment in-lbs	Maximum Shear lbs
4	y= .250000	M= 0.000	100000.0000	.2500000	287703.	11199.6626
4	y= .500000	M= 0.000	100000.0000	.5000000	576889.	22208.9416
4	y= 1.000000	M= 0.000	100000.0000	1.0000000	1106612.	34104.7027

The analysis ended normally.

Summary of Warning Messages

# Appendix C

Closure Letter - County of San Diego Department of Environmental Health



County of San Diego

DANIEL J. AVERA DIRECTOR

LARRY T. AKER ASSISTANT DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH P.O. BOX 85261, SAN DIEGO, CA 92186-5261 (619) 338-2222 FAX (619) 338-2377

SITE ASSESSMENT AND MITIGATION DIVISION

July 11, 1997

Mr. Rick Adcock San Diego Unified Port District P.O. Box 488 San Diego, CA 92112-0488

Dear Mr. Adcock:

CORONADO BOATYARD/OLD FERRY LANDING 1511 MARINE WAY, CORONADO, CA DEH FILE #H29785-001

The County of San Diego Department of Environmental (DEH), Site Assessment and Mitigation (SAM) Division was designated as the Administering Agency by the Site Designation Committee after a request by the San Diego Unified Port District (the Responsible Party) to oversee the Site Investigation and Remediation Action at the Coronado Boatyard/Old Ferry Landing, located at 1511 Marine Way, Coronado, California.

In accordance with Health and Safety Code 25264, the Administering Agency, after appropriate consultation with California Environmental Protection Agency Department of Toxic Substances Control (DTSC) and San Diego Regional Water Quality Control Board (RWQCB), has determined that:

- The site investigation and remediation action at the site has been satisfactorily completed and a permanent remedy has been accomplished [25264(b)]. Actions taken are described in the attached case closure summary.
- 2) Applied remediation action standards and objectives were achieved [25264(b)].
- 3) The Responsible Party has complied with the requirements of all state and local laws, ordinances, regulations, and standards that are applicable to the Site Investigation and Remediation Action [25264(c)].
- 4) This letter of completion is subject to conditions specified in the attached case closure summary.

\*\*\*\*\*

Mr: Rick Adcock

-2-

No agency may take action against the Responsible Party with respect to the hazardous materials release at the site except as specified in Health and Safety Code 25256(c)(1) through (6).

Please contact Mo. Lahsaie at (619)338-2256 if you have questions.

Sincerely,

CHUCK PRYATEL, Chief Site Assessment and Mitigation Division

CP:ac

Attachment

CC: Cal-EPA Site Designation Committee John Odermatt, San Diego RWQCB Safouh Sayed, State of California DTSC Bill Paznokas, State of California Department of Fish and Game Edward Kleeman, City of Coronado Dana Austin, Austin Environmental Inc. Charles Talmadge, Coronado Village Homeowners Association George Palermo, Port Coronado Associates Mark Peabody, Dames & Moore Environmental Consultants

WP/CORONA-C.WPD



RECEIVED

JUL 1 7 1997

County of San Biego POPTOFSAN DEGO

LARRY T. AKER ASSISTANT DIRECTOR

DANIEL J. AVERA DIRECTOR

1.0

DEPARTMENT OF ENVIRONMENTAL HEALTH P.O. BOX 85261, SAN DIEGO, CA 92186-5261 (619) 338-2222 FAX (619) 338-2377

#### SITE ASSESSMENT AND MITIGATION DIVISION

July 11, 1997

Mr. George Palermo Port Coronado Associates P.O. Box 751 San Diego, CA 92112

Mr. Howard Kipland Allegis Development Port Coronado Associates 427 C St., Suite 210 San Diego, CA 92101

Dear Mr. Palermo and Mr. Kipland:

CORONADO BOATYARD/OLD FERRY LANDING 1511 MARINE WAY, CORONADO, CA DEH FILE #29785-001

The Department of Environmental Health (DEH), Site Assessment and Mitigation Division has completed the review of the above referenced environmental project. A letter certifying the completion of environmental work at the site was directed to the San Diego Unified Port District (SDUPD) on July 11, 1997. The certification was addressed to the SDUPD, as they were the applicant for the Site Designation activity.

Port Coronado Associates was the applicant identified for the DEH Voluntary Assistance Program activity related to this project. The DEH considers the services requested by the Port Coronado Associates for this project to be completed. A final bill for DEH activities will be sent within this quarter, unless you request an earlier billing by contacting DEH Fiscal at 338-2408.

DEH appreciates the efforts of Mr. Adcock, SDUPD; Mr. Austin, Austin Environmental; and Mr. Peabody, Dames and Moore in bringing this project to completion. If you need further assistance, please contact me at (619) 338-2243.

Sincerely,

VICKIE CHURCH, Hazardous Material Specialist III Site Assessment and Mitigation Division

VC:ac

Enclosure

cc: /Rick Adcock, SDUPD (w/o enclosure) Dana Austin, Austin Environmental (w/o enclosure) Mark Peabody, Dames & Moore (w/o enclosure)

# ) Case Closure Summary Non-LOP or Voluntary Assistance Program

....

#### I. AGENCY INFORMATION

I. AGENCY INFORMATION		Date: June 24, 199
Lead Agency: County of San Diego, Environmental Health, SAM P.O. Box 85261 San Diego, CA 92186-5261	Phone: (619) 338-2222 Fax:	(619) 338-2315
DEH Staff Person: Mo. Lahsaie	Title: Hazardous Materials Spec	rialist

#### **II. CASE INFORMATION** Æ

Case No. H29785-001		
Site Name: Old Ferry Landing/Coronado Boat Yard (Coronad	o Ferry Landing)	
Site Address: 1511 Marine Way, Coronado, California		ding) 3165 Pacific Highway, Phone: (619)686-6598 b, CA 1511 Marine Way, Phone: (619)522-6159 California
Property Owner: San Diego Unified Port District (DEH-SAM Requested Site Designation)	Address: 3165 Pacific Highway, San Diego, CA	Phone: (619)686-6598
Responsible/Requesting Party: Port Coronado Associates	Address: 1511 Marine Way, Coronado, California	Phone: (619)522-6159
Type of Case: Cal-EPA Site Designation; DEH Voluntary Ass	sistance Program	
Cal-EPA approval of DEH Oversight: Yes		

#### III. SITE CHARACTERIZATION AND/OR INFORMATION F

Cause and Type of Cor	ntamination	(if any): Petroleur	n Hydro	carbons and meta	als from s	hipping/boat yard maintenance	activities
Site Characterization	n complete?	Yes					
Monitoring Wells Inst Yes	alled?	Total Number: 4	Prop Yes	er Screened Inte	erval?	Number of decommissioned we	lls: 4
Range of groundwater tidal fluctuations	levels on	the site? 6-8 fee	et below	w surface influe	enced by	Groundwater flow direction: San Diego Bay	north toward
Most Sensitive Curren	t Use: San	Diego Bay (Recreati	onal, 1	Navigation, Fishi	ng)		
Are Drinking Water We	lls Affect	ed? N	io		RWQCB Ba	sin Number: 10.10	
Is Surface Water Affe	cted?	N	ío		Nearest	Surface Water name: San Diego	о Вау
Off-Site Beneficial U	se Impacts	(addresses/location	s): No	one			
TREATMENT AND DIS	POSAL OF	AFFECTED MATERIA	Ľ			· · · · · · · · · · · · · · · · · · ·	
Material	Amount ()	Include Units)		Action (Treate	ment or Di	sposal w/Destination)	Date
Oily Sludge (petroleum impacted soil)	5-40 Ci	ubic Yards		Disposed at So Arizona,	onas Earth	Sciences of Vicksburg,	July, 1995
Sandblast Grit (surface Contamination)	30-35 Cul	pic Yards		Disposed at Sc Arizona, Inc,	ona <b>s</b> Soil ) Salome, An	Resource Recovery of rizona	July, 1995
Heavy Metal impacted soil (Lead contamination)	150 Cubic	2 Yards		Disposed at Co County 12th St	opper Mount	cain Landfill, Ave. 36E and ounty, AZ 85356	April, 1997

Non-LOP - Underground Storage Tank Oversight handled outside the LOP Non-Tank - Voluntary Assistance Program

 $[a_{k}]$ 

### Case Closure Summarv

Non-LOP or Voluntary Assistance Program

#### III. SITE CHARACTERIZATION AND/OR INFORMATION (Continued)

MAXIMUM DOCUMENTED CONTAMINANT CONCENTRATIONS -- BEFORE AND AFTER CLEANUP Contaminant Soil (ppm) Water (ppm) Contaminant Soil (ppm) Water (ppm) Before After Before After Before After Before After Lead 7090 3,400 at 4 ft. 0.305 0.07 Benzene 0.696 0.696 <0.005 <0.005 (955, upper 90% confidence level) Copper 16.000 0.550 3,181 0.023 Toluene 7.290 7.290 <0.006 <0.006 Zinc 7,519 7,519 0.453 0.050 Ethylbenzene 3.470 3.470 <0.007 <0.007 TPH 15,900 0.081 4.740 0.081 Xylenes 15.800 15.800 <0.007 <0.007 TRPH 18,500 18,500 PCB 0.064 0.064

Comments: Lead cleanup level in soil was based on the current Preliminary Remediation Goals (PRGs) for soil at industrial sites of 1,000 mg/kg. Approximately 150 cubic yards of lead impacted soil with concentrations above 1,000 mg/kg were removed down to the groundwater table at 8 feet below surface. The lead concentration of 955 mg/kg referenced above is at approximately 4 feet below surface and remains in place at the Northwest Section of the subject property. Trenching in the vicinity of the 18,500 ppm TRPH was performed to demonstrate that free product was not present. Based on the reported information provided by Dames & Moore, they have concluded that there is no threat to public safety and/or environmental health at this site.

#### IV. CLOSURE

Does completed corrective action protect existing beneficial uses per the Regional Board Basin Plan? Yes Does completed corrective action protect potential beneficial uses per the Regional Board Basin Plan? Yes Does corrective action protect public health for current land use? Yes Are there other issues DEH needs to follow up on: No Site Management Requirements: If remaining heavy metal contaminated soils are excavated, particularly lead impacted soil at 4 feet below grade, the soil needs to be managed in accordance with the laws and regulations at that time. If utility trenches are installed in the lead contaminated area, the workers health & safety must be managed in accordance with the OSHA regulations. Workers should be advised of the presence and approximate location of the lead impacted soil. During construction in the trench areas, dust control measures and good field hygiene are recommended to minimize ingestion/inhalation of the residual lead impacted (e.g. Use of boot covers or washable boots and availability of hand washing facilities) soils. Yes

Should corrective action be reviewed if land use changes?

Enforcement Action Taken: None

Enforcement Actions Rescinded: N/A

#### V. LOCAL AGENCY REPRESENTATIVE DATA

Name: Chuck Pryatel	0 and	Title: Chief Site Assessment and Mitigation
Signature:	Cant	Date: 7-10-97
Hydrogeologist Concurrence:	KmH	Date: 7/8/97

#### VI. RWQCB NOTIFICATION

Date submitted to the RWQCB: 02/14/1997	RWQCB Response date: 03/26/1997
RWQCB Staff: John Odermatt	Title: Associate Engineering Geologist

#### VII. ADDITIONAL COMMENTS, DATA, ETC.

Site included only soil area up to the rip-rap. The site did not include the rip rap area or any portion of the San Diego Bay. The California Department of Fish and Game should be contacted if any activity is considered for the bay area (sediments, and eel grass).

This document and the related CASE CLOSURE LETTER, shall be retained by the lead agency as part of the official site file.

H29785-001

## Appendix D

FHWA Roadway Construction Noise Model User's Guide



U.S. Department of Transportation

### Federal Highway Administration

FHWA Roadway Construction Noise Model User's Guide

FHWA-HEP-05-054 DOT-VNTSC-FHWA-05-01 **Final Report** January 2006





### Prepared for

U.S. Department of Transportation Federal Highway Administration Office of Environment and Planning Washington, DC 20590 Prepared by U.S. Department of Transportation Research and Innovative Technology Administration John A. Volpe National Transportation Systems Center Acoustics Facility Cambridge, MA 02142

