

Appendix Q



Convention and Event Center Project Groundwater Level Technical Report



**Convention and Event Center Project
Groundwater Level Technical Report
March 5, 2012**

PREPARED BY:

KPFF Consulting Engineers
6080 Center Drive, Suite 750
Los Angeles, CA 90045
(310) 665-2800

TABLE OF CONTENTS

1.0	INTRODUCTION.....	1
1.1	Project Description.....	1
1.2	Scope of Work.....	2
2.0	ENVIRONMENTAL SETTING	3
2.1	Regional Conditions	3
2.2	Local Area Conditions	3
2.3	On-site Conditions.....	4
2.4	Regulatory Framework.....	5
3.0	SIGNIFICANCE THRESHOLDS.....	6
4.0	PROJECT IMPACTS	7
4.1	Construction	7
4.2	Operation	7
4.3	Cumulative Impacts	8
5.0	LEVEL OF SIGNIFICANCE	9
	REFERENCES	10

Appendix

Figure 1 – LARWQCB Map of Los Angeles Coastal Groundwater Basins

Figure 2 – Groundwater Elevation Contours for the Central Basin

1.0 INTRODUCTION

1.1 Project Description

The Convention and Event Center Project (hereafter referred to as the “Proposed Project”) consists of the following three components: (1) expansion and modernization of the Los Angeles Convention Center (hereafter referred to as the “Convention Center”), (2) the construction of a new multi-use entertainment and sports facility (hereafter referred to as the “Event Center”), and (3) related parking and support facilities. The Proposed Project is located within an approximately 68-acre site that includes all of the existing Convention Center property, including the Bond Street Parking Lot and the Cherry Street Parking Garage, STAPLES Center, as well as the air space over Pico Boulevard and LA Live Way (hereafter referred to as the “Project Site”). The Project Site is generally bounded by the following major roadways: the I-110 Harbor Freeway to the west; Chick Hearn Court to the north; Figueroa Street to the east; and Venice Boulevard to the south.

With the implementation of the Proposed Project, the Project Site would function as a unified center for convention, sports and entertainment uses. The Proposed Project is proposed to be implemented through adoption of a new Specific Plan and Community Plan Amendment. Although the Specific Plan encompasses the entire Project Site, its primary focus would be on the regulation of the proposed buildings and related features, including signage, as well as the regulation of transportation and parking. In addition, notable elements of environmental sustainability would be comprehensively integrated into the Proposed Project and would be one of the key elements that would guide the design of the Proposed Project. Total building square footage to be constructed under the Proposed Project would be approximately 1.74 million square feet of net new gross floor area. A brief overview of each of the Proposed Project’s three components is provided below.

The Proposed Project’s first component would involve the demolition and replacement of the Convention Center’s existing West and Petree Halls. The new structure (hereafter referred to as “New Hall”), would bridge over a portion of Pico Boulevard such that it would adjoin the Convention Center’s existing South Hall and would consist of roughly the same amount of square footage as the former West and Petree Halls. While the total square footage would be comparable, the amount of functional space would substantially increase through a more efficient building design that among other benefits results in a substantial increase in contiguous floor space for the Convention Center.

The Proposed Project’s second component is the development of the Event Center, a multi-purpose, entertainment and sports facility with a potentially retractable roof on the site of the former West and Petree Halls. The approximately 1,750,000 square-foot structure would include approximately 72,000 permanent seats with expandable seating capacity to approximately 76,250 seats for major marquee events, such as a Super Bowl. The Event Center would also be available for use as Convention

Center exhibit and meeting room space, when not used for spectator events, providing roughly 245,650 square feet of rentable exhibition and meeting room space.

The Proposed Project's third component would involve the construction of new larger, more efficient parking facilities on the existing Bond Street Parking Lot and Cherry Street Garage sites. As the West Hall would be demolished, the existing 1,625 parking spaces under the West Hall would be removed by the Proposed Project. The existing Cherry Street Garage would be rebuilt and expanded from the existing 858 spaces to approximately 2,950 parking spaces. A new parking garage would be constructed on the existing Bond Street Parking Lot, which would increase parking on that site from approximately 283 to approximately 928 parking spaces. These improvements would result in a net increase of approximately 1,121 parking spaces. Additionally, above-ground pedestrian bridges would provide connectivity between these parking structures and the Event Center and New Hall, as well as to LA Live Way.

