SECTION 1.0
EXECUTIVE SUMMARY

INTRODUCTION

This Environmental Impact Report (EIR) has been prepared by the City of Carlsbad (City) as lead agency pursuant to the California Environmental Quality Act (CEQA) Public Resources Code 21000 et. seq., and the State CEQA Guidelines (California Code of Regulations, Section 15000 et. seq.) to evaluate the environmental effects of the proposed Carlsbad Seawater Desalination Facility and its related water conveyance facilities. Specifically, the City is analyzing the project proposal of Poseidon Resources (Channelside) LLC (Poseidon), which has submitted:

(1) An amendment to a pending Precise Development Plan (PDP) application to the City of Carlsbad (City) to obtain land use approvals to construct and operate an approximately 50 million gallon per day (mgd) Carlsbad Seawater Desalination Plant (desalination plant) and other appurtenant and ancillary water and support facilities to produce potable water; and

(2) Other land use applications and plans and information to obtain approval to construct water conveyance facilities that would extend into Carlsbad, Vista, and Oceanside and deliver product water to the City of Carlsbad and various local water districts.

The PDP application was made jointly with Cabrillo Power I LLC (hereinafter referred to as Cabrillo), owner and operator of the Encina Power Station, which is adjacent to the site of the proposed desalination plant. Although Cabrillo is not a co-applicant for the desalination plant, the co-application on the PDP was necessary to satisfy a City of Carlsbad Zoning Code requirement for properties zoned PU-Public Utility. The desalination plant would be located on the grounds of the power station in a location northeast of the large power generating building and stack, the two prominent features of the power station. The PDP application encompasses the entire Encina Power Station site, which includes 95 acres between Carlsbad Boulevard and Interstate 5 on the south shore of Agua Hedionda Lagoon.

This EIR analyzes all components of the project, including the water conveyance facilities located outside Carlsbad in the cities of Oceanside and Vista. The City of Carlsbad does not have permit jurisdiction over project components located outside its boundaries. Agencies other than the City of Carlsbad will use this EIR when making a decision on aspects of the project that require their approval. More information on agencies expected to use this EIR may be found in *Section 2.0* and *Section 3.0.*

PURPOSE AND OBJECTIVES

The purpose of this EIR is to assess and disclose potential impacts to the physical environment associated with construction and operation of the proposed project. This document provides relevant information for consideration by decision-makers and the general public. More information on this EIR, including details about its preparation, may be found in *Section 2.0, Introduction.*

The fundamental purposes of the PDP include the following:

- To provide the primary land use approval mechanism and detailed exhibits for the City's review and approval of the proposed 50 mgd Carlsbad Seawater Desalination Plant to be located adjacent to the Encina Power Station.

- To establish a baseline for identifying existing facilities and operations on site for the purpose of increasing knowledge and understanding about station operations and onsite facilities.

- To establish a procedure for administrative approvals that will enable the City to issue administrative permits, building permits and other ministerial permits, establish amendment procedures for the PDP, and entitlements for property owned by Cabrillo Power I LLC (hereinafter referred to as Cabrillo), zoned P-U.

- To provide development standards for the power plant.

The specific objectives related to the desalination plant and associated facilities and the land use applications through which they are processed include the following:

- To provide a local source of potable water to supplement imported water supplies available to the City of Carlsbad and the San Diego region.

- To improve water supply reliability for the City of Carlsbad and the San Diego region.

- To improve water quality for the City of Carlsbad and the surrounding communities.

- To complement local and regional water conservation, and water recycling programs.

- To locate and design a desalination plant in a manner that maximizes efficiency for construction and operation and minimizes environmental effects.

- To increase opportunities for public access to the coastal area through public enhancements and dedications of coastal property.

PROJECT LOCATION

The desalination plant would be located adjacent to the existing Encina Power Station, or EPS, located immediately south of the Agua Hedionda Lagoon, within the City of Carlsbad, in northern San Diego County. The power plant and all properties included in the PDP are located at 4600 Carlsbad Boulevard, along the southern edge of the Agua Hedionda Lagoon on the Pacific Ocean. The land and facilities owned by Cabrillo within the PDP area encompass approximately 95 acres, and are generally bounded by SDG&E property on the south, the Pacific Ocean and Carlsbad Boulevard on the west, Interstate 5 on the east, and the southern shore of the outer, and middle basins of the Agua Hedionda Lagoon on the north. The desalination plant would occupy an approximately 4-acre parcel in the area currently containing Fuel Oil Tank #3, which is the southernmost of three large tanks nearest Carlsbad Boulevard. The fuel oil tank would be demolished to accommodate the desalination facility.

This EIR also evaluates potential environmental effects associated with the offsite water delivery infrastructure that is associated with the desalination plant. The offsite facilities primarily consist of water delivery pipelines and a pump station. The different water delivery pipeline alignments generally follow existing and future roadways, including Cannon Road, Faraday Avenue, Avenida Encinas, Orion Street, Palmer Way, College Boulevard, Melrose Avenue, Shadowridge Drive, Sequoia Crest Drive, Lake Boulevard, Mesa Drive, Thunder Drive, and Waring Road, within the cities of Carlsbad, Oceanside and Vista.