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REPORT D	OCUMENTATION PA	GE	ON	Form Approved /B No. 0704-0188
Public reporting burden for t including the time for review the data needed, and complet: this burden estimate or any o reducing this burden, to Wash Reports, 1215 Jefferson Davis Management and Budget, Paperw	this collection of informatic ving instructions, searching ing and reviewing the collect other aspect of this collect ington Headquarters Services & Highway, Suite 1204, Arling vork Reduction Project (0704-	on is estimated to ave existing data sources ion of information. on of information, in s, Directorate for Inf ton, VA 22202-4302, a 0188), Washington, DC	rage 1 , gathe Send co cluding ormatic nd to t 20503.	hour per response, ering and maintaining mmments regarding suggestions for n Operations and he Office of
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE January 2006		3. REI Fina Janu	PORT TYPE AND DATES COVERED 1 Report ary 2004-January 2006
4. TITLE AND SUBTITLE FHWA Roadway Construction Noi	se Model, Version 1.0 User's	Guide	5. FUN HW-6	ding numbers 6/cs036
6.AUTHOR(S) Reherman, Clay N. <sup>(3)</sup> , Rochat, Michael C. <sup>(3)</sup> Fleming, Gregg Christopher <sup>(1)</sup>	Judith L. <sup>(3)</sup> , Thalheimer, Eric G. <sup>(3)</sup> , Ferroni, Mark <sup>(1)</sup> , Corbis	ch S. <sup>(2)</sup> , Lau, ier,		
7. PERFORMING ORGANIZATION NAME(S) AND U.S. Department of Transports	ADDRESS(ES)		8. PEF REF	RFORMING ORGANIZATION PORT NUMBER
Research and Innovative Techr John A. Volpe National Transp Environmental Measurement and Cambridge, MA 02142	ology Administration ortation Systems Center Modeling Division, DTS-34		DOT-'	VNTSC-FHWA-05-01
<ol> <li>SPONSORING/MONITORING AGENCY NAME(S U.S. Department of Transporta</li> </ol>	) AND ADDRESS(ES)		10. SE AG	PONSORING/MONITORING GENCY REPORT NUMBER
Federal Highway Administratic Office of Environment and Pla Washington, DC 20590	nning		FHWA	-HEP-05-054
<ol> <li>SUPPLEMENTARY NOTES         <ol> <li>U.S. Department of Transportation Federal Highway Administration Office of Environment and Planning Washington, DC 20590</li> </ol> </li> </ol>	(2) Parsons Brinckerhoff Quade & Doug 75 Arlington St. Boston, MA 02116	plas Inc. (3) U.S. Departmen Research and Innov John A. Volpe Nati Environmental Meas Cambridge, MA 021	t of Tran ative Tec onal Tran urement a 42	sportation hnology Administration sportation Systems Center nd Modeling Division
12a. DISTRIBUTION/AVAILABILITY STATEME This document is available to Information Service, Springfi	NT ) the public through the Nati .eld, VA 22161	onal Technical	12b. I	DISTRIBUTION CODE
13. ABSTRACT (Maximum 200 words)				
The Roadway Construction Noise for the prediction of construct proximity to residences and but on surrounding communities. projects' progress. Each pro contractor's need to progress t	e Model (RCNM) is the Federa ction noise. Due to the fa sinesses, construction noise In addition to community iss oject needs to balance the che work.	al Highway Administra ct that construction must be controlled ar sues, excessive noise community's need fo	tion's is oft nd moni can th r peace	(FHWA) national model en conducted in close tored to avoid impacts nreaten a construction e and quiet with the
During the Central Artery/Tur program developed the Constr specification ever developed i construction noise prediction s state and local governments, calculations and equipment d construction noise screening t noise limits for a variety of c	anel (CA/T) project in Bos uction Noise Control Speci n the United States. As p spreadsheet was developed. I the FHWA developed the atabase used in the CA/T col to easily predict constr construction noise projects of	ton, Massachusetts, fication 721.560, th art of the CA/T proje Because the CA/T predi RCNM, which is base prediction spreadshe ruction noise levels a of varying complexity.	the property of the property o	oject's noise control c comprehensive noise se control program, a tool can benefit other the noise prediction The RCNM provides a ermine compliance with
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Standard Form 298(Rev. 2-89) Prescribed by ANSI Std. 239-18 298-102

METRIC/ENGLISH CO	INVERSION FACTORS
ENGLISH TO METRIC	METRIC TO ENGLISH
LENGTH (APPROXIMATE)	LENGTH (APPROXIMATE)
1 inch (in) = 2.5 centimeters (cm)	1 millimeter (mm) = 0.04 inch (in)
1 foot (ft) = 30 centimeters (cm)	1 centimeter (cm) = 0.4 inch (in)
1 yard (yd) = 0.9 meter (m)	1 meter (m) = 3.3 feet (ft)
1 mile (mi)  =  1.6 kilometers (km)	1 meter (m)  =  1.1 yards (yd)
	1 kilometer (km) = 0.6 mile (mi)
AREA (APPROXIMATE)	AREA (APPROXIMATE)
1 square inch (sq in, in <sup>2</sup> ) = 6.5 square centimeters (cm <sup>2</sup> )	1 square centimeter (cm <sup>2</sup> ) = 0.16 square inch (sq in, in <sup>2</sup> )
1 square foot (sq ft, $ft^2$ ) = 0.09 square meter (m <sup>2</sup> )	1 square meter (m <sup>2</sup> ) = 1.2 square yards (sq yd, yd <sup>2</sup> )
1 square yard (sq yd, yd²) = 0.8 square meter (m²)	1 square kilometer (km²) = 0.4 square mile (sq mi, mi²)
1 square mile (sq mi, mi <sup>2</sup> ) = 2.6 square kilometers (km <sup>2</sup> )	10,000 square meters $(m^2) = 1$ hectare (ha) = 2.5 acres
1 acre = 0.4 hectare (he) = 4,000 square meters $(m^2)$	
MASS – WEIGHT (APPROXIMATE)	MASS – WEIGHT (APPROXIMATE)
1 ounce (oz) = 28 grams (gm)	1 gram (gm) = 0.036 ounce (oz)
1 pound (lb) = 0.45 kilogram (kg)	1 kilogram (kg) = 2.2 pounds (lb)
1 short ton = 2,000 = 0.9 tonne (t) pounds (lb)	1 tonne (t) = 1,000 kilograms (kg) = 1.1 short tons
1 teaspoon (tsp) = 5 milliliters (ml)	1 milliliter (ml) = 0.03 fluid ounce (fl.oz)
1 tablospoon (tbsp) = 15 millilitors (ml)	1  liter  (1) = 2.1  pints  (nt)
1 fluid ounce (fl oz) $=$ 30 milliliters (ml)	1  liter (l) = 1.06  guarts (at)
1 cup $@ = 0.24$ liter (I)	1 liter (I) = 0.26 gallon (gal)
1  pint (nt) = 0.47  liter (l)	
1  guart (gt) = 0.96  liter (l)	
1  gallon (gal) = 3.8  liters (l)	
1 cubic foot (cu ft, ft <sup>3</sup> ) = 0.03 cubic meter (m <sup>3</sup> )	1 cubic meter ( $m^3$ ) = 36 cubic feet (cu ft. ft <sup>3</sup> )
1 cubic yard (cu yd, yd <sup>3</sup> ) = 0.76 cubic meter (m <sup>3</sup> )	1 cubic meter (m <sup>3</sup> ) = 1.3 cubic yards (cu yd, yd <sup>3</sup> )
[(x-32)(5/9)] °F = y °C	$[(9/5) y + 32] \circ C = x \circ F$
QUICK INCH - CENTIMET	ER LENGTH CONVERSION
0 1 2	3 4 5
Centimeters $\frac{1}{0}$ 1 2 3 4 5	6 7 8 9 10 11 12 13
QUICK FAHRENHEIT - CELSIUS TEMP	PERATURE CONVERSION
°F -40°22° -4° 14° 32° 50° 68°	° 86° 104° 122° 140158176194212°
°C-40°30° -20° -10° 0° 10° 20°	
For more exact and or other conversion factors, see NIST Misc	ellaneous Publication 286, Units of Weights and Measures.
Price \$2.50 SD Catalog No. C13 10286.	Updated 6/17/98

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#### 1 Introduction

The Roadway Construction Noise Model (RCNM) is the Federal Highway Administration's (FHWA) national model for the prediction of construction noise. Due to the fact that construction is often conducted in close proximity to residences and businesses, construction noise must be controlled and monitored to avoid impacts on surrounding communities. In addition to community issues, excessive noise can threaten a construction project's progress. Each project needs to balance the community's need for peace and quiet with the contractor's need to progress the work.

The Central Artery/Tunnel (CA/T) project in Boston, Massachusetts, which began in the early 1990s, is the largest urban construction project ever conducted in the United States. Its noise control program developed the Construction Noise Control Specification 721.560, the most comprehensive noise specification ever developed in the United States [1]. As part of the CA/T project noise control program, a construction noise prediction spreadsheet was developed [2]. Because the CA/T prediction tool can benefit other state and local governments, the FHWA developed the RCNM, which is based on the noise prediction calculations and the equipment database used in the CA/T prediction spreadsheet. The RCNM provides a construction noise screening tool to easily predict construction noise levels and to determine compliance with noise limits for a variety of construction noise projects of varying complexity.

#### 2 Background

The RCNM is a national model based on the noise calculations and extensive construction noise data compiled for the CA/T Project. The basis for the national model is a spreadsheet tool developed in support of the CA/T project [2]. The CA/T predictions originated from Environmental Protection Agency (EPA) noise level work [3] and an Empire State Electric Energy Research Corp. Guide [4] which utilizes an "acoustical usage factor" to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation. Table 1 presents a construction equipment noise database compiled through the CA/T project [2]. This database is used to predict construction noise within the RCNM. The noise levels listed represent the A-weighted maximum sound level (Lmax), measured at a distance of 50 feet from the construction equipment.

revised: 7/26/05		Acoustical	Spec 721.560	Actual Measured	No. of Actual
	Impact	Use Factor	Lmax @ 50ft	Lmax @ 50ft	Data Samples
Equipment Description	Device ?	<u>(%)</u>	(dBA, slow)	(dBA, slow)	(Count)
				(samples averaged)	
All Other Equipment > 5 HP	No	50	85	N/A	0
Auger Drill Rig	No	20	85	84	36
Backhoe	No	40	80	78	372
Bar Bender	No	20	80	N/A	0
Blasting	Yes	N/A	94	N/A	0
Boring Jack Power Unit	No	50	80	83	1
Chain Saw	No	20	85	84	46
Clam Shovel (dropping)	Yes	20	93	87	4
Compactor (ground)	NO	20	80	83	57
Compressor (air)	NO	40	80	78	18
Concrete Batch Plant	NO No	15	83	N/A	0
Concrete Mixer Truck	NO	40	80	79	40
Concrete Pump Truck	NO	20	82	00	30
Crano	No	20	90	90	
Dozer	No	10	85	82	403
	No	20	84	70	22
	No	50	80	80	1
	No	40	84	76	31
Excavator	No	40	85	81	170
Flat Bed Truck	No	40	84	74	4
Front End Loader	No	40	80	79	. 96
Generator	No	50	82	81	19
Generator (<25KVA, VMS signs)	No	50	70	73	74
Gradall	No	40	85	83	70
Grader	No	40	85	N/A	0
Grapple (on backhoe)	No	40	85	87	1
Horizontal Boring Hydr. Jack	No	25	80	82	6
Hydra Break Ram	Yes	10	90	N/A	0
Impact Pile Driver	Yes	20	95	101	11
Jackhammer	Yes	20	85	89	133
Man Lift	No	20	85	75	23
Mounted Impact Hammer (hoe ram)	Yes	20	90	90	212
Pavement Scarafier	No	20	85	90	2
Paver	No	50	85	77	9
Pickup Truck	No	40	55	75	1
Pneumatic Tools	No	50	85	85	90
Pumps	No	50	77	81	17
Refrigerator Unit	NO	100	82	73	3
Rivit Buster/cnipping gun	Yes	20	85	79	19
ROCK DIIII	NO	20	85	81	3
Sand Placting (Single Nozzle)	No	20	85	06	10
Sanu Blasting (Single Nozzie)	No	20	85	90	9 12
Shears (on backhoe)	No	40	85	96	5
Slurry Plant	No	100	78	78	1
Slurry Trenching Machine	No	50	82	80	75
Soil Mix Drill Rig	No	50	80	N/A	0
Tractor	No	40	84	N/A	0
Vacuum Excavator (Vac-truck)	No	40	85	85	149
Vacuum Street Sweeper	No	10	80	82	19
Ventilation Fan	No	100	85	79	13
Vibrating Hopper	No	50	85	87	1
Vibratory Concrete Mixer	No	20	80	80	1
Vibratory Pile Driver	No	20	95	101	44
Warning Horn	No	5	85	83	12
	No	40	73	74	5

**Table 1.** CA/T equipment noise emissions and acoustical usage factors database.

### 3 The RCNM

The RCNM is a computer program used to assess construction noise impacts. The computer on which it is installed should be equipped with the Microsoft Windows 98 or newer operating system (OS) and 192 MB or more of random access memory (RAM). The display should be set to  $1024 \times 768$  pixels or greater, and the computer should carry the Adobe Acrobat 4.0 or newer software.

The RCNM allows the estimation of three key metrics of interest: Lmax, Leq, and L10 at receptor locations for a construction operation that can include up to 20 pieces of equipment. RCNM allows for user-defined construction equipment and user-defined noise limit criteria. The two main uses of the RCNM are to allow typical computer users to: 1. easily predict noise emissions from construction equipment, and 2. determine a construction work plan's compliance with noise criteria limits. A variety of construction work scenarios can be created quickly, allowing the user to determine the impact of changing construction equipment and adding/removing the effects of shielding due to noise mitigation devices such as barriers.