In addition to the above improvements, the Proposed Project includes up to approximately 100,000 square feet of renovations to the existing Concourse building. Changes to the Convention Center's existing South Hall would be limited to its interface with the proposed New Hall. Existing parking under the South Hall and in the Convention Center's Venice Garage would not be affected by the Proposed Project. Street vacations involving portions of Pico Boulevard, LA Live Way, Bond Street and 12th Street would also occur under the Proposed Project.

The Proposed Project also includes approximately 4,317 square feet of landscape areas associated with the Event Center Plaza, approximately 69,485 square feet of landscape areas for the Gil Lindsay Plaza, and approximately 40,656 square feet of landscape areas along LA Live Way.

1.2 Scope of Work

This report provides a description of the groundwater level at the Project Site and an analysis of the project's potential impact on groundwater level.

2.0 ENVIRONMENTAL SETTING

2.1 Regional Conditions

The City of Los Angeles overlies eight groundwater basins as identified in the Los Angeles Regional Water Quality Control Plan, adopted by the Los Angeles Regional Water Quality Control Board (LARWQCB), and designated by the California Department of Water Resources (DWR). The Los Angeles Coastal Plain includes the West Coast Basin, the Central Basin, the Santa Monica Basin, and the Hollywood Basin.

Groundwater use for domestic water supply is a major beneficial use of groundwater basins in Los Angeles County. Groundwater is harvested via a large number of wells owned and operated by the Los Angeles Department of Water and Power (LADWP) for use by private agricultural, industrial, and domestic users.

Replenishment of groundwater basins occurs mainly by percolation of precipitation throughout the region via permeable surfaces, spreading grounds, and groundwater migration from adjacent basins, as well as injections wells designed to pump freshwater along specific “seawater barriers” to prevent the intrusion of salt water. Throughout the urban environment as additional impervious surfaces are created and groundwater continues to be harvested, the potential for depletion of groundwater basins increases.

2.2 Local Area Conditions

The Project Site is underlain by the Los Angeles Coastal Plain’s Central Subbasin, commonly referred to as the “Central Basin”. The Central Basin covers approximately 277 square miles and is bounded on the north by a surface divide called the La Brea High, and on the northeast and east by the Elysian, Repetto, Merced, and Puente Hills. The southeast boundary between the Central Basin and Orange County Groundwater Basin roughly follows Coyote Creek, which is a regional drainage province boundary. The southwest boundary is formed by the Newport Inglewood fault system and the West Coast Basin. See Figure 1 – Los Angeles Regional Water Quality Control Board Map of Los Angeles Coastal Groundwater Basins.

Historically, groundwater flow in the Central Basin has been from recharge areas in the northeast part of the sub-basin, toward the Pacific Ocean on the southwest. However, pumping has lowered the water level in the Central Basin and water levels in some aquifers are about equal on both sides of the Newport-Inglewood uplift, decreasing outflow to the West Coast Sub-basin.¹

In a recent report by the Water Replenishment District, groundwater data was collected from wells in the deeper basin aquifers where the majority of groundwater pumping occurs. The deeper aquifers include: the Lynwood, Silverado and Sunnyside. Groundwater levels range from a high of about 170 feet above mean sea level (msl) in the northeast portion of the Central Basin above the spreading grounds in the Whittier Narrows to a low of about 120 feet below msl in the Long Beach area

¹ California Department of Water Resources (DWR). "California's Groundwater Bulletin 118." 2004.

and about 130 feet below msl in the Gardena area. With the exception of the Montebello Forebay and along the West Coast Basin Project, the majority of the groundwater levels in the district are below sea level, which is why continued injection at the seawater barriers is needed to prevent saltwater intrusion. A map showing the contours of the West Coast Basin and the Central Basin can be found in Figure 2. In addition, perched groundwater may be encountered in various locations throughout the region where dense soil conditions allow precipitation to be trapped in the soil strata.

LADWP's Water System provides water to the City's 4.1 million residents and businesses. On average LADWP draws 36% of its water from the Eastern Sierra, and purchases 52% from the Metropolitan Water District of Southern California (MWD). An additional 11% comes from pumped groundwater within the West Coast, and Central Basin. In an effort to conserve resources, Los Angeles uses recycled water for industrial and irrigation purposes, which represents the remaining 1% of total water supply.

