IV. ENVIRONMENTAL IMPACT ANALYSIS
F. HYDROLOGY/WATER QUALITY

INTRODUCTION

This section describes existing hydrology and water quality in the project area and its immediate surroundings and discusses the federal state and local regulations and standards that govern impacts to hydrology, water quality and drainage. Following a description of the existing conditions and regulations, potentially significant impacts associated with the Proposed Project are identified, along with mitigation measures to reduce project impacts. Unless otherwise noted, the following section summarizes the findings and conclusions as presented in the following technical reports: Hollywood Park Project, Utilities and Infrastructure Technical Report, Hall & Foreman, August 29, 2008; Hollywood Park EIR Technical Appendix – Hydrology, Hall and Foreman Inc., June 2008; Hollywood Park Water Quality Technical Report, Geosyntec Consultants, May 2008, and Pace Advanced Water Engineering, Technical Memorandum, June 12, 2008. The Hall and Foreman Inc. Utilities and Infrastructure Technical Report is included in its entirety in Appendix F-1 to this EIR. The Hall and Foreman Inc. hydrological technical study is included in its entirety in Appendix F-2 to this EIR. Geosyntec Consultants' water quality technical report is included in its entirety in Appendix F-3 to this EIR. The Pace Advanced Water Engineering, Technical Memorandum is included in its entirety in Appendix F-4 to this EIR.

Stormwater Guidelines

The following set of stormwater standards have been sourced and are incorporated herein by reference:

- Hydrology Manual, Los Angeles County Department of Public Works, January 2006.
- Los Angeles County Flood Control District, Guidelines for Connection Permits, Los Angeles County Department of Public Works, March 2006.
- Design Manual Hydraulic, Los Angeles Country Flood Control District, March 1982.
- Development Planning for Stormwater Management, A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, September 2002.
- Guidelines for Connection Permits, Los Angeles County Flood Control District, Los Angeles County Department of Public Works, March 2006; and
- California Division of Safety of Dams, Jurisdictional Dam Size, The Resources Agency, Department of Water Resources, California Water Code Division 3, 1995.

ENVIRONMENTAL SETTING

Regional Setting

Dominguez Watershed

The Project Site is located within the Dominguez Watershed which drains via a network of on-site and off-site Los Angeles County storm drains into the Dominguez Channel, to the Dominguez Channel Estuary and eventually into the Los Angeles Harbor and the Pacific Ocean. The Dominguez Watershed is comprised of approximately 133 square miles of land in the southern portion of Los Angeles County.[1] Approximately 96% of its total area is developed. As a result, rather than being defined by the natural topography of its drainage area, the Dominguez watershed boundary is defined by a complex network of storm drains and smaller flood control channels.[2]

Existing Water Quality Conditions

Surface Water

The Los Angeles Regional Water Quality Control Board (LARWQCB) has placed the Dominguez Channel on the State's 303d list of impaired water bodies for several constituents including pesticides, metals, bacteria, and organic compounds. Some constituents are based directly on impairments to water quality, while others are based on the accumulation of pollutants in sediment and tissue of aquatic organisms. There are two reaches of Dominguez Channel current listed on the 303d list. The first reach (i.e., the Dominguez Channel Estuary) is the estuary portion of the channel, which stretches from the mouth at Los Angeles Harbor to Vermont Street in Gardena. The second reach (i.e., the Dominguez Channel) stretches from Vermont Street to approximately the Highway 105 corridor where the channel becomes a network of subsurface storm drains.

Beneficial uses within the Dominguez Channel Estuary include: water contact recreation; non-water contact recreation; commercial and sport fishing; estuarine habitat; marine habitat; terrestrial wildlife habitat; rare, threatened, or endangered species; migration of aquatic organisms; and spawning, reproduction, and/or early development. Navigation is a potential beneficial use within the Dominguez Channel Estuary as well. Beneficial uses within the Dominguez Channel include rare, threatened, or

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[1] *County of Los Angeles Department of Public Works, Hydrology Manual, 2006, website: http://ladpw.org/wrd/Publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf September 11, 2007*

[2] *County of Los Angeles Department of Public Works, website: http://ladpw.org/wmd/watershed/dc/current cond.cfm, accessed April 25, 2007.*

endangered species, while potential beneficial uses include: municipal and domestic supply; water contact recreation; non-water contact recreation; warm freshwater habitat; and terrestrial wildlife habitat.