#### 3.1 RCNM Main Page

The RCNM consists of one main display page with Input Data and Results sections, shown in Figure 1.

	nu		- 10 K																
n		Case Do	escription																
Hece	eptor					D		Function	MG.	de Minera	•		Noise	Metric:	L10	•			
		Description		example Inf Land idential 31 in C17AI	Use	B	aseline (dBA)	Baseline (dBA)	Ba	iseline BA)	-			loise Lin	nit Criter	ia )			
1	N-231 i	n C17A6	Residen	ntial		-	78.0	75.	0	71.0	0			L10 Ca	lculatio	n			
2						-			_		_		-						
3	-					-					-				Recep	tor #1			
4	w/								- 20						Noise	Limite	10		
Equi	pment	Receptor	#1: N-231 i	in C17A	6														
	Active	Desc	ription		Impact Device	Usage(%	)	Spec Lmax (dBA)			Actua Lmax (dBA)	4	Distance to Receptor (feet)	Estima Shieldi (dBA	ted 📥				
1	V	Compactor (ground)		-		20	1% 🗐		80.0	V	1	83.2	50.0	1	0.0				
2		Concrete Saw			oundy			20	)% 🗐		90.0	V		89.6	50.0	)	0.0		
3	V	Dozer		-		40	)% 🗐		85.0	V		81.7	50.0	)	0.0				
4	V	Flat Bed Truck		-	-	40	)% 📃		84.0			74.3	50.0	)	0.0				
5	V	Excavator		-		40	)% 🔳		85.0	V		80.7	50.0	0	0.0				
6	101			-	-		10			-					•				
lts						Rece	eptor #1:	N-231 in	C17A	6									
			Calculated	- (dBA)			Noise Lin	nits (dBA)					Noise	Limit Exce	edance (	(ABB	J.		
		Calculated (dBA)		D	av	Eve	ninq		Night		D	ay	Even	ing	Nig	ht			
		Equipment	Lmax*	L10	Lmax	L10	Lmax	L10	Lmax	L	10	Lmax	L10	Lmax	L10	Lmax	L10		
0	ompactor	rotal	03.0	79.2	95.0	03.0	00.U	90.0	00	0	74.0	4.b	0.3 None	4.0	0.3	3.6	14.3		
	ompactul oncrete 9	(ground) Saw	89.6	85.6	85.0	83.0	85.0	80.0	20	0	74.0	1000	26	4.6	56	9.6	11.6		
	07er		81.7	80.7	85.0	83.0	85.0	80.0	80	0	74.0	None	None	None	0.7	1.7	6.7		
	LID IT	ruck	74.3	73.3	85.0	83.0	85.0	80.0	80	.0	74.0	None	None	None	None	None	None		
D	аг вед т			. 0.0	05.0	00.0	05.0	00.0	00	0	74.0	Mana	None	Mone	None	0.7	E 7 .		
D	at Bed 1 xcavator		80.7	79.7	85.0	83.0	85.0	80.0	00	.0.	74.01	NUME	NONE	NONE	1400161	0.71	3.7		

Figure 1. The RCNM main page

Several command buttons and pull-down menus allow the user to modify the input data before results are calculated by the model.

#### 3.1.1 File Menu

The <File> menu, shown in Figure 2, contains items that allow the user to create, open, and save a case, export the results of a case, and exit the program.



Figure 2. <File> Menu

- <New> creates a new case. If a case is currently open, the user is prompted to save it before closing.
- <Open...> allows the user to open an existing case file ([name].cas).
- <Save> saves the case with the current filename. If this is a new case, the user is asked for a new filename ([name].cas).
- <Save As...> The user is asked for a filename for a new case ([name].cas) and saves the case with that filename.
- <Export Results> prompts the user to save the case results for the current or all receptors to a comma separated value (CSV) file with the following naming convention: [name].csv. This type of file is easily read into a spreadsheet program. The user can also save the case results to a text file (TXT), which saves the results to a space-separated text format with the following naming convention: [name].txt.
- <Exit> closes the application. If changes have been made to the open case, the user is asked if he/she would like to save the case.

### 3.1.2 Edit Menu

The <Edit> menu, shown in Figure 3, allows the user to copy and paste data, delete data, and undo changes.



**Figure 3.** <Edit> Menu

- <Copy> lets the user copy into a clipboard the contents of a single cell or an entire line from an RCNM dialogue box.
- <Paste> lets the user copy the contents of the clipboard into a single cell or an entire line of an RCNM dialogue box.
- <Delete> lets the user delete from the case a receptor or piece of equipment selected in the receptor or equipment dialogue box.
- <Undo> lets the user revert the RCNM one step to where it was before the latest change was made.

#### 3.1.3 View Menu

The <View> menu, shown in Figure 4, allows the user to focus in <Zoom +> on either the Input Data or Results section of the RCNM's main page. To activate Zoom +, click on Zoom + and guide the spyglass + icon to either Input Data or Results and single-click.



Figure 4. <View> Menu

To deactivate Zoom + and go back to the full RCNM screen, click on <math>Zoom - and guide the spyglass - icon to the Input Data or Results section that has been maximized on the screen.

### 3.1.4 Options Menu

The <Options> menu, shown in Figure 5, allows the user to modify the equipment list and change the case's units of measure from feet to meters.

Roadway Construction Noise Model (RCNM)						
File	Edit	View	Options	Help		
	⊢Input D		Modify	Modify the Equipment List		
	•		Units		۲	iption:
	Receptor					
				Description		Land

Figure 5. <Options> menu

The <Options> menu allows the user to add new types of equipment to the equipment list. The equipment list modification dialogue box, shown in Figure 6, allows the user to specify a user-defined piece of equipment and add it. The user can specify the following
data: whether the equipment is an impact device, the equipment's usage factor<sup>1</sup>, and the equipment's Lmax level (spec and/or actual<sup>2</sup>). The user can also delete equipment that's been added by selecting it and clicking the delete button. The default equipment cannot be modified, but it may be deleted entirely from the case by selecting it and clicking the delete button. Selecting the default button restores the default equipment list (from the CA/T Project) and eliminates any user-defined equipment.

		1 9		0	A.1.1	
-	Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	
E			0% N	1/A I	N/A	
1	All Other Equipment > 5 HP		50%	(dBA) 85.0	(dBA) N/A	
1	All Other Equipment > 5 HP		50%	85.0	) N74	5
2	Auger Drill Hig Backhoe		20%	85.0	) 84.4 ) 77.6	1
4	Bar Bender		20%	80.0	N/4	, ,
-	Blasting	V	1%	94.0	) N/A	-

Figure 6. Equipment list modification dialogue box

Data for user-defined pieces of equipment may be saved to an equipment file ([name].equ), along with all other equipment in the current list, including default equipment. This file may be opened in other cases to incorporate these pieces of equipment.

The <Options> menu, as shown in Figure 7, also allows the user to change the case's units of measure from feet to meters or from meters to feet. The only input data affected by this tool are the Distance to Receptor values.

<sup>&</sup>lt;sup>1</sup> Usage factor is the percentage of time during a construction noise operation that a piece of construction equipment is operating at full power. In the case of construction blasting, the equipment gives a very short duration blast, and can be quantified by using a 1% usage factor in the RCNM to allow for some prediction. Never use a usage factor of zero because the log of zero causes a mathematical impossibility. The usage factor term only affects the computation of Leq and L10. The usage factor does not enter into the equation when calculating the more important term for blasting, that being the Lmax.

<sup>&</sup>lt;sup>2</sup> "Spec" refers to noise levels stated in noise specifications, and "Actual" refers to Lmax values measured at 50 ft from the equipment.



Figure 7. Units modification pull-down menu

#### 3.1.5 Help Menu

The <Help> Menu loads for the user the RCNM User's Guide in Portable Document Format (PDF). This PDF is searchable by key word using the Adobe Acrobat Edit / Find search tool.

#### 3.2 Input Data

The user is required to input receptor data and equipment data before a case can be processed. The user is advised to type in some summary comments about the case in the Case Description dialogue box before inputting data. Also, in order to determine noise limit exceedance values, the user can input noise limit criteria.

#### 3.2.1 Receptors

Multiple receptors may be input for a case, but only one receptor may be processed at a time. The name of the highlighted receptor chosen for processing appears in blue type above the Equipment input dialogue box and the Noise Limits command button (see Figure 1). The user specifies the receptors for a study by entering information into the Receptors input box in the main window of the RCNM. The user is required to enter the receptor name, land use, daytime baseline L10 or Leq, evening baseline L10 or Leq, and nighttime baseline L10 or Leq. The baseline levels indicate the sound level at a receptor before any construction noise contributions. Baseline levels are only necessary if the desired noise criteria limits are based on *relative* increases in noise level. If the desired noise criteria limits are based on the user should insert a placeholder number other than zero.

When entering information for more than one receptor, it may be desirable to copy information already entered. An entire receptor row may be highlighted and copied to another row, where copying multiple rows requires the selection of the same number of rows when pasting (this same functionality also applies to editable cells). Note: Entire rows may be selected by clicking on the row number.

Again, the RCNM will only calculate results for the receptor displayed in blue type in the Input Data portion of the main page. The results for other receptors may be displayed by selecting the desired receptor in the Receptor window; to select a receptor, click in any cell in the row. Up to 100 receptors may be included in any case. Information for receptors is saved in the case file ([name].cas).

#### 3.2.2 Equipment

Core equipment noise data are stored in the RCNM and are accessible by a pull-down menu in the main page, as in Figure 8.

444	Active	Description	Impact Device	Usage(%)	Sp Lr (dl	pec nax BA)	Act Lm (dB	tual nax 3A)	Distance to Receptor (feet)	Estimated . Shielding (dBA)
1	1	Compactor (ground)		20%		80.0	V	83.2	50.0	0.0
2		Concrete Saw		20%		90.0	V	89.6	50.0	0.0
3		Dozer 🗸		40%		85.0	V	81.7	50.0	0.0
4		Flat Bed Truck		40%		84.0	V	74.3	50.0	0.0
5	V	Excavator 👻		40%		85.0	V	80.7	50.0	0.0
6		Crane Dozer Drill Rig Truck Drum Mixer Dump Truck Excavator								

Figure 8. Equipment dialogue box, with pull-down menu shown

As discussed in Section 3.1.4, new pieces of equipment may be added to a case and saved in an equipment file ([name].equ). When the user-defined equipment file is opened through the <Options> / <Modify the Equipment List> menu, user-defined equipment will appear in the equipment pull-down menu. The user activates and inactivates chosen equipment types by ticking and unticking the "Active" checkbox. The user is required to specify:

- 1. The type of reference emission levels to use ("Spec", if applicable, or "Actual", [the default is "Actual"]);
- 2. Distance to Receptor that is, the distance between each type of equipment and the receptor being analyzed (the default distance is 50 feet); and
- 3. Estimated Shielding (in dBA) associated with each type of equipment (can leave the default value of 0.0 when not considering shielding). NOTE: A Best Practices document is presented in Appendix A showing how to determine Estimated Shielding using several Rules of Thumb developed from experience at the CA/T project.

When entering information for more than one piece of equipment, it may be desirable to copy information already entered. An entire equipment row may be highlighted and copied to another row, where copying multiple rows requires the selection of the same number of rows when pasting (this same functionality also applies to editable cells). Note: Entire rows may be selected by clicking on the row number.

The user may analyze up to 20 pieces of equipment at one time, and they may be included in any combination of different or identical equipment types.

#### 3.2.3 Noise Metric and Noise Limit Criteria

While a case is open, the user can choose a noise metric (for baseline levels, noise limits, and calculated results) and enter the noise limit criteria for a local area. The user may edit the Lmax and L10 or Leq day, evening, and night noise limit criteria for a residential, commercial, or industrial area. Daytime, evening, and nightime may represent any time periods the user wishes, but they are typically defined as 7 AM to 6 PM, 6 PM to 10 PM, and 10 PM to 7 AM, respectively. The criteria, used together with the baseline sound levels, define the noise limits for each receptor. CA/T Noise Limit Criteria are used as a default [1], but users may input their own criteria. The RCNM offers a metric pull-down menu and two or three command buttons to the right of the Receptor input dialogue box.

• Metric Pull-Down Menu

A pull-down menu allows the user to choose between the L10 or Leq metric, as in Figure 9. The chosen metric represents that used for the baseline levels, noise limits, and calculated results. For the noise limits and calculated results, Lmax values are also included.



Figure 9. Noise Metric pull-down menu

• Noise Limit Criteria Pop-up Dialogue Box

A pop-up dialogue box allows the user to specify Noise Limit Criteria information for an area being studied in a case, as in Figure 10. The flexibility of the Noise Limit Criteria allows RCNM users to incorporate criteria based on local noise ordinances and baseline levels measured for each receptor.

	Description		Land Use		Daytime Baseline (dBA)	Evening Baseline (dBA)	Nighttime Baseline (dBA)			Noise Limil	Criteria	
7		Comme	ercial	-	78.0	77.0	75.0			L10 Calo	ulation	
	Noise Limit C	riteria									MIC7	
	Lmax (dBA)										Noise Lin	nits
		D	ay	Eve	ning	Ni	aht					
		Impact	Non-Impact	Impact	Non-Impact	Impact	Non-Impact		otual	Distance	to Estim	onto
v .	Residential	Value	Value	Value	Value	Value	Value		max	Becept	or Shiel	Idina
	Commercial	N/A	N/A	N/A	N/A	N/A	N/A		IBA)	(feet)	(dE	3A)
	Industrial	N/A	N/A	N/A	N/A	N/A	N/A					
	L10 (dBA)	r	lau	Ev	enina	N	iaht	1				
		Impact	Non-Impact	Impact	Non-Impact	Impact	Non-Impact					
	Residential	Exempt	Maximum	Baseline+	Baseline+	Conditional	Conditional					
	Commercial	Exempt	Maximum	N/A	N/A	N/A	N/A					
	Industrial	Exempt	Maximum	N/A	N/A	N/A	N/A					
		Γ				]						
										Nois	e Limit Exc	eed
										Day	Ever	ninq
			[[[[]]]						Lmax	L10	Lmax	L
			L	Car	ncei							
Þ									/A  N//	Al Exempti	N/AL	1

Figure 10. Noise Limit Criteria pop-up dialogue box

The user may populate this dialogue box with Noise Limit Criteria information derived from CA/T Construction Noise Control Spec. 721.560 [1] by clicking on the "Default" command button and clicking "Yes" when asked to load information from the default file, which is stored in the RCNM (see Table 2).

	Daytime (7	AM to 6 PM)	Evening (6 PM	M to 10 PM)	Nighttime (10	PM to 7 AM)
Land Use	L10 Limit (dBA)	Lmax Limit (dBA)	L10 Limit (dBA)	Lmax Limit (dBA)	L10 Limit (dBA)	Lmax Limit (dBA)
Residential	maximum of 75 and baseline + 5 for non- impact <sup>*</sup> and exempt for impact <sup>**</sup>	85 for non- impact and 90 for impact	baseline + 5	85	if baseline <70 then baseline +5; if baseline ≥70 then baseline + 3	80
Commercial	maximum of 80 and baseline + 5 for non- impact and exempt for impact	N/A	N/A	N/A	N/A	N/A
Industrial	maximum of 85 and baseline+5 for non-impact and exempt for impact	N/A	N/A	N/A	N/A	N/A

 Table 2. Default Noise Limit Criteria

Non-impact equipment is equipment that generates a constant noise level while in operation.