2.3 On-site Conditions

Geotechnical investigations in the vicinity of the Proposed Project, as indicated in the report "Report of Geotechnical Investigation for Environmental Impact Report, Proposed Los Angeles Convention Center Modernization and Farmers Field Project" prepared by AMEC E&I, Inc., September 8, 2011, have shown that firm natural soil has been encountered to depths that vary from 2 to 10 feet. Beneath this layer the Project Site is underlain by granular and dense sands. Soil conditions have been shown to be conducive to the infiltration of precipitation based on previous geotechnical investigations in the region.² However, due to the nature of dense urban development, nearly all runoff is directed to public storm drainage infrastructure.

According to the report prepared by AMEC E&I, Inc., the historic high groundwater in the vicinity of the Project Site is estimated to be on the order of 90 feet below ground surface. Prior borings drilled to a depth of 100 feet at the Project Site did not report ground water above that depth except for minor seepage between approximately 17 and 36 feet.

Based on the California State Water Resources Control Board's (SWRCB) GEOTRACKER Groundwater Ambient Monitoring & Assessment (GAMA) database there are no production water wells within a one mile radius of the Project Site.³ The GEOTRACKER website also indicates that in 2008, groundwater was reported between depths of 100 and 120 feet in monitoring wells located approximately 830 feet northwest of the Project Site and between depths of 31 and 49 feet in monitoring wells located approximately 0.4 miles east of the Project Site.

² According to research and investigation performed by Geotechnologies, Inc. for the Percolation Testing for the Proposed Bond Street Parking Structure located at the southwest corner of the Project Site dated May 16, 2008, the soils encountered on the site are granular in nature and should allow stormwater to percolate in a generally vertical manner.

³ State Water Resources Control Board. Geo Tracker Groundwater Ambient Monitoring & Assessment. <http://www.waterboards.ca.gov/gama/geotracker_gama.shtml>.

There are no existing spreading grounds within a one mile of the Project Site.

The existing Project Site has been fully developed and is almost completely impervious and therefore does not contribute measurably to the groundwater level via percolation of precipitation. The existing site footprint is approximately 94% covered by impervious surfaces including buildings such as the South and West Halls of the Convention Center, STAPLES Center, as well as impervious pavements for pedestrian and vehicular circulation. Due to the existing depth of over 90 feet to the groundwater level, there are currently no dewatering activities within the Project Site, as existing facilities do not consist of more than one level below grade.

As mentioned above, there are no production wells, spreading grounds, or injection wells within the Project Site area or within a one mile radius of the Project Site. There is therefore no net contribution or reduction of the groundwater table as a result of existing activity at the Project Site.

2.4 Regulatory Framework

Watermaster Service for the Central Basin

Groundwater rights in the Central Basin are adjudicated. In 1965 the Superior Court of Los Angeles County appointed DWR as the Watermaster for the Central Basin. Every groundwater pumper reports its extractions each month to the Watermaster, who computes the amount pumped thus far in the current fiscal year and the amount that can legally be pumped during the remainder of the fiscal year. An updated copy of its account is provided to each pumper every month. At the end of the year, the Watermaster prepares an annual report for the court.

To ensure that meter readings are accurate, the Watermaster field staff tests the accuracy of the water meter on every active well at least once every two years. Follow-up tests on repaired meters and initial tests on new meters are scheduled whenever necessary.

Water Replenishment District (WRD) of Southern California

The WRD was formed by special election in 1959 for the purpose of protecting the groundwater resources of the Central and West Coast groundwater basins in Southern Los Angeles County. The WRD manages groundwater for nearly four million residents in 43 cities through clean water projects and water supply programs. The 420 square mile service area uses about 250,000 acre-feet of groundwater per year.

WRD programs include the preparation of annual Engineering Survey and Report for hydrogeology in the Central and West Coast Basins, Spreading Grounds, Regional Groundwater Monitoring, Replenishment Operations, Safe Drinking Water Program for the treatment of contaminated groundwater, and Seawater Barrier Improvements.

Low Impact Development (LID)

The LID Ordinance was passed by the Los Angeles City Council in September, 2011. Upon signature by the Mayor, the Project will be required to comply with the LID Ordinance as set forth below.