PROJECT DESCRIPTION

Poseidon Resources (Channelside) LLC (Poseidon) has submitted an amendment to a pending Precise Development Plan (PDP) application to the City of Carlsbad (City) to obtain land use approvals to construct and operate an approximately 50 million gallon per day (mgd) Carlsbad Seawater Desalination Plant (desalination plant) and other appurtenant and ancillary water and support facilities to produce potable water. The PDP application was made jointly with Cabrillo, owner and operator of the EPS which is adjacent to the site of the proposed desalination plant.

The Encina Power Station Precise Development Plan will establish general planning policies and development standards for the planning area and permit administrative processing for minor land use modifications. It will also serve as the primary land use approval mechanism for approval of the desalination plant. The Plan establishes baseline conditions for existing facilities and operations on site as well as establishes procedures for administrative approvals for future

changes within the PDP area. The development standards would apply to all future onsite development, including major and minor additions and modifications. However, the project would not modify Encina Power Station operations, and, with the exception of discharge channel and electrical connections, would also not modify any of the existing EPS facilities. Furthermore, with the exception of the intake pump station and pipeline, concentrate return pipeline, sewer connection, backwash water treatment facility, electrical transformers, substation, electrical transmission lines, road improvements, and product water pipeline, all of which would not modify the power plant operations, construction of the desalination plant would be limited to the 4-acre desalination plant site and to the offsite improvements that lie outside of the PDP boundary.

The proposed desalination plant, would have the capacity to deliver approximately 50 million gallons per day (mgd) of Reverse Osmosis (RO) permeate (product water). From the desalination plant, the desalinated water would be distributed along several pipeline routes (some proposed, some planned and some existing) to the City of Carlsbad and various local water districts as wholesale water purchasers for ultimate use and consumption by homes and businesses in Northern San Diego County. The onsite and offsite components of the desalination plant are discussed in *Section 3.0, Project Description*. To facilitate distribution of product water, the EIR will analyze different pipeline alignments through portions of Carlsbad, Oceanside, and Vista.

All components of the desalination plant, including all onsite and offsite project elements, are proposed to be sized and built to accommodate and deliver 50 mgd of product water. However, production may be phased to produce amounts smaller than 50 mgd to match the amount of product water purchased by water agencies. The EIR will analyze the impacts of a 50 mgd plant.

ENVIRONMENTAL REVIEW REQUIREMENTS

Initial scoping of the project concluded that with proper engineering design, construction and maintenance, the proposed project would not significantly affect the following environmental category: agricultural resources. Based on the initial scoping, the City determined that an EIR was required to more fully investigate project effects to aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, traffic and transportation, public facilities and service systems, cumulative impacts, and growth-inducement.

ISSUES OF CONCERN AND AREAS OF KNOWN CONTROVERSY

As a result of the project scoping process and Notice of Preparation (NOP), concerns were expressed and issues were raised by the commenting parties relative to the proposed project. In

addition, comments received on the Draft EIR raise additional issues. These issues are addressed in the responses to comments, as a part of the Final EIR. While the EIR considers these issues and concerns in the analysis of environmental effects of the project, there are likely certain issues contained within those comments that represent areas of known controversy relative to the project. The NOP comments are contained in their entirety in Appendix A of this EIR. The Draft EIR comments and corresponding responses are contained in this Final EIR.

ENVIRONMENTAL ANALYSIS

The following table, *Table 1-1*, provides a summary of impacts related to the proposed project. Additional information explaining the findings summarized in the table can be found in the "note' section of each table.

TABLE 1-1
PDP and Desalination Plant Project – Summary of Significant Environmental Impacts

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Aesthetics		
• Since the existing vegetative screening of the site may be affected by activities necessary for project construction, a potentially significant impact to scenic resources could result. • Exposure of certain features of the facilities, such as chemical storage tanks and pump equipment could potentially result in degradation of the visual character or quality of the site and represents a potentially significant impact. • Although the new sources of light are not considered to be substantial, because of the sensitive nature of the adjacent lagoon habitats, control of lighting features is necessary to avoid potential impacts to those habitats. • Potential impacts related to conformance with the Scenic Corridor guidelines.	**a)** Replacement planting for trees that are removed along the railroad corridor shall be provided to screen views from the rail line towards the facility. Tree or other plant species, quantity, and size shall be in keeping with the adopted City of Carlsbad Scenic Corridor Guidelines, City Landscape Manual, and the vegetative character of the Agua Hedionda Lagoon ~~and~~ to the extent that the species are compatible with existing vegetation. Planting shall be sufficient to provide screening ~~from the ground up~~ when mature. Verification of the adequacy of the proposed plantings will occur through City review and approval of the project's landscape plan. The project landscape plan shall also be sent to the North County Transit District for review and comment to ensure that replacement planting poses no potential rail hazards. **b)** Desalination plant e~~E~~xterior mechanical equipment and ~~plant~~ facilities, including tanks, heating, air conditioning, refrigeration equipment, plumbing lines, duct work and transformers, shall be screened from view on all sides visible to the public. The design and material used for screening shall be architecturally compatible with the building. **c)** To the extent practical, the existing mature landscape on the slope facing Carlsbad Boulevard adjacent to the ~~project~~ desalination plant site shall remain in place and be protected from construction impacts through the use of fencing and signage. Replacement planting for trees and shrubs that are removed along the slope facing Carlsbad Boulevard shall be provided to screen views from Carlsbad Boulevard towards the facility. Tree or other plant species, quantity, and size shall be in keeping with the adopted City of Carlsbad Scenic Corridor Guidelines, City Landscape Manual, the vegetative character of the Agua Hedionda Lagoon area and shall be sufficient to provide screening from the ground up when mature. Verification of the adequacy of the proposed plantings will occur through City review and approval of the project's landscape plan. **d)** Construction staging areas within the PDP area shall be screened from public view or located in an area away from direct public view. Plans showing the staging area locations and screening shall be submitted to the Planning Director and his/her designee for review and approval. **e)** Exterior lighting for the desalination facilities shall serve the purpose of operations, security and safety only. The applicant shall submit for approval a lighting plan for the proposed facilities prior to building permit issuance. The lighting plan shall demonstrate that project lighting is shielded from	No significant aesthetic impacts are anticipated with incorporation of the recommended mitigation measures.