<sup>\*\*</sup> Impact Equipment is equipment that generates impulsive noise. Impulse Noise is defined as noise produced by the periodic impact of a mass on a surface, of short duration (generally less than one second), high intensity, abrupt onset and rapid decay, and often rapidly changing spectral composition.

Otherwise, the user may clear any information present in the dialogue box and specify new data in each cell. Clicking on the "Clear" command button will prompt the user to set all the cells in the dialogue box to Not Applicable (N/A), as in Figure 11. By clicking "Yes," the user will populate all cells with N/A; by clicking "No," the dialogue box will return to the data present before the user clicked "Clear."



Figure 11. The Noise Limit Criteria "Clear" command button

Clicking on any cell in the Noise Limit Criteria dialogue box reveals a Noise Limit Criteria pull-down menu. Click on this pull-down menu to access the six options, as in Figure 12.

D	Ca	ase Description						_						_	
Hece	ptor	a.			- 1	~ 1.					Noise	e Metric:	L10	-	
	Noise Limit Crit	teria					l					Noise Lin	nit Criter	ia	
$\frac{1}{2}$	Lmax (dBA)											L10 Ca	lculation	n	
3		Day		Evenin	q		Night						Becen	tor #1	
4		Impact Non-Imp	act In	npact N	on-Impact	Impact	Non-I	mpact	-						1
	Residential	Value Value	· V	alue	Value	Value	Va	lue					Noise	Limits	
Ear	Commercial	N/A N/A	3 1 8	N/A	20										
2 3 4 5 6	Residential Commercial Industrial	Day Impact Non-Im Exempt Maxim Exempt Maxim Exempt Maxim Open	um Ba um um Um	Eve mpact iseline+ N/A N/A Clear	Default				Ok	Cance	1				
лца —			OK	Cancel	IJ					Day	Noise	Limit Exce Even	edance (c	1BA) Nigh	nt 🔺
	Equipment	Lmax*	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10	Lmax	L10
1 0	l otal	89.6	88.3	85.0	83.0	85.U 95.0	80.0	80.0	74.0	4.6 Mono	5.3 None	4.6	8.3 None	9.6	14.3
2 0	ompactor (ground) oncrete Saw	89.6	73.2	85.0	83.0	85.0	80.0	80.0	74.0	4.6	2.6	4.6	5.6	3.2	11.6
	ozer	81.7	80.7	85.0	83.0	85.0	80.0	80.0	74.0	None	None	None	0.7	1.7	6.7
3 D	at Bed Truck	74.3	73.3	85.0	83.0	85.0	80.0	80.0	74.0	None	None	None	None	None	None
3 D 4 Fi		80.7	79.7	85.0	83.0	85.0	80.0	80.0	74.0	None	None	None	None	0.7	5.7 🔻
3 D 4 Fi 5 E	cavator	00.1													

Figure 12. Noise Limit Criteria pull-down menu

Through these six options, the user specifies what Noise Limit Criteria changes, if any, are desirable in each cell. The six cell options are:

- i. Exempt (for the specified metric and land use, the equipment is exempt from noise limits)
- ii. N/A (for the specified metric and land use, the equipment does not have applicable noise limits)
- iii. Value (user is prompted to enter a value for which the noise level should not exceed), as in Figure 13:

			Noise Limit Criteria
	Evening	Night	MIC7
Impact	Impact Non-Impact	Impact Non-Impact	Noise Limits
- De la companya de l			×
N M n a a	akue 🔽 Value	2 =  35 dBA	Distance to Receptor (feet) (dBA)
a		UK Lancel	
pen (	Gave Clear Default		

Figure 13. Noise Limit Criteria "Value" dialogue box

iv. Maximum (set value for which a noise level should not exceed to the maximum of two possible levels: A user-defined level or the Baseline level plus some user-defined increment), as in Figure 14:

-Impact	Evenino Impact No	a on-Impact	Ni	aht Non-Impact			Noi	ise Limit Cr .10 Calcula	iteria Ition MIC7
							×	Noi	se Limits
¥    ∴aa	aximum 🔽	Valu	ie = Maxim	umum of or Bas	dBA eline +	dBA		Distance to Receptor (feet)	Estimate Shieldin (dBA)
			01	K Cano	:el				
pen :	Save Clear	Default			-				

Figure 14. Noise Limit Criteria "Maximum" dialogue box

v. Baseline + (set value for which a noise level should not exceed to the Baseline level plus some user-defined increment), as in Figure 15:

						Noi L	ise Limit Cr .10 Calcula	iteria Ition
	Eve	ning	Ni	ight				MIC7
n-Impact	Impact	Non-Impact	Impact	Non-Impact			Noi	se Limits
/a 🔊						$\times$		
	aseline+ 💌	]	'alue = Bas	eline + 🗌 di	BA		Distance to Receptor (feet)	Estimate Shieldin (dBA)
n la la			0	k Cancel				
pen !	Save Clea	ar Default						

Figure 15. Noise Limit Criteria "Baseline +" dialogue box

vi. Conditional (set conditional value for which a noise level should not exceed; the user is prompted to enter the following information: 1. a comparison value, i.e., "If Baseline < [value], then ..."; 2. an increment value to add to the baseline level if the baseline level is *less than* the comparison value; 3. an increment value to add to the baseline level if the baseline level is *greater than or equal to* the comparison value), as in Figure 16:

w Non-Impact	Eve Impact	ning Non-Impact	Night Impact Non-Impact		oise Limit Cri L10 Calcula	iteria tion MIC7
	nditional 💌	lf Ba Else	seline < / dBA The Value = Baseline + / Value = Baseline + / Ok Cancel	n dBA dBA	Distance to Receptor (feet)	Estimate Shieldin; (dBA)
Open	Save Clea	r Default				

Figure 16. Noise Limit Criteria "Conditional" dialogue box

To see the current value of a cell, simply hold the mouse pointer over the cell. Once the user has specified values for all the cells in the Noise Limit Criteria dialogue box, these criteria can be saved in a criteria file ([name].cri) by clicking on the "Save" command button. The user will be prompted to give the criteria file a name. These criteria can thereafter be loaded into any case by clicking on the "Open" command button.

The user returns to the Noise Limit Criteria dialogue box by clicking "Ok", and returns to the case by clicking "Ok" again.

• L10 Calculation (this button is present if the L10 metric is chosen)

By clicking on the "L10 Calculation" command button, the user can specify the adjustment factor used to calculate L10, as in Figure 17. By clicking the "Default" command button, the user automatically calls for an adjustment factor of 3 dBA, a value empirically derived from extensive CA/T Project data [2].

Rec		Case D	escription						_							
	eptor							P .	AF LIC			Noise	e Metric:	L10	•	
		Description		Land	Use	B	aseline (dBA)	Evening Baseline (dBA)	Baselir (dBA)	ne -			Noise Lir	nit Criter	ia	
1	N-231 i	n C17A6	Reside	ential		-	78.0	75.	0 3	71.0			L10 Ca	alculatio	n	
2						-				_					-	
3	-					-								Recep	tor #1	
4	8						9		10					Noise	Limits	
Fau	inment	Recepto	r #1: N-231	in C17A	6		L10 Ad	justmen	t							
E qu	pment				-	-							E aliana			
	Active	De	scription		Impact Device	Usag		L10 =	Leq +	3.0 dBA	<b>`</b>		Shield (dBA	ing		
1	V	Compactor (ground	d)	•										0.0		
2	1	Concrete Saw		-					-					0.0		
3	Ľ	Dozer					OK	Cance	al Di	efault			0.0			
4	1	Flat Bed Truck		-				·	<u> </u>					0.0		
	-												<b>F</b>	0.0		
5	1.00	Excavator		-		Ļ		-	00.0		00.1	50	1	0.0		
5		Excavator		•					00.0		00.1		1	0.0		
5 6 ults		Excavator		* *		Rece	eptor #1:	N-231 in	C17A6		00.1			0.0		
5 6 الد		Excavator	Calculat	• •		Rece	eptor #1: Noise Lim	N-231 in its (dBA)	C17A6	1	00.1	Noise	Limit Exce	edance (	IBA)	
5 6 ults		Excavator	Calculat	ed (dBA)	De	Reco	eptor #1: Noise Lim Ever	N-231 in its (dBA)	C17A6	t	Day	Noise	Limit Exce Even	edance (	JBA) Nigł	nt
JIts		Equipment	Calculat Lmax*	ed (dBA)	Da	Reco	eptor #1: Noise Lim Ever	N-231 in its (dBA) L10	C17A6 Niał	t 110 74 0	Day	Noise	Limit Exce Even	redance (r	IBA) Nigł Lmax	it L10
JIts	Compariso	Excavator Equipment Total [cround]	Calculat Lmax* 89.6 83.2	• • • (dBA) L10 88.3 79 2	Da Lmax 85.0	Reco W L10 83.0 83.0	eptor #1: Noise Lim Ever Limax 85.0	N-231 in Its (dBA) L10 80.0 80.0	C17A6 Nigh Lmax 80.0	t L10 74.0	Day Lmax A.6	Noise , L10 5.3	Limit Exce Even Lmax 4.6 None	edance (r ing L10 8.3 Nore	IBA) Niqi Lmax 9.6 3.2	t L10 14.3 52
1 (0 2 (1	Compactor	Excavator Equipment Total (ground) aw	Calculat Lmax* 89.6 83.2 89.6	ed (dBA) L10 88.3 79.2 85.6	Da Lmax 85.0 85.0	Reco W L10 83.0 83.0 83.0 83.0 83.0 83.0	eptor #1: Noise Lim Ever Umax 85.0 85.0	N-231 in Its (dBA) L10 80.0 80.0 80.0	C17A6 Niał Lmax 90.0 80.0 80.0	t L10 74.0 74.0	Day Lmax 4.6 None 4.6	Noise , L10 5,3 None 2,6	Limit Exce Even Lmax 4.6 None 4.6	edance (r ing L10 8.3 None 5.6	IBA) Niqt Lmax 9.6 3.2 9.6	t L10 14.3 5.2 11.6
5 6 ults	Compactor Concrete S	Excavator Equipment Total (ground) aw	Calculat Lmax* 896 83.2 89.6 81.7	ed (dBA) L10 88.3 79.2 85.6 80.7	0a Lmax 85.0 85.0 85.0 85.0	Reco W L10 83.0 83.0 83.0 83.0 83.0 83.0	eptor #1: Noise Lim Ever Umax 85.0 85.0 85.0 85.0	N-231 in ing L10 80.0 80.0 80.0 80.0 80.0	C17A6 Nigh Lmax 80.0 80.0 80.0 80.0 80.0	t L10 74.0 74.0 74.0 74.0 74.0	Day Lmax 4.6 None 4.6 None	Noise , L10 5.3 None 2.6 None	Limit Exce Even Lmax 4.6 None 4.6 None	edance (v ing L10 8.3 None 5.0 0.7	dBA) Niqt 9.6 3.2 9.6 1.7	* L10 14.3 5.2 11.6 6.7
5 6 JIts 1 0 2 0 3 0 4 F	Compactor Concrete S Dozer Tat Bed T	Excavator Equipment Total (ground) aw uck	Calculat Lmax* 89.6 83.2 89.6 81.7 74.3	ed (dBA) L10 88.3 79.2 85.6 80.7 73.3	De Lmax 85.0 85.0 85.0 85.0 85.0 85.0	Rece 200 83.0 83.0 83.0 83.0 83.0 83.0 83.0	eptor #1: Noise Lim Ever Limax 85.0 85.0 85.0 85.0 85.0 85.0	N-231 in ts (dBA) ina L10 80.0 80.0 80.0 80.0 80.0 80.0	C17A6 Nigh Lmax 80.0 80.0 80.0 80.0 80.0 80.0 80.0	t L10 74.0 74.0 74.0 74.0 74.0 74.0 74.0	Day Lmax 4.6 None 4.6 None None	Noise , L10 5.3 None 2.6 None None	Limit Exce Even Lmax 4.6 None 4.6 None	edance (r ing L10 8.3 None 5.6 0.7 None	IBA) Niq Lmax 9.6 3.2 9.6 1.7 None	t L10 14.3 5.2 11.6 6.7 None
5 6 JIts 1 0 2 0 3 0 4 F 5 6	Compactor Concrete S Dozer Tat Bed T iscavator	Excavator Equipment Total (ground) aw uck	Calculat Lmax* 896 832 896 817 74.3 807	ed (dBA) L10 88.3 79.2 85.6 80.7 73.3 79.7	085.0 85.0 85.0 85.0 85.0 85.0 85.0 85.0	Reco 200 83.0 83.0 83.0 83.0 83.0 83.0 83.0 83	eptor #1: Noise Lim Ever Limax 85.0 85.0 85.0 85.0 85.0 85.0 85.0	N-231 in Its (dBA) It10 80.0 80.0 80.0 80.0 80.0 80.0 80.0 80	C17A6 Nigh Lmax 80.0 80.0 80.0 80.0 80.0 80.0 80.0 80.	t L10 74.0 74.0 74.0 74.0 74.0 74.0 74.0 74.	Day Lmax 4.6 None 4.6 None None None	Noise , L10 5.3 None 2.6 None None None	Limit Exce Even Limax 4.6 None 4.6 None None None	edance ( ing L10 8.3 None 5.6 0.7 None None	IBA) Imax 9.6 3.2 9.6 1.7 None 0.7	t L10 14.3 5.2 11.6 6.7 None 5.7 ▼

Figure 17. L10 Adjustment dialogue box

• Noise Limits

The "Noise Limits" command button opens a display window that looks exactly like the "Noise Limit Criteria" dialogue box, except that it is not editable, and the only button in the opened window is "Ok". The values in the cells are based on the criteria set in the Noise Limit Criteria window and the baseline levels for the selected receiver, as in Figure 18. (If a receiver is not selected, the dialogue box is unavailable for viewing.)