Los Angeles County has a mass emissions station for Dominguez Channel (S28) located at Artesia Boulevard in the City of Torrance. This station is upstream from the tidally-influenced portion of the channel and has an upstream tributary area of approximately 33 square miles. This station has been monitored since 2001 during both wet and dry weather conditions and data indicate that it repeatedly exceeds applicable water quality objectives (WQOs) for bacteria (fecal coliform, enterococcus, and total coliform), metals (copper, lead, and zinc), and diazinon, as determined by Los Angeles County Department of Public Works (LACDPW). WQOs are based on the Los Angeles Region Basin Plan (Basin Plan), California Toxic Rule (CTR), and the Ocean Plan. Total maximum daily loads (TMDLs) have not yet been developed for this watershed, but the State is in the process of developing metals and toxics TMDLs.[3]

Groundwater

As defined in the Basin Plan, the Project Site is located within the West Coast Groundwater Basin (i.e., West Coast Basin) of the Los Angeles Coastal Plain. Beneficial uses within the West Coast Basin include: municipal and domestic supply; agricultural supply; industrial service supply; and industrial process supply.

Existing Hydrologic Conditions

Existing Drainage

The Project Site is predominantly covered with impervious surfaces with soft landscaped areas limited to within the Main Track (including two man-made lakes) and Training Track areas only. The Project Site topography slopes from the north-east to south-west corner, elevations at these locations are approximately 200 and 90-feet respectively. The Project Site is within Flood Zone C of the FEMA map, which denotes areas subject to minimal flooding and determined to be outside the 500-year flood plain.[4]

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[3] *See: http://www.swrcb.ca.gov/rwqcb4/html/meetings/tmdl/tmdl_ws_dominguez.html.*

[4] *Hollywood Park Third Party Due Diligence for Strockbridge Capital Partners, LLC, September 23, 2005 Marx/Okubo, Property Condition Assessment, Hollywood Park, September 7, 2005 – Insurance Report, CBCInnovis, Determination Report, 07/21/2005, Hollywood Park*

As shown in Figure IV.F-1, stormwater runoff is collected by a series of three existing on-site storm drains known as Project 4402 (Line C), Project 4401 (Line B) and MTD 992.

- Project 4402 (Line C) is a 32-inch diameter storm drain that flows south along Prairie Avenue which collects runoff flowing into Prairie Avenue from off-site properties as well as from the western edge of Hollywood Park. It connects to a 60-inch storm drain (Project 681) located at Century Boulevard and continuing south on Prairie Avenue.

- Project 4401 (Line B) is a 90-inch storm drain which collects off-site runoff from the north of the Project Site. It is located in the western portion of the parking lot and drains to one of two outlets located at Century Boulevard: Project 4401 (Line A), a 7.5' high x 9' wide storm drain box or Project DDI #8, a 4' high x 4'3" wide reinforced concrete box.

- MTD 922 is a 60-inch storm drain which accepts on-site and off-site runoff from three locations on the eastern side of the property including Home Depot/Target, Watt Development and Darby Park. It drains to one of the two outlets mentioned above.

Project 4402 (Line C) and Project 4401 (Line B) are owned by the County of Los Angeles Department of Public Works. MTD 992 is privately owned and operated by the Hollywood Park Racing Association.