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IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	surrounding areas, and that only the minimum amount of lighting required for safety purposes is provided to avoid adverse effects on surrounding areas. In general, lighting fixtures shall be shielded downward and away from the adjacent Agua Hedionda Lagoon and adjacent properties. Construction of the desalination plant and related facilities and improvements shall be in conformance with the approved plan. **f)** Building elevations, including those visible from the NCTD railroad, shall substantially conform to ~~approved~~ the plans approved for the desalination plant pursuant to PDP 0002.	
Air Quality		
No significant impacts to air quality were identified at the project level. However, as noted in Section 5.0 significant cumulative air quality effects related to PM 10 and ozone (ozone producing air pollutants) could result from implementation of the project in combination with other cumulative projects.	No significant impacts to air quality were identified; therefore, no mitigation measures are required. No feasible mitigation is available at the project level to offset adverse cumulative air quality effects.	The proposed project would not result in any significant impacts to air quality on a project level, but would contribute to a cumulative regional significant impact related to PM 10 and ozone (ozone producing pollutants).
Biological Resources		
▪ Direct impacts on sensitive vegetation communities, including chamise chaparral, coastal sage scrub (undisturbed and disturbed), coyote brush scrub, non-native grassland, herbaceous wetland (undisturbed and disturbed) open channel (jurisdictional waters of the U.S.), and southern willow scrub are considered to be significant. ▪ Implementation of the proposed project would result in the temporary loss of suitable habitat for three pairs and one individual coastal California gnatcatcher. This is considered a significant impact. ▪ Impacts associated with dust are potentially significant and require mitigation. ▪ Operation of the desalination plant withEPS net flow rates that represent both typical and "historical extreme" conditions would not result in salinity levels that would exceed significance thresholds. However, a mitigation measure has	a) Proposed mitigation for temporary impacts to sensitive habitats shall be based on the ratios listed below in *Table 4.3-9*, in *Section 4.3*. It should be noted that acreage figures are based on estimated "worst case" impacts. Actual impacts may be less and would be subject to the same mitigation ratios, but the mitigation acreages could change as a result. With the exception of temporary impacts on habitats designated as Groups E and F by the HMP (*i.e.*, disturbed lands, eucalyptus and agricultural lands) mitigation shall consist of, at a minimum, 1:1 revegetation of in-kind habitats at the location of impact, and, for the portion of ratios greater than 1:1, off-site purchase or acquisition as described in mitigation measure 4.3-2. Temporary impacts on non-native habitats designated as Groups E and F by the HMP are expected to recover on their own and therefore are not included in revegetation efforts; however, impacts to these habitat groups are subject to payment of a fee pursuant to the Habitat Management Plan Mitigation Fee Program. Mitigation acreages for disturbed and undisturbed habitats have been added together. Sensitive vegetation communities shall be restored to the pre-existing vegetation type. Restoration of wetlands shall be discussed in a Conceptual Wetlands Mitigation and Monitoring Plan which shall, at a minimum, include discussion of impact assessment, recording of pre-construction site conditions, post-construction site preparation, planting,	Impacts to biological resources can be mitigated to less than significant levels by incorporation of mitigation measures. No significant adverse impacts would remain after mitigation.

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IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
been included for purposes of requiring monitoring of the combined operations of the desalination plant and the EPS to ensure that salinity levels remain within the parameters that have been analyzed.	irrigation, five-year maintenance and monitoring, and long-term preservation. Restoration of uplands shall be discussed in an Uplands Mitigation and Monitoring Plan which shall, at a minimum, include discussion of impact assessment, recording of pre-construction site conditions, post-construction site preparation, planting, irrigation, five-year maintenance and monitoring, and long-term preservation. These measures will reduce significant direct effects to a level less than significant. b) Mitigation ratios identified in *Table 4.3-9* that require more than 1:1 mitigation (e.g., 2:1) shall satisfy the mitigation that is in addition to the 1:1 in one or both of the following ways and in a manner acceptable to local, state, and federal agencies: ▪ Through purchase of mitigation bank credits ▪ Through acquisition and preservation of suitable habitat in the vicinity of the project c) Indirect impacts including dust, soil erosion, pollution, siltation, and runoff shall be reduced through implementation of construction best management practices (BMPs) and implementation of an approved SWPPP. In order to assure that these measures are adequately protecting adjacent biological resources, construction activity shall be monitored by a qualified biologist familiar with the sensitive flora and fauna of the area. Biological monitoring shall be of a frequency and duration necessary to reasonably assure that indirect impacts are minimized. This shall include implementation of a contractor education program, verification of proper construction and maintenance of staking/fencing, full-time monitoring of vegetation removal, periodic monitoring of construction activity adjacent to sensitive resource areas, and reporting of contractor compliance and impact minimization measures on a monthly basis. These measures shall ensure that indirect impacts on vegetation communities, including dust, erosion, sedimentation, pollution, siltation, and runoff are reduced to level below significant. d) The potential for direct impacts on coastal California gnatcatcher individuals shall be mitigated by restricting the clearing of coastal sage scrub within the project alignment to outside of the gnatcatcher breeding season (August 16 through February 14). e) The potential short-term increase in noise related to construction shall be mitigated through avoidance of construction during the gnatcatcher breeding season or maintenance of noise levels below 60 dBA Leq at occupied nest locations if construction takes place during the breeding season (*i.e.*, February 15 through August 15). The maintenance of appropriate noise	