LID is a stormwater management strategy with goals to mitigate the impacts of increased runoff and stormwater pollution as close to its source as possible. LID promotes the use of natural infiltration systems, evapotranspiration, and the reuse of stormwater. The goal of these LID practices is to remove nutrients, bacteria, and metals from stormwater while also reducing the quantity and intensity of stormwater flows. Through the use of various infiltration strategies, LID is aimed at minimizing impervious surface area. Where infiltration is not feasible, the use of bioretention, rain gardens, green roofs, and rain barrels that will store, evaporate, detain, and/or treat runoff may be used.⁴

The intent of the City of Los Angeles LID standards is to:

- Require the use of LID practices in future developments and redevelopments to encourage the beneficial use of rainwater and urban runoff;
- Reduce stormwater/urban runoff while improving water quality;
- Promote rainwater harvesting;
- Reduce offsite runoff and provide increased groundwater recharge;
- Reduce erosion and hydrologic impacts downstream; and
- Enhance the recreational and aesthetic values in our communities.

The City of Los Angeles Bureau of Sanitation, Watershed Protection Division would adopt the Low Impact Development (LID) standards as issued by the LARWQCB and the City of Los Angeles Department of Public Works. The LID Ordinance will conform to the regulations outlined in the NPDES Permit and SUSMP.

3.0 SIGNIFICANCE THRESHOLDS

According to the City of Los Angeles CEQA Thresholds Guide a project would normally have a significant impact on groundwater level if it would:

- Change potable water levels sufficiently to:
 - Reduce the ability of a water utility to use the groundwater basin for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies and drought;
 - Reduce yields of adjacent wells or well fields (public or private); or
 - Adversely change the rate or direction of flow of groundwater; or
- Result in demonstrable and sustained reduction of groundwater recharge capacity.

⁴ City of Los Angeles. "Low Impact Development Best Management Practices Handbook." June, 2011.
Convention and Event Center Project Groundwater Level Technical Report
Environmental Impact Report Page 6
March 5, 2012

4.0 PROJECT IMPACTS

4.1 Construction

The Proposed Project will consist of excavations with a likely average depth ranging from 1 foot for the New Hall to approximately 41 feet (plus footings) for the Event Center. The maximum depth of excavation for footings and utilities at the Event Center will likely be approximately 50 feet below grade. However, since the groundwater level is at a depth 90 feet below grade, it is not expected that groundwater will be encountered during construction that would require temporary or permanent dewatering operations. Therefore, the Project would not have an impact on the groundwater level during construction.

4.2 Operation

The existing site footprint is approximately 94% covered by impervious surfaces including buildings such as the South and West Halls of the Convention Center, Staples Center, as well as impervious pavements for pedestrian and vehicular circulation. The Project will decrease the percentage of impervious surfaces slightly through the installation of additional landscaped areas (the Project includes approximately 4,317 square feet of landscape areas associated with the Event Center Plaza, approximately 69,485 square feet of landscape areas for the Gil Lindsay Plaza, and approximately 40,656 square feet of landscape areas along L A LIVE Way). The existing site includes approximately 2.9 acres of miscellaneous planted medians, freeway slopes, and landscaped planters around the South Hall that will remain after construction. This is in addition to the approximately 1.3 acres of existing landscaping within the Event Center Plaza, Gil Lindsay Plaza, Pico Blvd, and LA LIVE Way results in a total existing pervious area for the overall project site of approximately 4.2 acres, and 94% of impervious surface.

The proposed site includes the 2.9 acres of pervious surface mentioned above as well as the new 2.14 acres of new landscaped areas. The total proposed pervious area for the overall project site is approximately 5.04 acres which results in approximately 93% of impervious surface.

Both the existing and the Proposed Project Site are fully developed and nearly completely impervious. Impervious surfaces do not contribute measurably to the groundwater level via percolation of precipitation. Since the difference in impervious surfaces is negligible, the Project will not have a significant impact on groundwater hydrology, including groundwater levels.

The Proposed Project will consist of excavations with an average depth ranging from 1 foot to a maximum of approximately 50 feet below grade. Since the groundwater level is at a depth 90 feet below grade, it is not expected that groundwater would be encountered during construction that would require permanent dewatering operations. Therefore, the Project will not have a significant impact on the groundwater hydrology, including groundwater levels, due to dewatering.

Interrupting an existing injection or supply wells or designated spreading grounds could potentially have an impact on the groundwater level. However, there are no

existing wells or spreading grounds within a mile of the Project Site. In addition, the Project will not include new injection or supply wells. Therefore the Project will not impact any existing well or spreading ground.