I		<mark>&gt;</mark> Noise Limits									Noise Limit C	iriteria
	1				MIC7						L10 Calcu	ation
	-	Lmax (dBA)										
ł	- 4		D	ау	Eve	ning	Nic	iht				MIC7
	-		Impact	Non-Impact	Impact	Non-Impact	Impact	Non-Impact			No	nise Limits
ł	-3	Residential	90	85	85	85	80	80				
	_	Commercial	N/A	N/A	N/A	N/A	N/A	N/A				
	qu	Industrial	N/A	N/A	N/A	N/A	N/A	N/A				-
	1 2	L 10 (dBA)								Actual Lmax (dBA)	Distance to Receptor (feet)	Estimate Shieldin (dBA)
	3		D	211	Eve	nina	Nic	bt				
	4		Impact	Non-Impact	Impact	Non-Impact	Impact	Non-Impact				
	5	Residential	Exempt	83	82	82	78	78				
ľ		Commercial	Exempt	83	N/A	N/A	N/A	N/A				
		Industrial	Exempt	83	N/A	N/A	N/A	N/A				
	ts			[	OK						Noise L	imit Exceed
	Ľ				· /	Day	Evenir	ng 🛛	Night		Day	Evenino

Figure 18. Noise Limits display window

Again, these limits may be changed by the user through the Noise Limit Criteria data entry window.

#### 4 Results

Once the data for one receptor and up to 20 pieces of equipment have been specified in the Input Data portion of the main screen, the RCNM will automatically calculate the Results readout displayed in the bottom portion of the main screen, as in Figure 19. Any changes to the Input Data will automatically cause the RCNM to update the Results. The results for only one receptor will be displayed at a time; results for other receptors can be displayed by selecting the desired receptor in the Receptor window (click in any cell in the desired receptor row). Results for up to 100 receptors can be saved in a case. If Noise Limit Criteria information has been specified, the corresponding results (limits and exceedance values) will be updated as well.

		Care	escription														
Rec	eptor	Cuac D	cachpuon												1.10	-	
		Description		Land	Use	D B	aytime aseline (dBA)	Evening Baseline (dBA)	Ni B	ghttime aseline (dBA)	-		Noise	metric: loise Lir	nit Criter	ia di	
1	N-231 i	n C17A6	Resid	ential		-	78.0	75	.0	71.	<u>ī</u>			L10 Ca	lculation	n	
2						-			_		-		-			_	
3	-					-			_		-				Recep	tor #1	
4			1			-		2	_22						Noise	imits	1
Equ	ipment	Recepto	#1: N-23	in C17A	6												
	Active	Des	scription		Impact Device	Usage(%	)	Spec Lmax (dBA)			Actual Lmax (dBA)		Distance to Receptor (feet)	Estima Shield (dBA	ted 📥		
1		Compactor (ground	l)	-	11	20	)% 🔳		80.0	V	1 3	83.2	50.0	1	0.0		
2	×	Concrete Saw		-	1	20	0% 🔳		90.0	V		89.6	50.0		0.0		
3	Ľ	Dozer		-		40	)% 📃		85.0	V		81.7	50.0		0.0		
4	Ľ	Flat Bed Truck		-		40	1% 🔳		84.0	V		74.3	50.0		0.0		
5	1	Excavator		-	-	40	1% 🔳		85.0	V	3	80.7	50.0		0.0		
6	1			-	1	<u> </u>	11			110					-		
lts						Rece	eptor #1:	N-231 in	C174	16	1		Noise	imit Evce	edance (r	(Rá)	
			Calcula	ed (dBA)	D.	NU	Eve	ning		Night		D.	AU INCIDE I	Even	ing	Niak	,
		Equipment	Lmax*	L10	Lmax	L10	Lmax	L10	Lma	( L	10 Lm	ax	L10	Lmax	L10	Lmax	L10
		Total	89.6	88.3	85.0	83.0	85.0	80.0	8	0.0	74.0	4.6	5.3	4.6	8.3	9.6	14.3
	Compactor	(ground)	83.2	79.2	85.0	83.0	85.0	80.0	8	0.0	74.0 1	lone	None	None	None	3.2	5.2
2 1	Concrete S	iaw	89.6	85.6	85.0	83.0	85.0	80.0	8	0.0	74.0	4.6	2.6	4.6	5.6	9.6	11.6
3 1	Dozer		81.7	80.7	85.0	83.0	85.0	80.0	8	0.0	74.0 1	lone	None	None	0.7	1.7	6.7
. 1	Flat Bed Ti	ruck	74.3	73.3	85.0	83.0	85.0	80.0	8	0.0	74.0 1	lone	None	None	None	None	None
5 1	Excavator		80.7	79.7	85.0	83.0	85.0	80.0	8	0.0	74.0 1	lone	None	None	None	0.7	5.7 🕶

Figure 19. The RCNM main-page Results display

If there is insufficient input data for RCNM to compute a result, then a "Check Input Data" button will appear in the middle of the screen. Clicking on this button will provide the user with an indication of what additional input data are required.

The Results are presented in a read-only spreadsheet that contains the following fields, all applicable to the selected receptor:

- Equipment the name/description of the equipment type
- Calculated Lmax the calculated Lmax value for the equipment type. This is calculated from the "Spec" or "Actual" equipment Lmax, distance, and estimated shielding.

- Calculated Leq or L10 the calculated Leq or L10 value (depending on what is selected in the Noise Metric pull-down menu) for the equipment type. This is calculated from the Calculated Lmax values, equipment usage factors, and selected adjustment factor.
- Day Lmax Noise Limit the daytime Lmax noise limit for the equipment type.
- Day Leq or L10 Noise Limit the daytime Leq or L10 noise limit for the equipment type.
- Evening Lmax Noise Limit the evening Lmax noise limit for the equipment type.
- Evening Leq or L10 Noise Limit the evening Leq or L10 noise limit for the equipment type.
- Night Lmax Noise Limit the nighttime Lmax noise limit for the equipment type.
- Night Leq or L10 Noise Limit the nighttime Leq or L10 noise limit for the equipment type.
- Day Lmax Noise Limit Exceedance the daytime Lmax noise limit exceedance for the equipment type. If the criteria limit was not exceeded, the value is "None".
- Day Leq or L10 Noise Limit Exceedance the daytime Leq or L10 noise limit exceedance for the equipment type. If the criteria limit was not exceeded, the value is "None".
- Evening Lmax Noise Limit Exceedance the evening Lmax noise limit exceedance for the equipment type. If the criteria limit was not exceeded, the value is "None".
- Evening Leq or L10 Noise Limit Exceedance the evening Leq or L10 noise limit exceedance for the equipment type. If the criteria limit was not exceeded, the value is "None".
- Night Lmax Noise Limit Exceedance the nighttime Lmax noise limit exceedance for the equipment type. If the criteria limit was not exceeded, the value is "None".
- Night Leq or L10 Noise Limit Exceedance the nighttime Leq or L10 noise limit exceedance for the equipment type. If the criteria limit was not exceeded, the value is "None".

The user may scroll down to view equipment results that are not visible, or the  $\langle View \rangle / \langle Zoom + \rangle$  menu may be used to zoom in on the Results display only (see Section 3.1.3). There is a row at the top of the Results display, highlighted in yellow, that calculates the total for all equipment combined. This row is always visible during scrolling of the Results spreadsheet. (Calculations for totals are explained in Section 5.3.)

Again, users may export a case's input information and results to a comma separated value (CSV) report file ([name].csv) by choosing the <Export Results> option from the <File> menu. The user can also save the case results to a text file (TXT), which saves the results to a space-separated text format ([name].txt). Results may be saved for a single receptor or all receptors in the case.

#### 5 Calculations in the RCNM

The RCNM uses the primary equation described in the CA/T Construction Noise Control Specification 721.560 [1] for the construction noise calculations.

#### 5.1 Metric Calculation

#### $\underline{LmaxCalc} = selected\_Lmax - 20log(D/50) - shielding$ (1)

where

selected\_Lmax is the "Spec" or "Actual" maximum A-weighted sound level at 50 ft., listed in Table 1 for all pieces of equipment, in dBA,

D is the distance between the equipment and the receptor, in feet, shielding is the insertion loss of any barriers or mitigation, in dBA (see Appendix A).

#### $\underline{Leq} = LmaxCalc + 10log(U.F.\%/100)$ (2)

where

U.F.% is the time-averaging equipment usage factor, in percent (see footnote 1 on p 7).

#### $\underline{L10} = \text{Leq} + 3 \text{ dBA adjustment factor}$ (3)

The RCNM calculates L10 by adding 3 dBA to the Leq, where the 3 dBA default L10 adjustment factor was empirically derived by comparing extensive CA/T construction noise data. This adjustment factor may be changed in the RCNM at the user's discretion.

#### 5.2 Exceedance Calculation

<u>Daytime Lmax Exceedance</u> = LmaxCalc – Daytime Lmax Limit	(4)
<u>Daytime Leq or L10 Exceedance</u> = Leq or L10 – Daytime Leq or L10 Limit	(5)
Evening Lmax Exceedance = LmaxCalc – Evening Lmax Limit	(6)
Evening Leq or L10 Exceedance = Leq or L10 – Evening Leq or L10 Limit	(7)
<u>Nighttime Lmax Exceedance</u> = LmaxCalc – Nighttime Lmax Limit	(8)
<u>Nighttime Leq or L10 Exceedance</u> = Leq or L10 – Nighttime Leq or L10 Limit	(9)

#### **5.3 Totals Calculation**

The Total values in the Results section are determined in the following manner:

- 1) Total Leq =  $10*\log(\Sigma \text{ (individual equipment Leq values}^3))$
- 2) Total L10 =  $10 \times \log(\Sigma \text{ (individual equipment L10 values}^3))$
- 3) Total Lmax = Maximum among individual equipment Lmax values
- 4) Total noise limits and limit exceedances:
  - a. Determine whether or not total is impact or non-impact
    - i. If all the equipment is non-impact, label the total as non-impact.
    - ii. If all the equipment is impact, label the total as impact.
    - iii. If the equipment is mixed non-impact and impact, label the total as non-impact.

b. Determine total noise limits and limit exceedances the same way as with individual pieces of equipment (see Section 5.2), only use the calculated total sound levels (Total Leq or Total L10) and the impact or non-impact label according to the criteria specified in i through iii.

<sup>&</sup>lt;sup>3</sup> The Leq and L10 levels are energy averages.

#### **6** References

- [1] Construction Noise Control Specification 721.560, Central Artery/Tunnel Project, Massachusetts Turnpike Authority, Boston, MA, 2002.
- Thalheimer, Erich. "Construction Noise Control Program and Mitigation Strategy at the Central Artery/Tunnel Project". Noise Control Engineering Journal, Vol. 48, No. 5, pp 157-165, September - October 2000.
- [3] "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety", Environmental Protection Agency, ONAC 550/9-74-004. Washington, DC, March 1974.
- [4] "Power Plant Construction Noise Guide". Bolt, Beranek, and Newman Inc. and Empire State Electric Energy Research Corp., Report No. 3321. New York, NY May 1977.

## Appendix A: Best Practices for Calculating Estimated Shielding for Use in the RCNM

This Appendix presents some simplified shielding factors for use in the RCNM. These suggestions are "rules of thumb" based on experience gathered by CA/T construction noise experts working in the field [2].

1) If a noise barrier or other obstruction (like a dirt mound) just barely breaks the line-ofsight between the noise source and the receptor, use 3 dBA.

2) If the noise source is completely enclosed OR completely shielded with a solid barrier located close to the source, use 8 dBA. If the enclosure and/or barrier has some gaps in it, reduce the effectiveness to 5 dBA.

3) If the noise source is completely enclosed AND completely shielded with a solid barrier located close to the source, use 10 dBA.

4) If a building stands between the noise source and receptor and completely shields the noise source, use 15 dBA.

5) If a noise source is enclosed or shielded with heavy vinyl noise curtain material (e.g., SoundSeal BBC-13-2" or equivalent), use 5 dBA.

6) If dilapidated windows are replaced with new acoustical windows, or quality internal or exterior storm sashes, use an incremental improvement of 10 dBA for an overall Outside-to-Inside Noise Reduction (OINR) of 35 dBA.

7) If work is occurring deep inside a tunnel using the "top-down" construction method (i.e. cover the tunnel work with concrete roadway decks to allow surface traffic and then excavate underneath the roof deck), use 12 dBA.

# Appendix E

## Traffic Impact Analysis

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**DRAFT TRAFFIC IMPACT ANALYSIS** 

## FERRY LANDING

Coronado, California February 8, 2018

LLG Ref. 3-16-2697

Prepared by:

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## **EXECUTIVE SUMMARY**

The Coronado Ferry Landing Project proposes the development of a 1-story building with a 7,500 square foot "quality restaurant" at the Ferry Landing Associates, LLC leasehold, which is located at 1201 First Street in the City of Coronado The Project site is located within the Orange Avenue Area Subarea of Planning District 6 (Coronado Bayfront) of the certified Port Master Plan.

Linscott, Law & Greenspan, Engineers (LLG) completed a traffic impact analyses for the Project. The restaurant is calculated to generate 750 average daily trips (ADT) with 8 total AM peak hour trips (5 inbound/ 3 outbound) and 60 total PM peak hour trips (42 inbound/ 18 outbound). A total of seven (7) intersections and three (3) street segments were analyzed for the Weekday and Saturday peak and daily periods. A near-term cumulative analysis was also conducted, along with a buildout long-term analysis.