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	levels shall be confirmed through protocol gnatcatcher surveys to determine presence of all gnatcatcher within 500 feet of project construction and noise measurements at nest locations during peak construction activity by a qualified acoustician. f) To avoid potential adverse effects from hydro-fracturing that could occur as a result of horizontal directional drilling or micro-tunneling, the applicant shall provide evidence to the local jurisdiction that demonstrates that the design of the drilling operation provides sufficient horizontal distance and depth from sensitive habitat areas. Information provided shall provide appropriate engineering calculations to demonstrate to the local jurisdiction's satisfaction that surface rupture will not occur within sensitive habitat areas. g) The operator of the desalination plant shall continuously monitor the desalination plant and EPS discharge flow rates and salinity levels. The operator of the desalination plant shall on at least a semi-annual frequency monitor and conduct testing to measure and evaluate the combined EPS/desalination plant discharge for compliance with Ocean Plan acute and chronic toxicity requirements. The operator of the desalination plant shall ~~and~~ maintain records of the monitoring results to ensure compliance with Ocean Plan criteria and EPA guidelines. All semi-annual monitoring and testing required by this mitigation measure shall be summarized in a report and submitted to the RWQCB within 45 days of completion, and any noncompliance with Ocean Plan acute and chronic toxicity requirements shall be reported to the RWQCB. Such monitoring results shall be available for inspection by the City of Carlsbad and the RWQCB. Should the RWQCB adopt a permit requirement that is intended to provide equal or greater protection to the marine environment, the Planning Director is authorized to amend this mitigation measure to conform to the RWQCB order.	
Cultural Resources		
▪ Due to the presence of recorded archaeological sites just within the project area and potential for buried cultural materials, potential impacts could occur. Potential impacts to cultural resources would be considered a significant, but mitigable impact. ▪ Potential impacts to paleontological resources could result from project grading and excavation.	a) Where project construction will impact cultural resources that have been determined to be significant, mitigation shall include either avoidance, or if avoidance is not feasible, then a data recovery program shall be completed to recover a large enough sample of cultural material so that information of importance in addressing regional research questions will not be irretrievably lost. The data recovery program shall be developed by a qualified archaeologist and approved by the City of Carlsbad. b) In cases where the precise alignment of the pipeline is not available, and therefore the potential to affect cultural resources cannot be	With the incorporation of the mitigation measures, all impacts related to cultural and paleontological resources would be reduced to a less than significant level.

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	specifically determined, the applicant shall be required to retain a qualified archaeological monitor during construction so that buried cultural resources can be identified in the field. The archaeological monitor shall meet the minimum qualifications as required by the City of Carlsbad. If significant resources are identified within the areas that could be affected by construction, the resources shall be tested (pursuant to the mitigation measure 4.4-1) to determine significance with appropriate mitigation measures employed as necessary. c) A qualified paleontological monitor shall be present at a pre-grading meeting with the construction contractor and ~~environmental review coordinator~~Planning Director or his/her designee. The purpose of the meeting would be to consult and coordinate the role of the paleontologist during construction. The paleontological monitor shall have adequate knowledge and experience with fossilized remains likely to be present to identify them in the field. The paleontological monitor shall be adequately experienced to remove paleontological resources for further study. d) The paleontological monitor shall be present during the applicable stages of grading and construction (including trenching) as determined at the pre-grading meeting. The paleontological monitor shall have the authority to temporarily direct, divert, or halt grading in the area of an exposed fossil to facilitate evaluation and, if necessary, salvage. At the discretion of the monitor, recovery may include washing and picking of soil samples for microvertebrate bone and teeth. The contractor shall be aware of the random nature of fossil occurrences and the possibility of a discovery of such scientific and/or educational importance which might warrant a long-term salvage operation or preservation. All fossils collected shall be donated to a museum with a systematic paleontological collection, such as the San Diego Natural History Museum. The City of Carlsbad Engineering Division shall ensure the grading contractor is aware of this provision. Conflicts regarding the role and authority of the monitor shall be resolved by the Planning Director or ~~his~~ his/her designee. e) A paleontological monitoring report shall be submitted to the City of Carlsbad. The report shall describe the materials recovered by the monitoring program.	