Infiltration of stormwater as a means of stormwater treatment and management through LID practices is a top tier priority for the Watershed Protection Division of the City of Los Angeles and will be considered along with other treatment options during the design phase of the Project.

However, these systems are designed to infiltrate only the “first flush” or first $\frac{3}{4}$ ” of rainfall for any storm event, considered to carry the majority of the pollutants of concern. The infiltration system is designed to capture and infiltrate the first flush of any storm event. When a major storm event occurs, any rainfall in excess of the first $\frac{3}{4}$ ” is presumed to be relatively clean. This excess runoff is designed to overflow or by-pass the infiltration system and discharge to the municipal storm drain system. Therefore the infiltration system will not have a measurable impact on groundwater levels, including the direction of groundwater flow which travels from Northeast to Southwest.

4.3 Cumulative Impacts

Cumulative groundwater hydrology impacts could result from construction activity located in proximity to the Project and related Project Sites. However, since the groundwater level is at a depth 90 feet below grade, it is not expected that groundwater will be encountered during construction requiring temporary or permanent dewatering operations. Therefore, no significant cumulative impacts to groundwater levels due to construction activity are expected.

Cumulative groundwater hydrology impacts could result from the overall utilization of respective groundwater basins located in proximity to the Project and related Project Sites. To the extent that it is possible that public supply wells are located within or near the related-Project Sites, and the related projects could extract water or require water to be extracted by water supply agencies from local basins, such cumulative utilization of groundwater in the region could adversely affect local and regional groundwater hydrology, including groundwater levels. However, the specific extent to which the related projects would extract or otherwise directly utilize groundwater is not possible to assess. All or most of the related-projects would depend on public water supply systems (LADWP, etc.). All the significant local groundwater basins are adjudicated and essentially not able to be over produced due to water rights limitations. To the extent there is a cumulative increase in water demand, it will have to come from other sources (i.e., water conservation and recycled and imported water). Consequently, no significant cumulative impacts to groundwater levels (including not reducing the ability of the water utility to use the groundwater basin for public water supplies) are expected.

Cumulative groundwater hydrology impacts could result from some net conversion of existing impervious surfaces to pervious surfaces, which have the potential to slightly change groundwater levels. However, the Project and the related projects are located in a highly urbanized area, and any reduction in groundwater recharge due to the overall net change in impervious area due to the Project and the related projects would be very minimal from a regional groundwater basin perspective.

Therefore, cumulative impacts to groundwater levels from changes in the amount of impervious surfaces in the groundwater basin would be less than significant.

Cumulative groundwater hydrology impacts could result from interruptions to existing injection or supply wells or designated spreading grounds which has the potential to change groundwater levels. However, there are no production wells, spreading grounds, or injection wells within the within a one mile radius of the Project Site. Therefore, cumulative impacts to groundwater levels due to interruptions to existing injection or supply wells or designated spreading grounds would be less than significant.

Cumulative groundwater hydrology impacts could result from infiltration of stormwater as a means of stormwater treatment and management through LID practices. However, these systems are designed only to infiltrate small storm events or the first $\frac{3}{4}$ " of rainfall for any storm event. Since large storm events are designed to by-pass these systems, the amount of rainfall that infiltrates into the ground is small. As a result, cumulative impacts to groundwater levels due the infiltration of stormwater as a means of stormwater treatment and management through LID practices would be less than significant.

5.0 LEVEL OF SIGNIFICANCE

Based on the analysis contained in this report, no significant impacts to groundwater levels have been identified for the Proposed Project.

REFERENCES

California Department of Water Resources (DWR). "California's Groundwater Bulletin 118." 2004.

City of Los Angeles. "Low Impact Development Best Management Practices Handbook." June, 2011.

State Water Resources Control Board. Geo Tracker Groundwater Ambient Monitoring & Assessment. <http://www.waterboards.ca.gov/gama/geotracker_gama.shtml>.

Water Replenishment District of Southern California. An Introduction to the Central and West Coast Groundwater Basins. <<http://www.wrd.org/engineering/introduction-groundwater-basins-los-angeles.php>>.