The results of the capacity analyses *show no significant direct or cumulative impacts* would occur with development of the Project. *No mitigation measures are required or proposed.* 

The study also evaluates the available and required parking for the site. Based on the Port of San Diego's published guidelines, the development will require 70 parking spaces. The lot currently provides 269 spaces, and the existing uses were observed to use 136 spaces during the weekend peak period. Therefore, a total of 206 spaces would be required to serve the existing + Project land uses. With 269 spaces available, a surplus of 63 spaces is calculated.

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#### **DRAFT TRAFFIC IMPACT ANALYSIS**

#### FERRY LANDING Coronado, California February 8, 2018

#### **1.0** INTRODUCTION

Linscott, Law and Greenspan, Engineers (LLG) has prepared the following transportation impact analysis to assess the impacts to the street system as a result of Ferry Landing project ("Project"), which proposes the development of a new 7,500 quality restaurant building on a vacant pad at the Coronado Ferry Landing site. The San Diego Unified Port District owns the property, and the site is located in the City of Coronado.

*Figure 1–1* shows the Project vicinity and *Figure 1–2* illustrates, in more detail, the site location.

The transportation analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Project Trip Generation/Distribution/Assignment
- Cumulative Projects
- Analysis of Near-Term Scenarios
- General Plan (Year 2035) Analysis
- Parking Summary
- Conclusions

1



Ferry Landing Restaurant Project

## 2.0 PROJECT DESCRIPTION

The Project involves development of a 1-story building with the option to operate one or two restaurants at the Ferry Landing Associates, LLC leasehold, which is located at 1201 First Street in the City of Coronado. *Figure 2–1* shows the site plan. The Project site is located within the Orange Avenue Area Subarea of Planning District 6 (Coronado Bayfront) of the certified Port Master Plan.

The Project applicant is Ferry Landing Associates, LLC (Applicant). The existing uses on the leasehold and the vicinity of the project site include an existing approximately 11,700 square foot (sf) 1-story restaurant, a surface parking lot, and a 6,500 sf 2-story office building. In addition, an existing 15-foot-wide shoreline public walkway is located along the perimeter of the Project site.

The proposed Project includes the construction of approximately 7,500 sf of indoor space and approximately 4,854 sf of outdoor space for restaurant use. The total number of restaurant seats for both spaces is anticipated to be approximately 300.

The Project is designed to allow for enhanced public access. Furthermore, the Project will provide pedestrian and bicyclist amenities adjoining the shoreline public walkway adjacent to the Project site.

It is anticipated that construction of the Project will be completed in approximately nine (9) months.



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GREENSPAN engineers Figure 2-1

## Site Plan

Ferry Landing Restaurant Project

## 3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the Project requires an understanding of the existing transportation system within the project area. *Figure 3–1* shows an existing conditions diagram, including signalized intersections and lane configurations.

## 3.1 Study Area

The study area includes the following seven intersections and three street segments.

#### Intersections:

- 1. Orange Avenue / 4<sup>th</sup> Street
- 2. Orange Avenue / 3<sup>rd</sup> Street
- 3. Orange Avenue / 1<sup>st</sup> Street
- 4. B Avenue / 1<sup>st</sup> Street
- 5. Project Driveway / 1st Street
- 6. A Ävenue / 1<sup>st</sup> Street
- 7. A Avenue / 3<sup>rd</sup> Street

#### Street Segments:

#### **Orange Avenue**

- 1.  $4^{\text{th}}$  Street to  $3^{\text{rd}}$  Street
- 2.  $3^{rd}$  Street to  $1^{st}$  Street

#### 1<sup>st</sup> Street

3. Orange Avenue to Project Driveway

### 3.2 Existing Street Network

The following is a description of the existing street network in the study area.

*Orange Avenue* is a generally north-south roadway in the city of Coronado. In the study area it is currently constructed as a four-lane roadway with a landscaped center median and parallel parking available on both sides of the roadway. On the City of Coronado General Plan, Orange Avenue south of 3<sup>rd</sup> Street is classified as a Principal Arterial, while the roadway north of 3<sup>rd</sup> Street is classified as a Minor Arterial. However, both segments are functionally identical in terms of number of lanes, median type, on-street parking, and intersection spacing, which are the typical determinants of daily roadway capacity. There are no on-street bicycle facilities on Orange Avenue in the Project vicinity. The posted speed limit 25mph to 30mph.

*I<sup>st</sup> Street* is a generally east-west roadway constructed as a two-lane undivided roadway with Class II bicycle lanes and parallel parking on both sides of the street in the Project vicinity. The posted speed limit is 25 mph. 1<sup>st</sup> Street is classified as a Collector on the City of Coronado General Plan.

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## 3.3 Existing Bicycle Network

In addition to the on-street bicycle facilities described in the previous section, the Project is located in close proximity to the Bayshore Bikeway (Silver Strand Bikeway), a Class I separated bicycle path.

## 3.4 Existing Pedestrian Conditions

Continuous sidewalks are provided along the north and south sides of 1<sup>st</sup> Street as well as Orange Avenue in the study area. Continental-style pedestrian crosswalk markings are present at the major intersections along 1<sup>st</sup> Street, as are pedestrian signal equipment at the signalized intersections.

### 3.5 Existing Transit Conditions

The Project area is served by the following Metropolitan Transit System (MTS) bus routes:

**Route 904** travels with Coronado from Ferry Landing to Coronado City Hall via 2<sup>nd</sup> Street, 1<sup>st</sup> Street, and Orange Avenue with stops near the Project site at B Avenue / 1<sup>st</sup> Street. Service operates at hourly intervals from approximately 10 AM to 6 PM seven days a week.

**Route 901** travels between Downtown San Diego and the Iris Avenue Transit Center via Coronado and Imperial Beach. Within the study area this route operates on 3<sup>rd</sup> Street/4<sup>th</sup> Street and Orange Avenue. The stops nearest to the Project site are located at Pomona Avenue / 3<sup>rd</sup> Street and 4<sup>th</sup> Street / B Avenue. Monday through Friday service is approximately 5AM to 1AM with generally 30 minute headways, with 15 minute headways during certain peak times and hourly headways in late evening hours. Saturday service is similar with fewer trips during typical weekday commuter hours. Sunday service is generally 5AM to 9PM with hourly headways, though southbound service runs later, to nearly midnight.

The Project is also located near the Coronado Ferry Landing which is the local terminus for ferry service to Downtown San Diego (Broadway Pier and Convention Center). Generally, the ferry runs daily with hourly service to Broadway Pier and thirty-minute service to Convention Center. The ferry also runs a commuter schedule Monday through Friday, with five trips between Coronado and the Broadway Pier in each direction during the AM and PM commuter periods, with free fares for morning commuters.

### 3.6 Existing Traffic Volumes

*Table 3–1* is a summary of the most recent available average daily traffic volumes (ADTs) from LLG counts conducted by Accurate Video Counts in March 2017. Peak hour turning movement counts at the study area intersections, including bicycle and pedestrian counts, were conducted in March 2017.

*Figure 3–2* shows the Existing Weekday and Saturday Traffic Volumes. *Appendix A* contains the count sheets.

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Stread Segment	AD	Source: Date	
Street Segment	Weekday	Saturday	
Orange Avenue			
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	28,440	21,830	LLG: 2017
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	20,680	10,500	LLG: 2017
1 <sup>st</sup> Street			
Orange Avenue to Project Driveway	6,270	5,420	LLG: 2017

TABLE 3–1 Existing Traffic Volumes

Footnotes:

a. Average Daily Traffic Volumes.



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Figure 3-1

## **Existing Conditions Diagram**

STOP

Ferry Landing Restaurant Project



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Figure 3-2

## **Existing Traffic Volumes**

FERRY LANDING RESTAURANT PROJECT

## 4.0 ANALYSIS APPROACH AND METHODOLOGY

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized and unsignalized intersections, as well as for roadway segments.

## 4.1 Intersections

*Signalized intersections* were analyzed under AM and PM peak hour conditions. Average vehicle delay was determined utilizing the methodology found in Chapter 18 of the *2010 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 10) computer software. The delay values (represented in seconds) were qualified with a corresponding intersection Level of Service (LOS).

*Unsignalized intersections* were analyzed under AM and PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapters 19 and 20 of the *2010 Highway Capacity Manual (HCM)*, with the assistance of the *Synchro* (version 10) computer software.

## 4.2 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Coronado's *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The City of Coronado's *Roadway Classification, Level of Service, and ADT Table* is attached in *Appendix B*.

## 5.0 SIGNIFICANCE CRITERIA

A project is considered to have a significant impact if the new project traffic has decreased the operations of surrounding roadways by a defined threshold. The defined thresholds shown in **Table 5–1** below for freeway segments, roadway segments, intersections, and ramp meter facilities are based on published San Diego Traffic Engineers' Council (SANTEC) guidelines. If the project exceeds the thresholds in *Table 5–1*, then the project may be considered to have a significant project impact. A feasible mitigation measure will need to be identified to return the impact within the thresholds (pre-project + allowable increase) or the impact will be considered significant and unmitigated.

	Allowable Increase Due to Project Impacts <sup>b</sup>					
Level of Service with	Freeways Roadway Segments		Intersections	Ramp Metering		
Project <sup>a</sup>	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec.)	Delay (min.)
D, E & F (or ramp meter delays above 15 minutes)	0.01	1	0.02	1	2	2°

TABLE 5–1 TRAFFIC IMPACT SIGNIFICANT THRESHOLDS

Footnotes:

- a. All level of service measurements are based upon HCM procedures for peak-hour conditions. However, V/C ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis (using Table 2 or a similar LOS chart for each jurisdiction). The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.
- b. If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are deemed to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project applicant shall then identify feasible mitigations (within the Traffic Impact Study [TIS] report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note a above), or if the project adds a significant amount of peak hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating significant impact changes.
- c. The impact is only considered significant if the total delay exceeds 15 minutes.

General Notes:

- 1. V/C = Volume to Capacity Ratio
- 2. Speed = Arterial speed measured in miles per hour
- 3. Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters.
- 4. LOS = Level of Service

## 6.0 ANALYSIS OF EXISTING CONDITIONS

The following is a presentation and discussion of the HCM signalized and unsignalized intersection analyses and the volume/capacity street segment analyses for the study area street system under existing traffic conditions.

## 6.1 Peak Hour Intersection Levels of Service

*Table 6–1* summarizes the existing intersection levels of service at the study area intersection during typical weekday and Saturday PM peak periods. As seen in *Table 6–1*, all intersections are calculated to operate at acceptable LOS C or better during the weekday and Saturday PM peak hours.

Existing intersection analysis sheets are in Appendix C.

## 6.2 Daily Street Segment Levels of Service

*Table 6–2* summarizes the existing street segment levels of service for both typical weekday and Saturday conditions. As shown on *Table 6–2*, all study area street segments are calculated to operate at acceptable LOS C or better during weekday conditions and at LOS B or better under Saturday conditions.


Interestion	Control	Peak	Exist	ting
Intersection	Туре	Hour	Delay <sup>a</sup>	LOS <sup>b</sup>
1. Orange Avenue / 4 <sup>th</sup> Street	Signal	Weekday Saturday	25.9 14.7	C B
2. Orange Avenue / 3 <sup>rd</sup> Street	Signal	Weekday Saturday	16.8 16.7	B B
3. Orange Avenue / 1 <sup>st</sup> Street	Signal	Weekday Saturday	7.7 6.9	A A
4. B Avenue / 1 <sup>st</sup> Street	MSSC °	Weekday Saturday	11.9 15.9	B C
5. Project Driveway / 1 <sup>st</sup> Street	MSSC	Weekday Saturday	10.4 10.7	B B
6. A Avenue / 1 <sup>st</sup> Street	MSSC	Weekday Saturday	9.8 10.4	A B
7. A Avenue / 3 <sup>rd</sup> Street	MSSC	Weekday Saturday	9.3 9.3	A A
Footnotes:	_	SIGNALIZED	UNSI	GNALIZED

 TABLE 6–1

 EXISTING INTERSECTION OPERATIONS

Footnotes:	SIGNALIZ	ED	UNSIGNALIZED		
<ul><li>a. Average delay expressed in seconds per vehicle.</li><li>b. Level of Service.</li></ul>	DELAY/LOS THR	ESHOLDS	DELAY/LOS THRESHOLD		s
c. MSSC – Minor-Street Stop Controlled intersection. Minor street left	Delay	LOS	Delay	LOS	
turn delay is reported.	$0.0 \le 10.0$	А	$0.0~\leq~10.0$	А	
	10.1 to 20.0	В	10.1 to 15.0	В	
	20.1 to 35.0	С	15.1 to 25.0	С	
	35.1 to 55.0	D	25.1 to 35.0	D	
	55.1 to 80.0	Е	35.1 to 50.0	E	
	$\geq 80.1$	F	$\geq 50.1$	F	

Street Segment	Classification	Capacity	V	Veekday		Saturday		
Street Segment	Classification	(LOS E) <sup>a</sup>	ADT <sup>b</sup>	LOS <sup>c</sup>	<b>V/C</b> <sup>d</sup>	ADT	LOS	V/C
Orange Avenue								
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	4-lane Arterial	39,000	28,440	С	0.729	21,830	В	0.560
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	4-lane Arterial	39,000	20,680	В	0.530	10,500	А	0.269
1 <sup>st</sup> Street								
Orange Avenue to Project Driveway	2-Lane Collector	9,750	6,270	С	0.643	5,420	В	0.556

 TABLE 6–2

 EXISTING STREET SEGMENT OPERATIONS

Footnotes:

a. Capacities based on City of Coronado Roadway Classification Table (See Appendix B).

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity.

## 7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is a discussion of the Project's trip generation calculations, and the distribution of Project trips throughout the study area.