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Geology and Soils		
▪ Without proper grading and recompaction or remedial design features for building foundations, impacts related to soil stability are considered significant. ▪ Site-specific geotechnical conditions associated with the various pipeline alignments may result in significant impacts related to suitability of materials.	a) To provide a uniform bearing for the proposed facility, the fill/residual soils beneath the desalination facility site shall be removed and recompacted. As an alternative, all the building footings may be deepened through the compacted fill soils and be founded into the formational materials of the Santiago Formation, in accordance with the recommendations contained in the geotechnical report. b) A pre-construction geotechnical investigation shall be prepared to address geotechnical considerations related to constructing and operating all of the offsite project components including water delivery pipelines, the pump station, and surge control facilities. The report shall contain all necessary requirements to address any adverse soils conditions that may be encountered in final design of the facilities. The project will be required to adhere to all such requirements. The report shall include a discussion of site-specific geology, soils and foundational issues, a seismic hazards analysis to determine the potential for strong ground acceleration and ground shaking, potential groundwater issues, and structural design recommendations. The soil engineer and engineering geologist shall review the grading plans prior to finalization to verify the plans' compliance with the recommendations of the report. A third party review of the geotechnical report and final grading plans shall be conducted by the Engineering Department of the appropriate local jurisdiction (e.g., the City of Carlsbad) prior to issuance of grading permits and encroachment permits. Compliance with this measure shall be verified by the local jurisdiction.	Implementation of this mitigation measure would reduce impacts related to geology and soils to less than significant levels. No significant adverse impacts would remain after mitigation.
Hazards and Hazardous Materials		
• Potential for release or exposure of existing subsurface contamination could result from project construction activities. Impacts from a potential release of hazardous materials into the environment are considered to be significant and require mitigation. • Project features that are designed to reduce risks associated with chemical use and storage, combined with regulatory requirements for safe handling and storage of materials will minimize hazards associated with plant operation. As such, it is not anticipated that the project would create a significant hazard to the public or the	a) To mitigate the potential for exposure of existing contamination during construction of offsite pipelines, construction monitoring will be provided in areas identified as having the potential for such risks, and appropriate actions, as determined by the City's construction inspector shall be taken if such materials are encountered. Such actions may include avoidance or removal of contaminated materials, or special handling measures to avoid exposure to materials. b) To mitigate the potential for exposure of existing contamination during construction of offsite pipelines, construction monitoring will be provided in areas identified as having the potential for such risks, and appropriate actions, as determined by the City's construction inspector shall be taken if such materials are encountered. Such actions may include avoidance or removal of	With implementation of project design features, required regulatory controls and mitigation measures, project impacts relating to hazards and hazardous materials would be less than significant

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environment through the routine transport, use, or disposal of hazardous materials, or create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Therefore, impacts in regards to the long-term operational use, storage, and transport of hazardous materials involved in desalination facility operation would be less than significant. However, mitigation measures are included to ensure that these project features and operational practices are maintained.	contaminated materials, or special handling measures to avoid exposure to materials. c) All hazardous materials shall be handled, ~~and~~ stored, transported and disposed in accordance with all applicable federal, state and local codes and regulations. Specific requirements of the California Fire Code that reduce the risk of fire or the potential for a release of hazardous materials that could affect public health or environment include: • Provision of an automatic sprinkler system for indoor hazardous material storage areas; • Provision of an exhaust system for indoor hazardous material storage areas; • Separation of incompatible materials by isolating them from each other with noncombustible partition. • Location of incompatible materials as far away from each other as practical. • Spill control in all storage, handling and dispensing areas; • Separate secondary containment for each liquid chemical storage system. The secondary containment shall be designed to hold 110 % of the entire contents of the tank. ~~The secondary containment for the cleaning chemicals located inside the RO building shall have an extra volume to hold the water~~ Adequate storage shall be provided inside the RO building to hold water for the fire suppression system that could be used for fire protection for a period of 20 minutes in the event of a catastrophic spill. The secondary containment of the chemical storage tanks located outside the RO building shall have extra storage capacity to hold precipitation form a 25-year, 24-hour event. • Use of chlorine in liquid form (sodium hypochlorite) to mitigate concerns associated with accidental toxic gas plume releases and potential odor emissions from the chlorine storage facility; • Use of aqua ammonia of concentration below the regulatory threshold limit of 20 % and amount below the regulatory threshold of 20,000 gallons to mitigate concerns associated with accidental release of significant toxic ammonia gas plume releases. • All liquid chemical storage tanks shall be equipped with a pressure relief valve, vapor equalization, a carbon filter vent, and vacuum breaker. Any potential vapor fume releases from the storage tanks shall be absorbed by the carbon filter vent, thereby providing an effective odor control for volatile chemicals, such as ammonia and chlorine.	

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	d) Each of the liquid chemicals used on site shall be stored in a tank with a concrete secondary containment surrounding the tank. The containment area shall have a sloped floor, which shall direct the liquid to a drain centered below the tank. This drain shall lead to a covered sump. Each of the chemical storage tanks shall be equipped with continuous level monitors, automated leak detection system, temperature and pressure monitors and alarms, and excess flow and emergency block valves. All storage tanks shall be constructed of appropriate, non-reactive materials, compatible with the recommendations of the supplier of the hazardous material. e) In the event of an accidental liquid chemical spill, the chemical shall be contained within the concrete containment structure and evacuated through an individual drainage system, and pumped into hazardous waste containment trucks and transported off-site for disposal at an appropriate facility accepting such waste. This operation shall be completed by a specialized contractor licensed in hazardous waste handling and disposal. Appropriate agencies, such as the City of Carlsbad Fire and Police Departments, shall also be contacted if necessary. f) The chemical conveyance piping system connecting chemicals from their storage areas to their points of application shall be protected from leaks utilizing one of the following leak protection measures: • Use of piping with double containment walls to prevent potential chemical leaks from reaching the soil or groundwater; and • Installation of chemical conveyance and feed pipelines in designated plastic or concrete trenches that will contain potential leaks and drain the leaking chemical(s) to a designated containment sump or tank, from where the chemical(s) will be evacuated and disposed of in compliance with all applicable federal, state, and local codes. g) Appropriate safety programs shall be developed addressing hazardous materials storage locations, emergency response procedures, employee training requirements, hazard recognition, fire safety, first aid/emergency medical procedures, hazard communication training, and release reporting requirements. These programs shall include a Hazardous Materials Business Plan, worker safety program, fire response program, a plant safety program, and the facility's standard operating procedures. The project shall also be in compliance with all applicable hazardous material storage and management regulations and shall prepare all safety planning documentation associated with compliance with these regulations. For security purposes, the desalination	