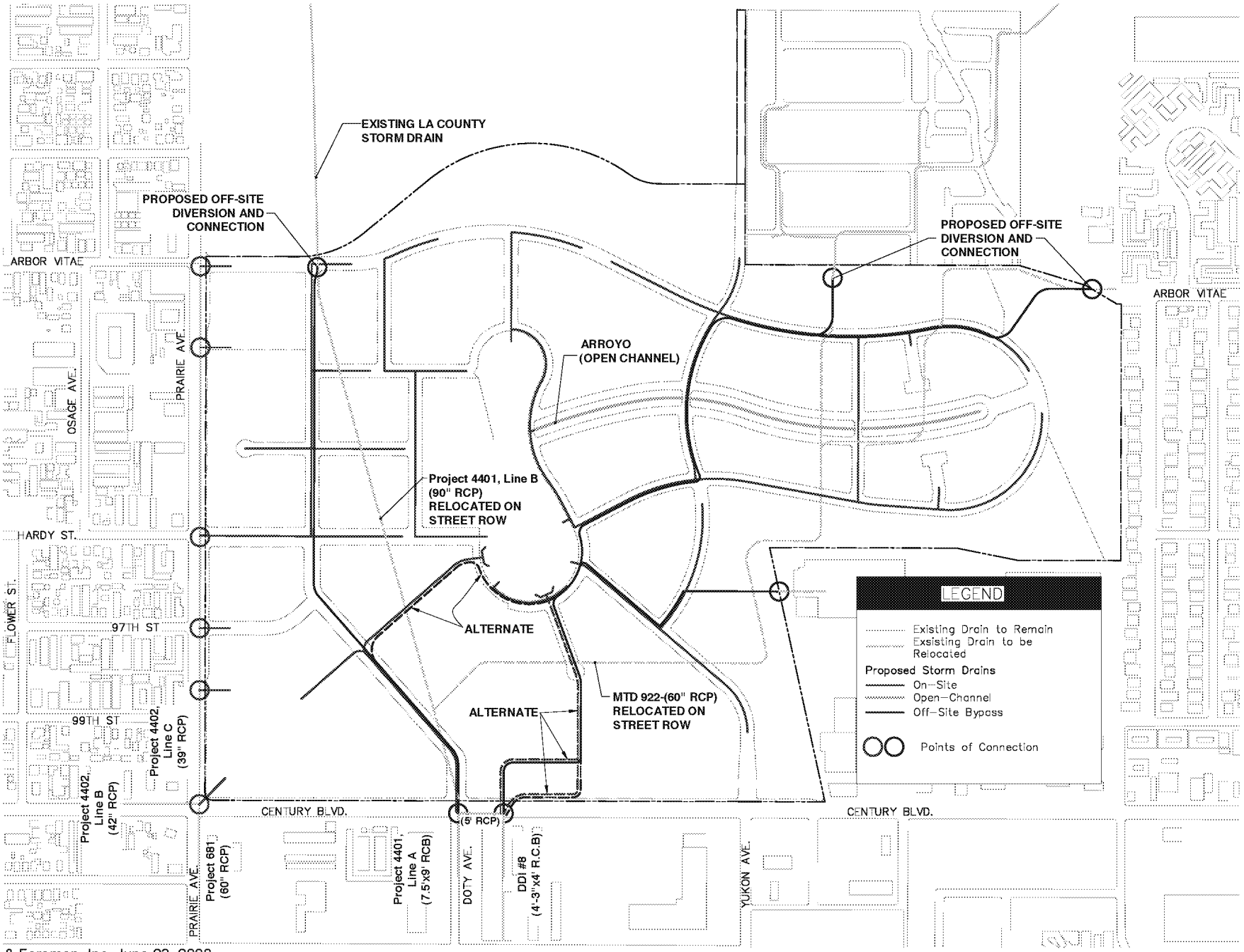
There are two types of private storm drainage collection systems currently used on-site:

1. On- and off-site surface water discharge to Los Angeles County storm drains, via a private on-site storm drain as described above.

    - Stormwater falling onto roofs is collected by internal roof drains directly connected to the underground system, MTD 922 storm drain. Site drainage surface flows to area drains or surface drains to the surrounding public right of way. Area drains and trench-type drainage is provided at various locations throughout the property. The MTD 922 runs through the horse stables area and connects to the LACDPW storm drain known as Project 4401 at a point located west of the Casino and conveys the flows to Century Blvd. and then south along Doty Ave.