#### 7.1 Trip Generation

*Table 7–1* shows a summary of the total project traffic generation for the proposed 7,500 SF restaurant Project. Based on SANDAG trip generation rates, the Project is calculated to generate approximately 750 ADT with 5 inbound/ 3 outbound trips during the AM peak hour and 42 inbound/ 18 outbound trips during the PM peak hour.

Land Use	Sizo	Daily Trij (ADT	p Ends `s)		AM Pe	eak H	our			PM Pe	eak Ho	our	
Lanu Use	Size	<b>D</b> 4 3	<b>X7</b> 1	% of	In:Out		Volun	1e	% of	In:Out	1	/olum	e
		Rate <sup>a</sup> Volun	volume	ADT	Split	In	Out	Total	ADT	Split	In	Out	Total
Restaurant – Quality	7.5 KSF	100 /KSF	750	1%	60:40	5	3	8	8%	70:30	42	18	60

TABLE 7–1
<b>PROJECT TRIP GENERATION</b>

Footnotes:

a. Rate is based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.

As shown above, the AM peak hour trip generation for the Project is minimal. Therefore, the peak hour intersection analyses in this traffic impact analysis look at the effects of Project traffic on the weekday and Saturday PM peak hour conditions.

#### 7.2 Trip Distribution/Assignment

Trip distribution was based on existing traffic patterns observed in weekday and Saturday existing traffic counts, as well as reference to the traffic impact study prepared by Barton-Aschman Associates, Inc. for the 1989 FEIR, which also studied a restaurant use.

*Figure 7–1* shows the Project Alternative 1 trip distribution and *Figure 7–2* shows the assigned Project traffic volumes. *Figure 7–3* shows the Existing + Project traffic volumes.



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N:\2697\Figures Date: 02/01/18 Figure 7-2

#### **Project Traffic Volumes**

FERRY LANDING RESTAURANT PROJECT





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N:\2697\Figures Date: 02/01/18

#### Figure 7-3

#### **Existing + Project Traffic Volumes**

#### 8.0 **EXISTING + PROJECT ANALYSIS**

#### 8.1.1 Intersection Analysis

Table 8-1 summarizes Existing + Project operations for both the weekday and Saturday PM peak hours. As shown in Table 8-1, with the addition of Project traffic, all intersections continue to operate at acceptable LOS C or better during both peak periods.

Existing + Project intersection analysis sheets are in Appendix C.

#### 8.1.2 Segment Operations

Table 8-2 shows the Existing + Project street segment operations for a typical weekday. As shown in Table 8-2, all street segments continue to operate at acceptable LOS C or better with the addition of the Project to daily weekday traffic.

Table 8-3 shows the Existing + Project street segment operations for a typical Saturday. As shown in Table 8-3, all street segments continue to operate at acceptable LOS B or better with the addition of the Project to daily Saturday traffic.

Intersection	Control	Control Peak		ting	Existing + Project		
Intersection	Туре	Hour	Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	Δ
1. Orange Avenue / 4 <sup>th</sup> Street	Signal	Weekday Saturday	27.1 15.0	C B	27.2 15.2	C B	0.1 0.2
2. Orange Avenue / 3rd Street	Signal	Weekday Saturday	17.3 17.2	B B	17.5 17.4	B B	0.2 0.2
3. Orange Avenue / 1st Street	Signal	Weekday Saturday	7.7 6.9	A A	8.0 7.2	A A	0.3 0.3
4. B Avenue / 1st Street	MSSC	Weekday Saturday	12.0 16.1	B C	12.4 17.0	B C	0.4 0.9
5. Project Driveway / 1st Street	MSSC	Weekday Saturday	10.4 10.8	B B	10.8 11.2	B B	0.4 0.4
6. A Avenue / 1st Street	MSSC	Weekday Saturday	9.8 10.4	A B	9.8 10.5	A B	0.0 0.1
7. A Avenue / 3rd Street	MSSC	Weekday Saturday	9.3 9.3	A A	9.3 9.3	A A	0.0 0.0
Footnotes: SIGNALIZED UNSIGNALIZED							

TABLE 8–1 **EXISTING + PROJECT INTERSECTION OPERATIONS** 

Foo	tnotes:	SIGNALIZ	UNSIGNALIZED			
a. b.	Average delay expressed in seconds per vehicle. Level of Service.	DELAY/LOS THR	DELAY/LOS THRESHOLDS			
c.	$\Delta$ denotes an increase in delay due to project.	Delay	LOS	Delay	LOS	
d. TWS	TWSC - Two-Way Stop Controlled intersection.	$0.0 \le 10.0$	А	$0.0 \leq 10.0$	А	
	Minor street left turn delay is reported.	10.1 to 20.0	В	10.1 to 15.0	В	
		20.1 to 35.0	С	15.1 to 25.0	С	
		35.1 to 55.0	D	25.1 to 35.0	D	
		55.1 to 80.0	Е	35.1 to 50.0	Е	
		$\geq 80.1$	F	$\geq 50.1$	F	

# TABLE 8–2EXISTING + PROJECTWEEKDAY STREET SEGMENT OPERATIONS

	Existing	Existing			Existing + Project			
Street Segment	Capacity (LOS E) <sup>a</sup>	<b>ADT</b> <sup>b</sup>	LOS	V/C	ADT	LOS	V/C	Δ
Orange Avenue								
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	28,440	С	0.729	28,778	С	0.738	0.009
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	20,680	В	0.530	21,055	В	0.540	0.010
1 <sup>st</sup> Street								
Orange Avenue to Project Driveway	9,750	6,270	С	0.643	6,795	С	0.697	0.054

Footnotes:

a. Capacities based on City of Coronado Roadway Classification & LOS table (See Appendix B).

b. Average Daily Traffic

c. Volume to Capacity ratio

d. Level of Service

e.  $\Delta$  denotes a project-induced increase in the Volume to Capacity ratio

## TABLE 8–2EXISTING + PROJECTSATURDAY STREET SEGMENT OPERATIONS

	Existing	Existing			Existing + Project			
Street Segment	Capacity (LOS E) <sup>a</sup>	ADT <sup>b</sup>	LOS	V/C	ADT	LOS	V/C	Δ
Orange Avenue								
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	21,830	В	0.560	22,168	В	0.568	0.008
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	10,500	А	0.269	10,875	А	0.279	0.010
1 <sup>st</sup> Street								
Orange Avenue to Project Driveway	9,750	5,420	В	0.556	5,945	В	0.610	0.054

Footnotes:

a. Capacities based on City of Coronado Roadway Classification & LOS table (See Appendix B)

b. Average Daily Traffic

c. Volume to Capacity ratio

d. Level of Service

e.  $\Delta$  denotes a project-induced increase in the Volume to Capacity ratio

#### LINSCOTT, LAW & GREENSPAN, engineers

#### 9.0 CUMULATIVE PROJECTS

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG researched cumulative projects within the city of Coronado and determined there were no major development projects planned in the near future.

In order to account for these smaller projects and other unforeseen ambient growth in traffic volumes, LLG added a growth factor of 2% to existing volumes to arrive at near-term cumulative conditions.

*Figure 9–1* shows the cumulative growth traffic volumes. *Figure 9–2* shows the existing + cumulative traffic volumes. *Figures 9–3* shows the existing + cumulative traffic volumes + Project traffic.





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Figure 9-1

#### **Cumulative Traffic Volumes**

FERRY LANDING RESTAURANT PROJECT





engineers

N:\2697\Figures Date: 02/01/18

#### Figure 9-2

#### **Existing + Cumulative Traffic Volumes**



Figure 9-3

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GREENSPAN engineers

## Existing + Cumulative + Project Traffic Volumes

Ferry Landing Restaurant Project

## 10.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following is a discussion of the effects of near-term cumulative traffic volumes on the existing baseline, as well as the effect of the combination of near-term cumulative traffic and Project traffic.

#### 10.1 Existing + Cumulative Traffic

#### 10.1.1 Intersection Analysis

*Table 10–1* summarizes the analysis of study area intersections under Existing + Cumulative traffic conditions. As shown in *Table 10–1*, all study area intersection are calculated to continue to operate at acceptable LOS C or better during Weekday and Saturday PM peak hours with the addition of cumulative traffic volumes.

Existing + Cumulative intersection analysis sheets are in Appendix C.

#### 10.1.2 Segment Operations

*Table 10–2* summarizes the daily street segment operations for study area street segments under Existing + Cumulative Weekday traffic conditions. As shown in *Table 10–2*, all segments are calculated to continue to operate at acceptable LOS C or better on a typical weekday with the addition of cumulative traffic volumes.

*Table 10–3* summarizes the daily street segment operations for study area street segments under Existing + Cumulative Saturday traffic conditions. As shown in *Table 10–3*, all segments are calculated to continue to operate at acceptable LOS B or better on a typical Saturday with the addition of cumulative traffic volumes.

#### 10.2 Existing + Cumulative Traffic + Project

#### 10.2.1 Intersection Analysis

*Table 10–1* also summarizes the study area intersection operations with the addition of both cumulative and Project traffic volumes. As shown in *Table 10–1*, all study area intersection are calculated to continue to operate at acceptable LOS C or better during Weekday and Saturday PM peak hours with the addition of both cumulative and Project traffic volumes.

Existing + Cumulative Traffic + Project intersection analysis sheets are in Appendix C.

#### 10.2.2 Segment Operations

*Table 10–2* also summarizes the study area Weekday segment operations with the addition of both cumulative and Project traffic volumes. As shown in *Table 10–2*, all study area segments are calculated to continue to operate at acceptable LOS C or better on a Weekday with the addition of both cumulative and Project traffic volumes.

*Table 10–3* also summarizes the study area Saturday segment operations with the addition of both cumulative and Project traffic volumes. As shown in *Table 10–3*, all study area segments are calculated to operate at acceptable LOS C or better on a Weekday with the addition of both cumulative and Project traffic volumes.

Intersection		Control	Control Peak		Existing + Cumulative		Existing + Cumulative + Project		
		гуре	nour	Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	Δ	
1.	Orange Avenue / 4th Street	Signal	Weekday Saturday	27.1 15.0	C B	27.2 15.2	C B	0.1 0.2	
2.	Orange Avenue / 3rd Street	Signal	Weekday Saturday	17.3 17.2	B B	17.5 17.4	B B	0.2 0.2	
3.	Orange Avenue / 1st Street	Signal	Weekday Saturday	7.7 6.9	A A	8.0 7.2	A A	0.3 0.3	
4.	B Avenue / 1st Street	MSSC	Weekday Saturday	12.0 16.1	B C	12.4 17.0	B C	0.4 0.9	
5.	Project Driveway / 1st Street	MSSC	Weekday Saturday	10.4 10.8	B B	10.8 11.2	B B	0.4 0.4	
6.	A Avenue / 1st Street	MSSC	Weekday Saturday	9.8 10.4	A B	9.8 10.5	A B	0 0.1	
7.	A Avenue / 3rd Street	MSSC	Weekday Saturday	9.3 9.3	A A	9.3 9.3	A A	0 0	

TABLE 10–1 **NEAR-TERM INTERSECTION OPERATIONS** 

Fo	otnotes:	SIGNALIZ	ED	UNSIGNALIZED		
a.	Average delay expressed in seconds per vehicle.					
b.	Level of Service.	DELAY/LOS THR	ESHOLDS	DELAY/LOS THRESHOLDS		
c. d	$\Delta$ denotes an increase in delay due to project. TWSC – Two-Way Stop Controlled intersection Minor street	Delay	LOS	Delay	LOS	
u.	left turn delay is reported.	$0.0 \leq 10.0$	Α	$0.0 \leq 10.0$	А	
		10.1 to 20.0	В	10.1 to 15.0	В	
		20.1 to 35.0	С	15.1 to 25.0	С	
		35.1 to 55.0	D	25.1 to 35.0	D	
		55.1 to 80.0	Е	35.1 to 50.0	Е	
		≥ 80.1	F	≥ 50.1	F	

Street Segment	Existing Capacity	Existin	g + Cum	ulative	Exi	sting + C + Pro	Cumulati ject	ve
	(LOS E) <sup>a</sup>	<b>ADT</b> <sup>b</sup>	LOS	V/C	ADT	LOS	V/C	Δ
Orange Avenue								
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	29,009	С	0.744	29,347	С	0.752	0.008
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	21,094	В	0.541	21,469	В	0.550	0.009
1 <sup>st</sup> Street								
Orange Avenue to Project Driveway	9,750	6,395	С	0.656	6,920	С	0.710	0.054

## TABLE 10–2 NEAR-TERM WEEKDAY STREET SEGMENT OPERATIONS

#### Footnotes:

a. Capacities based on City of Coronado Roadway Classification & LOS table (See *Appendix B*)

b. Average Daily Traffic

c. Volume to Capacity ratio

d. Level of Service

e.  $\Delta$  denotes a project-induced increase in the Volume to Capacity ratio

Street Segment	Existing Capacity	Existin	g + Cum	ulative	Exi	sting + C + Pro	Cumulati ject	ve
	(LOS E) <sup>a</sup>	<b>ADT</b> <sup>b</sup>	LOS	V/C	ADT	LOS	V/C	Δ
Orange Avenue								
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	22,399	В	0.574	22,737	В	0.583	0.009
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	10,914	A	0.280	11,289	А	0.289	0.009
1 <sup>st</sup> Street								
Orange Avenue to Project Driveway	9,750	5,545	В	0.569	6,070	С	0.623	0.054

 TABLE 10–3

 NEAR-TERM SATURDAY STREET SEGMENT OPERATIONS

Footnotes:

a. Capacities based on City of Coronado Roadway Classification & LOS table (See *Appendix B*)

b. Average Daily Traffic

c. Volume to Capacity ratio

d. Level of Service

e.  $\Delta$  denotes a project-induced increase in the Volume to Capacity ratio

## 11.0 ANALYSIS OF LONG-TERM SCENARIOS

#### 11.1 Year 2035 Traffic Volumes

Long-term traffic volume forecasting conducted using the SANDAG Series 12 Year 2035 traffic model.