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	facility would allow site access to authorized personnel only via a secured entry point with a 24-hour guard.	
Hydrology and Water Quality		
▪ If the construction areas are not properly managed to contain loose soils and liquid and solid contaminants, potentially significant short-term water quality impacts could occur. ▪ During construction, placement of construction materials, including equipment, pipes, shoring, and spoils, could temporarily impede or redirect flows.	a) Prior to issuance of a grading permit~~s~~, building permit or demolition permit, whichever occurs first ~~or other permits~~, the project applicant shall demonstrate compliance with all applicable regulations established by the United States Environmental Protection Agency (USEPA) as set forth in the National Pollutant Discharge Elimination System (NPDES) permit requirements for urban runoff and storm water discharge and any regulations adopted by the city within which construction will take place, pursuant to the NPDES regulations or requirements of that city (Carlsbad, Oceanside and Vista). Further, the applicant shall file a Notice of Intent (NOI) with the State Water Resources Control Board to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity and shall implement a Storm Water Pollution Prevention Plan (SWPPP) concurrent with the commencement of grading activities. The SWPPP shall include both construction and post-construction pollution prevention and pollution control measures and shall identify funding mechanisms for post-construction control measures. The SWPPP shall also be sent to the North County Transit District for review and comment. The following best management practices shall be adhered to during construction: • Gravel bags, silt fences, etc. shall be placed along the edge of all work areas as determined appropriate by the City's construction inspector in order to contain particulates prior to contact with receiving waters. • All concrete washing and spoils dumping will occur in a designated location. • Construction stockpiles will be covered in order to prevent blow-off or runoff during weather events. • A pollution control education plan shall be developed by the General Contractor and implemented throughout all phases of development and construction. • Severe weather event erosion control materials and devices shall be stored onsite for use as needed. • Other best management practices as determined necessary by the cities.	The proposed mitigation measures and project design would mitigate all significant impacts related to water resources and water quality to a less than significant level.

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	b) Prior to issuance of grading or building permits, whichever occurs first, the applicant shall submit for City approval a Storm Water Management Plan (SWMP). The SWMP shall demonstrate compliance with the city of Carlsbad Standard Urban Storm water Mitigation Plan (SUSMP), Order 2001-01, issued by the San Diego Region of the California Regional Water Quality Control Board and City of Carlsbad Municipal Code. **c)** Construction within any area the City of Carlsbad identifies as a 100-year flood hazard shall occur only during dry months (May 1 – September 30). The City may waive this restriction if the applicant satisfactorily demonstrates, as determined by the City, that construction would not impede or redirect flood flows and would not expose people or structures to flooding. Such demonstration shall occur before the City issues grading or other permits to permit construction in the flood hazard area in the wet months and may require the applicant to submit plans and details regarding the type, location, quantities and duration of construction equipment and materials as well as any other information that the City may require.	
Land Use and Planning		
▪ While the impact on airport operations would be temporary, construction and construction equipment could potentially present a hazard to aircraft and airport operations.	a) The applicant shall coordinate with and receive approval from the McClellan-Palomar Airport Operations Manager before constructing within the Airport Influence Area and particularly within any Flight Activity Zone and Runway Protection Zone or on airport property.	Land use and relevant planning impacts would be less than significant with incorporation of mitigation measures.
Noise		
No Significant Impacts were identified	No mitigation is required	The proposed project would not result in any significant impacts related to noise.
Traffic and Circulation		
To ensure that localized, significant impacts do not occur as a result of traffic associated with desalination plant and pipeline construction, including hauling of excavated soils to disposal sites, the applicant will be required to demonstrate that construction operations will not result in unacceptable Levels of Service during peak hour periods on affected roadways	a) Prior to issuance of grading permits and/or encroachment permits for work within public rights-of-way, the Applicant shall provide the ultimate location of soil disposal sites to the appropriate city (if they are different from the disposal site identified in this analysis), and shall further demonstrate that transport of soil and materials to and from the proposed sites will not result in Levels of Service during peak hour periods on affected roadways and intersections falling below acceptable standards established by the affected cities. b) Prior to improvement plan approval, a traffic control plan will be prepared for approval by each jurisdiction within which the project is proposed to be located. The traffic control plan will show all signage, striping, delineate detours, flagging operations and any other devices which will be used during construction to guide motorists safely through the construction zone and allow for adequate access and circulation, to the satisfaction of the city or agency	After mitigation, all impacts would be reduced to a level below significant. The short term nature of traffic impacts would eliminate any residual impacts.