Figure 1

**Los Angeles Regional Water Quality Control Board
Map of Los Angeles Coastal Groundwater Basins**

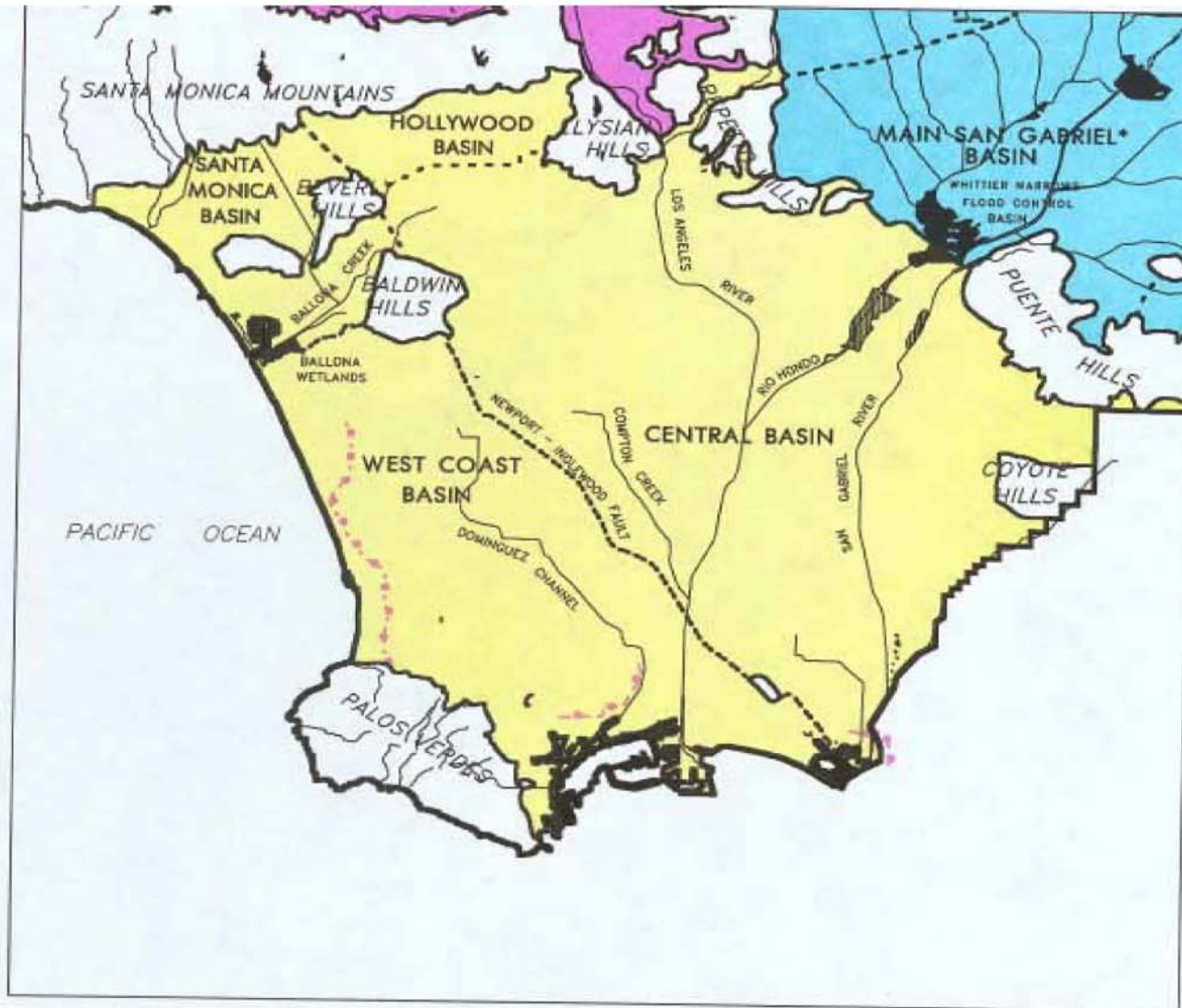


FIGURE 2-15

LOS ANGELES COASTAL
GROUNDWATER BASINS

CALIFORNIA
REGIONAL
WATER QUALITY
CONTROL BOARD
LOS ANGELES REGION
(4)

— REGIONAL BOUNDARY

— STREAMS

▨ SPREADING GROUNDS

→ BARRIER INJECTION
WELLS

*THE MAIN SAN GABRIEL
BASIN IS A PART OF THE
SAN GABRIEL VALLEY
GROUNDWATER BASINS.



Figure 2
Plate 2 Groundwater Elevation Contours
Fall 2010