Forecast model volumes were highly variable but generally below existing, both as compared to the SANDAG Baseline (Year 2008) model and actual ground count (Year 2017) ADT volumes. Among the study area segments, the Orange Avenue corridor south of 3<sup>rd</sup> Street carries the greater amount of traffic, and is therefore less subject to variability in the forecast model. Therefore, the forecasted change in traffic volumes observed on this corridor was applied to smaller, local street segments in the study area to derive Year 2035 traffic volumes.

*Figure 11–1* shows the Year 2035 traffic volume ADT's. *Figure 11–2* shows the Year 2035 + Project traffic volume ADT's.

#### 11.2 Year 2035 without Project Analysis

Year 2035 daily street segment operations are shown in *Table 11–1*. As seen in *Table 11–1*, the study area street segments are calculated to operate at LOS B or better in Year 2035.

#### 11.3 Year 2035 + Project Analysis

Year 2035 + Project daily street segment operations are also shown in *Table 11–1*. As seen in *Table 11–1*, with the addition of the Project, all study area street segments are calculated to continue to operate at LOS B or better.

	Existing	Y	ear 2035	5	Ye	ar 2035	+ Projec	t
Street Segment	Capacity (LOS E) <sup>a</sup>	<b>ADT</b> <sup>b</sup>	LOS	V/C	ADT	LOS	V/C	Δ
Orange Avenue								
4 <sup>th</sup> Street to 3 <sup>rd</sup> Street	39,000	19,300	В	0.495	19,638	В	0.504	0.009
3 <sup>rd</sup> Street to 1 <sup>st</sup> Street	39,000	14,100	А	0.362	14,475	А	0.371	0.009
1 <sup>st</sup> Street								
Orange Avenue to Project Driveway	9,750	4,300	А	0.441	4,825	В	0.495	0.054

#### TABLE 11–1. LONG-TERM WEEKDAY STREET SEGMENT OPERATIONS

Footnotes:

Capacities based on City of Coronado Roadway Classification & LOS table (See *Appendix B*) Average Daily Traffic a.

b.

Volume to Capacity ratio c.

d. Level of Service

 $\Delta$  denotes a project-induced increase in the Volume to Capacity ratio e.



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Figure 11-1

## Year 2035 without Project Traffic Volumes



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Figure 11-2

## Year 2035 with Project Traffic Volumes

#### 12.0 PARKING

The site currently provides 269 parking spaces to serve the existing office building and restaurant. Based on the Tidelands Parking Guidelines<sup>1</sup>, the existing uses would require 127 parking spaces:

#### **Existing Uses Requirements**

- 11.7 ksf of restaurant x 9.3 spaces/ksf = 109 spaces
- 6.5 ksf of office x 2.8 spaces/ksf = 18 spaces
- 18.2 ksf total = 127 spaces

LLG commissioned parking occupancy counts for the ferry landing parking lot for the peak periods of 4-8 PM on Wednesday, January 24, 2018, and Saturday, January 27, 2018. The results of these surveys showed a maximum parking demand of 120 and 136 spaces, respectively. The average of these two days' counts is 128 spaces, which is consistent with the 127-space requirement.

Using the same guidelines, the Project would require 70 parking spaces:

#### **Proposed Project Requirements**

• 7.5 ksf of restaurant x 9.3 spaces/ksf = 70 spaces

Collectively, the existing uses and the Project would require 197 spaces:

#### Existing + Project Uses

•	18.2 ksf (existing uses)	= 136 spaces
•	7.5 ksf (proposed Project)	= 70  spaces
•	25.7 ksf total	= 206 spaces

Given that the site currently provides 269 spaces, a 63-space surplus is calculated with the addition of the Project parking demand to existing demand.

<sup>&</sup>lt;sup>1</sup> Ratios based on Table 1 of the published Tidelands Parking Guidelines.

### 13.0 CONCLUSIONS

The 7,500 SF restaurant project's traffic impacts were evaluated in the near-term and long-term conditions. The results of the intersection and street segment analysis revealed no significant near-term direct or long-term cumulative impacts, based on the published significance criteria. No mitigation measures are required or proposed.

The Project will require 70 parking spaces based on the published guidelines. A 63-space surplus is calculated to occur with development of the Project in addition to current development that shares the existing 269-space lot. No parking impacts are calculated.

End of Report

#### Memorandum

To:	Mr. Aaron Brownwood Helix Environmental, Inc.	Date:	June 11, 2018	e n g i Engineers
From:	Chris Mendiafa LLG, Engineers	LLG Ref:	3-16-2697	Traffic Transport Parking
Subject:	Coronado Ferry Landing (Project) -	- Left-Turn Mitig	ation Requirement	Linscott,

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following memo regarding the need for a dedicated left-turn pocket from 1<sup>st</sup> Street into the Project site, located at 1201 1<sup>st</sup> Street, as conditioned in the Final Environmental Impact Report (FEIR) dated December 1989.

The Project's 1989 FEIR evaluated the effects of what was then called "The Wharf Development" on the current Project site. This proposal envisioned a total site development of 23,000 square feet (SF) of full service (quality) restaurant use, 9,000 SF of fast food restaurant use, and 43,000 SF of retail and office use. With this full suite of uses, the FEIR traffic analysis determined that a dedicated left-turn lane should be installed from 1<sup>st</sup> Avenue to the Project site at the site's driveway.

In the intervening years from 1989 to present, the site has developed with 11,700 SF of quality use, 6,500 SF of office use, and a public parking lot. This current development envelope represents approximately 50% of the original quality restaurant use, and only 15% of the originally proposed office. Notably, the very high traffic-generating fast-food use has not been developed, and is no longer proposed. The fast-food component alone would generate 5,850 average daily trips (ADT) at the site's driveway to  $1^{st}$  Street, based on the latest SANDAG trip generation rates.

LLG completed a draft traffic impact analysis (February 2018) for the current development proposal to add the additional 7,500 SF of quality restaurant use, which generates 750 ADT at the driveway. Combined with the exiting 11,700 SF of the same use, the total quality restaurant use post-project would be 19,200 SF, or 83% of the original quality restaurant use analyzed in the FEIR. LLG's analysis evaluated Project and cumulative project effects on the Project driveway with the existing shared-thru/left-turn lane configuration in question.

The results of the LLG's analysis showed that with existing development traffic, the additional Project traffic and cumulative developments' traffic in the area, the driveway intersection would continue to operate at acceptable overall Level of Service (LOS) B during the weekday and Saturday peak hours. Based on this analysis, no Project impacts were identified, and no improvements to the driveway are required or proposed.



Engineers & Planners Traffic Transportation Parking

#### Linscott, Law & Greenspan, Engineers

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Pasadena Irvine San Diego Woodland Hills Attachment A shows the results of the intersection analysis from LLG's February 2018 TIA.

At Helix Environmental's request, LLG reviewed the more granular "LOS by movement" for the same driveway intersection. This consists of reviewing the LOS for each of the intersection approaches as follows:

- Eastbound shared left/thru (includes inbound left-turns from eastbound 1<sup>st</sup> Street to the site);
- Westbound shared thru/right (includes inbound right-turns from westbound 1<sup>st</sup> Street to the site), and;
- Southbound left and right (includes outbound turns to eastbound/westbound 1<sup>st</sup> Street

Attachment B shows the summary sheets for the individual LOS by movement described above.

Upon review of these individual Levels of Service, LLG confirms that the shared thru-left turn movement in question operates at LOS A. Thus, LLG confirms that a dedicated left-turn lane from 1<sup>st</sup> Street to the site *is not required* with the development of the additional 7,500 SF of quality restaurant use.

Please don't hesitate to call us at 858-300-8800 if you have any further questions.

cc: File Attachments: *Attachment A*: Table 10–1 (LLG Ferry Landing Draft TIA, 2/8/2018) *Attachment B*: LOS by Movement Results, 1st Street/Project Driveway

ATTACHMENT A

TABLE 10–1 (LLG FERRY LANDING DRAFT TIA, 2/8/2018)

	Intersection	Control	Peak	Existi Cumu	ng + lative	Existing +	+ Cumul Project	ative
		гуре	nour	Delay <sup>a</sup>	LOS <sup>b</sup>	Delay	LOS	$\Delta^{c}$
1.	Orange Avenue / 4th Street	Signal	Weekday Saturday	27.1 15.0	C B	27.2 15.2	C B	0.1 0.2
2.	Orange Avenue / 3rd Street	Signal	Weekday Saturday	17.3 17.2	B B	17.5 17.4	B B	0.2 0.2
3.	Orange Avenue / 1st Street	Signal	Weekday Saturday	7.7 6.9	A A	8.0 7.2	A A	0.3 0.3
4.	B Avenue / 1st Street	MSSC <sup>d</sup>	Weekday Saturday	12.0 16.1	B C	12.4 17.0	B C	0.4 0.9
5.	Project Driveway / 1st Street	MSSC	Weekday Saturday	10.4 10.8	B B	10.8 11.2	B B	0.4 0.4
6.	A Avenue / 1st Street	MSSC	Weekday Saturday	9.8 10.4	A B	9.8 10.5	A B	0 0.1
7.	A Avenue / 3rd Street	MSSC	Weekday Saturday	9.3 9.3	A A	9.3 9.3	A A	0 0

TABLE 10–1 **NEAR-TERM INTERSECTION OPERATIONS** 

Fo	otnotes:	SIGNALIZ	ED	UNSIGNAL	IZED
a.	Average delay expressed in seconds per vehicle.				
b.	Level of Service.	DELAY/LOS THR	ESHOLDS	DELAY/LOS THF	RESHOLDS
c. d	$\Delta$ denotes an increase in delay due to project. MSSC – Minor-Street Stop Controlled intersection Minor street	Delay	LOS	Delay	LOS
u.	left turn delay is reported.	$0.0 \leq 10.0$	Α	$0.0 \leq 10.0$	А
		10.1 to 20.0	В	10.1 to 15.0	В
		20.1 to 35.0	С	15.1 to 25.0	С
		35.1 to 55.0	D	25.1 to 35.0	D
		55.1 to 80.0	Е	35.1 to 50.0	Е
		≥ 80.1	F	≥ 50.1	F

ATTACHMENT B

LOS BY MOVEMENT RESULTS, 1ST STREET/PROJECT DRIVEWAY

Intersection						
Int Delay, s/veh	5.2					
-						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- सी	4		۰¥	
Traffic Vol, veh/h	119	71	85	41	17	110
Future Vol, veh/h	119	71	85	41	17	110
Conflicting Peds, #/hr	39	0	0	39	8	2
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mymt Flow	129	77	92	45	18	120

Major/Minor	Major1	Majo	or2	Minor2		
Conflicting Flow All	176	0	-	0 497	156	
Stage 1	-	-	-	- 154	-	
Stage 2	-	-	-	- 343	-	
Critical Hdwy	4.12	-	-	- 6.42	6.22	
Critical Hdwy Stg 1	-	-	-	- 5.42	-	
Critical Hdwy Stg 2	-	-	-	- 5.42	-	
Follow-up Hdwy	2.218	-	-	- 3.518	3.318	
Pot Cap-1 Maneuver	1400	-	-	- 532	890	
Stage 1	-	-	-	- 874	-	
Stage 2	-	-	-	- 719	-	
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1348	-	-	- 444	855	
Mov Cap-2 Maneuver	-	-	-	- 444	-	
Stage 1	-	-	-	- 758	-	
Stage 2	-	-	-	- 692	-	

Approach	EB	WB	SB
HCM Control Delay, s	5	0	10.8
HCM LOS			В

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR SBLn1
Capacity (veh/h)	1348	-	-	- 761
HCM Lane V/C Ratio	0.096	-	-	- 0.181
HCM Control Delay (s)	8	0	-	- 10.8
HCM Lane LOS	А	А	-	- B
HCM 95th %tile Q(veh)	0.3	-	-	- 0.7

Intersection						
Int Delay, s/veh	4.8					
-						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		- କ	4		۰¥	
Traffic Vol, veh/h	137	94	98	49	15	95
Future Vol, veh/h	137	94	98	49	15	95
Conflicting Peds, #/hr	49	0	0	49	29	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage	,# -	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles. %	2	2	2	2	2	2
Mymt Flow	149	102	107	53	16	103
	,			00	10	.00

Major/Minor	Major1	Majo	or2	ľ	Vinor2		
Conflicting Flow All	209	0	-	0	612	186	
Stage 1	-	-	-	-	183	-	
Stage 2	-	-	-	-	429	-	
Critical Hdwy	4.12	-	-	-	6.42	6.22	
Critical Hdwy Stg 1	-	-	-	-	5.42	-	
Critical Hdwy Stg 2	-	-	-	-	5.42	-	
Follow-up Hdwy	2.218	-	-	-	3.518	3.318	
Pot Cap-1 Maneuver	1362	-	-	-	456	856	
Stage 1	-	-	-	-	848	-	
Stage 2	-	-	-	-	657	-	
Platoon blocked, %		-	-	-			
Mov Cap-1 Maneuver	1298	-	-	-	363	814	
Mov Cap-2 Maneuver	-	-	-	-	363	-	
Stage 1	-	-	-	-	710	-	
Stage 2	-	-	-	-	626	-	

Approach	EB	WB	SB	
HCM Control Delay, s	4.8	0	11.2	
HCM LOS			В	

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR SBLn1
Capacity (veh/h)	1298	-	-	- 696
HCM Lane V/C Ratio	0.115	-	-	- 0.172
HCM Control Delay (s)	8.1	0	-	- 11.2
HCM Lane LOS	А	А	-	- B
HCM 95th %tile Q(veh)	0.4	-	-	- 0.6