TABLE 1-1
PDP and Desalination Plant Project – Summary of Significant Environmental Impacts

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	with applicable jurisdiction. The traffic control plan will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety. The construction contractors will coordinate traffic diversions, street and lane closures, and obstruction of intersections with each jurisdiction's engineering department prior to commencing construction activities through the development of routing and detour plans. This Traffic Control Plan will be prepared in accordance with each jurisdiction's traffic control guidelines and will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the Plan will ensure that congestion and delay of traffic resulting from project construction are not substantially increased and will be of a short-term nature. The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor shall provide not less than a 2-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction. During construction, the contractor will ensure that continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities such as schools, parks, post offices and fire stations. If normal access to these facilities is blocked by construction for more than four hours in any given workday, alternative access will be provided. The contractor will coordinate with each facility's administrators in preparing a plan for alternative access. During construction, the contractor will ensure that continuous, unobstructed, safe and adequate pedestrian and vehicular access remains to commercial/ industrial establishments during regular business hours. If normal access to business establishments is blocked by construction for more than four hours in any given workday, alternative access will be provided. The contractor, and possibly the city, will coordinate with the businesses in preparing a plan for alternative access. During construction, the city will maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access	

TABLE 1-1
PDP and Desalination Plant Project – Summary of Significant Environmental Impacts

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	for reasonable periods of time. For example, when the pipeline is initially being excavated, access to individual driveways may be closed during the course of a workday. Access will be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure. Methods to maintain safe, vehicular and pedestrian access includes the installation of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor will place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made. The traffic control plan will include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies such as emergency service providers, mail delivery, school busses and waste services.	
Public Services and Utilities		
▪ Total volume and flow rates for wastewater are not anticipated to exceed established limits under projected operating conditions; however, mitigation has been included for purposes of requiring monitoring and limiting volume and flow rates to ensure that capacity is not exceeded. If the membrane pretreatment option is selected, potentially significant impacts related to TDS could occur at the Encina Water Pollution Control Facility.	a) The combined waste discharge from the desalination facility to the EWPCF shall not exceed an instantaneous maximum of 300 gpm and a daily maximum of 200,000 gpd. The combined total suspended solids discharged to the EWPCF shall not exceed 500 pounds per day. Should the project operations cause the monthly average TDS of the effluent at the local water recycling facilities to exceed 1,000 mg/L, or contribute to the monthly average TDS at the local water recycling facilities exceeding 1,000 mg/L, the Applicant shall take steps to reduce the TDS increase or reimburse the operators of local water recycling plants for its proportional share of the cost to reduce the increase in TDS resulting from project operations. In addition, the applicant shall provide the City a minimum 2 years worth of data that establishes a baseline water quality and TDS levels of the effluent at the local water recycling facilities prior to commencement of project operations. Upon commencement of operations, the applicant shall establish a monitoring program which regularly reports the TDS contribution of the desalination plant. The City shall determine monitoring program parameters, including the frequency of monitoring and duration of the program.	No significant impacts to public utilities and services would remain after implementation of the identified mitigation measure.

SUMMARY OF PROJECT ALTERNATIVES

The Alternatives discussion in Section 6.0 of this EIR focuses on four project alternatives: a No Project/No Development Alternative, an Alternative Site Location Alternative, a Modified Intake Design Alternative, and a Reduced Project Capacity Alternative. The following is a summary of the discussion of project alternatives.

NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Under the No Project/No Development Alternative, existing conditions on the site and existing operations within the PDP area would continue – Fuel oil tank #3 would remain and the Encina Power Station would continue to operate in its current condition. None of the impacts identified for the proposed project would result from implementation of the No Project/No Development Alternative. However, it should be noted that the analysis of the project contained in this EIR did not identify any significant unavoidable adverse effects associated with the project with the exception of cumulative air quality and growth inducing impacts. Additionally, the No Project/No Development Alternative would not meet any of the project objectives related to providing a local source of potable water supply to supplement imported water supplies, improving water supply reliability, or improving water quality for the City of Carlsbad.

ALTERNATIVE SITE LOCATION

As part of planning activities for the proposed project, the applicant considered alternative locations for the proposed desalination plant. Based on siting limitations relative to proximity of existing intake and outfall structures, two primary project locations were identified, the proposed project site (including several variations on the location and configuration of the facility within the Encina Power Station (EPS), as discussed in *Section 4.8, Land Use/Planning*), and a site that is part of the land associated with the Encina Water Pollution Control Facility (EWPCF), a wastewater treatment facility owned by the six member agencies of the Encina Wastewater Authority. For purposes of this analysis, the alternative site is the EWPCF, since the various locations within EPS are substantially the same as the proposed project.

The alternative site is located within a 37-acre parcel immediately south of the EWPCF facility. The Alternative Site project would utilize the existing treated wastewater ocean outfall. However, because of size limitations to the outfall pipeline, the maximum product water capacity of the desalination plant would be 10 mgd. Source water for the plant would be piped from the EPS cooling water discharge, or alternatively, a new intake structure would be constructed offshore of the EWPCF.

Overall, impacts with respect to the following resources would be similar to the proposed project: aesthetics, terrestrial biological resources, cultural resources, geology and soils, hazards, land use/planning, and public utilities and services. Therefore, no substantial impact avoiding or reducing benefits for these resources are provided with this alternative.

Slight reductions in impacts related to air quality, marine biological resources, hydrology/water quality, noise and traffic/circulation would be realized with this alternative due to its reduced capacity and size. However, the Alternative Site Alternative would not alleviate any significant unavoidable impacts associated with the proposed project, as none have been identified, with the exception of cumulative air quality and growth inducing impacts which could not be mitigated to less than significant levels with this alternative. In addition, the alternative would not provide the capacity of water supply anticipated for the local area, and it is anticipated that additional or expanded facilities would be needed in other locations to meet projected regional supply goals. Therefore, the alternative would not be as effective as the proposed project in satisfying the objectives of the project.

MODIFIED INTAKE DESIGN

In developing the design for the proposed project, a number of alternatives for source water intake were examined to determine the feasibility of options in place of the proposed co-location of intake with the Encina Power Station (EPS) cooling water discharge. The purpose of examining these alternatives was to avoid impacts associated with impingement/entrainment related to an open water intake system. It should be noted that, as described in *Section 4.3*, the project as proposed with source water intake from the EPS, would result in entrainment of less than one percent of larvae. Such a small proportion of marine organisms lost to entrainment as a result of the desalination plant would not have a substantial effect on the species' ability to sustain their populations. Therefore, none of these design alternatives provide impact avoidance or reduction that would be required to reduce project impacts to less than significant levels.

REDUCED PROJECT CAPACITY

The Reduced Project Capacity would consist of a desalination facility with a maximum product water output of 25 mgd, or half that of the proposed project. This alternative would meet the minimum requirements for the first phase of water delivery identified in the Water Purchase Agreement between the City of Carlsbad and Poseidon. However, this project would not provide sufficient production capacity to meet planned water supplies for seawater desalination as a component of regional water supplies and additional regional desalination supply alternatives would likely need to be explored to satisfy regional objectives for local water supply reliability.

Impacts with respect to the following resources would be similar to the proposed project: aesthetics, terrestrial biological resources, cultural resources, geology and soils, hazards, land use/planning, and public utilities and services. Therefore, no substantial impact avoiding or reducing benefits for these resources are provided with this alternative. However, this alternative has been identified as the Environmentally Superior Alternative pursuant to the requirements of the CEQA Guidelines, Section 15126.6.

Slight reductions in impacts related to air quality, marine biological resources, hydrology/water quality, noise and traffic/circulation would be realized with this alternative due to it's reduced capacity and size. However, no significant unavoidable adverse impacts have been identified for the proposed project with the exception of cumulative air quality and growth inducing impacts which could not be mitigated to less than significant levels with this alternative. Therefore, the Reduced Capacity Alternative would not provide mitigation or avoidance of impacts that cannot be otherwise mitigated. In addition, the alternative would not provide the capacity of water supply anticipated for the local area, and it is anticipated that additional or expanded facilities would be needed in other locations to meet projected regional supply goals. Therefore, the alternative would not be as effective as the proposed project in satisfying the objectives of the project.

SUMMARY OF GROWTH INDUCEMENT

As a part of the regional water supply planning conducted by the San Diego County Water Authority (CWA) to meet future demands resulting from projected growth, the CWA Board adopted the Regional Water Facilities Master Plan (RWFMP), which is a long-term plan to meet San Diego County's future water demands. With respect to water supply, the RWFMP discusses diversifying the region's water supply and identifies new water supply sources, such as seawater desalination, that will be required to meet the region's water needs through 2030.

Regional water demand forecasts based on regional population growth projections were part of the water supply planning effort included in the RWFMP. As a result of the analysis performed for the RWFMP, three main water supply alternatives were identified:

1. Delivering water from the north – this involves construction of a new pipeline to convey water from the Metropolitan Water District of Southern California
2. Delivering water from the east – this involves a new pipeline extending to the Imperial Valley to convey water transferred from other water agencies
3. Delivering water from the west – this involves development of seawater desalination.

The seawater desalination development alternative was identified as the preferred alternative in the RWFMP, because it was found to provide safe, high-quality water through a locally controlled process from a drought proof source.

Section 18.2 of the Program EIR for the RWFMP discusses the growth-inducing potential for the master plan, which includes consideration of a seawater desalination water supply component. The analysis concludes that seawater desalination neither supports nor encourages growth to a greater degree than presently estimated by SANDAG, and is therefore not inherently directly growth-inducing. However, the EIR acknowledges that the RWFMP may foster additional growth indirectly by removing barriers to growth. A reasonable assessment of the physical effects on the environment that may result from the RWFMP's contribution to growth is speculative, and therefore, pursuant to CEQA Guidelines Section 15145, the conclusions are noted and the discussion terminated.

The proposed project represents local implementation of a planned regional water supply component. Implementation of the proposed project at a local level would have the same potential for growth inducement as the RWFMP. The proposed project is not anticipated to represent additional supplies over and above what is already contemplated for the San Diego region. Therefore, it is not anticipated that delivery of water from a different supplier would have any effect on planned growth within the service area of the proposed project.

Further, it is not anticipated that the purchase of water from a different supplier by any of the affected water agencies would result in any changes to existing land use plans, growth projections or growth management policies of the local land use authorities within the respective service areas of the districts. As previously noted, desalinated seawater is already considered in regional growth analyses conducted by SANDAG, and the proposed project would not represent water supply in excess of what is already anticipated to meet future projected needs.