2. A closed system with no off-site discharge, in which stormwater is treated on site and stored in lined retention ponds where it evaporates or is used for on-site irrigation and dust suppression.

    - Runoff that has the potential to come in direct contact with the horses and their fecal matter is captured by an on-site tertiary wastewater treatment system which is then disinfected and conveyed to North Lake in the main track infield. It is currently designed to accommodate three consecutive 25-year, 24-hour storms.



Source: Hall & Foreman, Inc. June 23, 2008.

CHRISTOPHER A. JOSEPH & ASSOCIATES
Environmental Planning and Research

NORTH

Figure IV.F-1
Existing and Proposed Drainage Infrastructure Map

Hydrologic Volumes (Runoff)

As required by the Los Angeles County Department of Public Works (LACDPW) the T_C Calculator Method, also known as the Modified Rational Method, was employed to quantify the Project Site's existing rate of discharge. The Modified Rational Method uses a design storm and a time of concentration to calculate runoff periodically throughout the event. Using this method, hydrologists can model attenuation, channel storage, and determine where flows combine and peak accordingly. The LACDPW requires storm drain facilities to be designed to accommodate an Urban Flood, a 25-year storm which has a100 percent chance of happening every 25 years. Using the LACDPW Inglewood 25-year storm, 24-hour isohyet (4.6 inches) and associated runoff coefficient curve for the existing soil type 013, the report determined that the existing site contributes a runoff total of 2780.5 cubic feet per second (cfs) to the offsite storm drain systems during a 25-year storm event. Of this total, 77.4 cfs are routed to Project 681 and 4402 (Line C) with the remaining 203.1 cfs to Project 4401 (Line A) and DDI #8.

The results are depicted in Table IV.F-1, Summarized Flows. Table IV.F-1 also summarizes total (on and off site) existing flows into the existing system, as well as total hydraulic pipe capacity.

Table IV.F-1
Summarized Flows

Item	Project 681 and 4402 (CFS)	Project 4401 (Line A) and DD1 + 8 (CFS)	Total (CFS)
Hydraulic Capacity of Pipeline per As-Built Plans	184.2	974	1158.2
Existing off-site 10-year Flow into Pipeline per off-site hydrology	37	504	541
Existing On-site 25–year Flow into Pipeline (Tc Calculator Method)	77.4	203.1	280.5
Remaining Capacity	69.8	266.9	336.7

A review of the pipe hydraulics and hydrology determined that the existing pipelines are adequate to carry the amount of stormwater that currently flows through them as illustrated in Table IV.F-1. Furthermore, the LACDPW provided a confirmation of the hydraulic design capacity and allowable flow rates of discharge to each of the storm drains located downstream. LACDPW determined the Project Site is allowed to contribute 358.1 cfs to the storm drain system. Estimated flows under T_C Calculation method and utilizing Pondpack software for Project 4401 and DDI#8 (190.3 cfs) are less than both the LACDPW values (358.1 cfs) and existing flows (280.5 cfs). These results are depicted in Table IV.F-2, Allowable Runoff Rates. Due to the existing runoff and pipe capacity it is determined that the Project Site is well within their volume restriction.

Table IV.F-2
Allowable Runoff Rates

Item	Project 681 CFS	Project 4401 (Line A) and DDI#8 (CFS)
On-site Flow into Pipeline (Tc Calculator Method)	77.4	203.1
Proposed On-Site 25-year Flow into Pipeline (T_c Calculator, Pond Pack)	65.8	124.5
LACDPW Allowable Flow Rates	72.1	286
Source: Hydrology Technical Report, Hall and Foreman Inc., 2008.		

Surface Waters

There are two constructed infield lakes on the property which are connected by a concrete canal. The North Lake is clay lined and the south lake is lined with PVC. The upper bank slopes of North Lake are lined with concrete and the south with gunnite, to prevent erosion from wave action. The lakes were created for aesthetic purposes, and were originally filled from well water and by precipitation. Currently, however, the lakes are filled with reclaimed water from horse wash down, supplemented by precipitation. Washdown water either flows or is pumped into the north lake first, where it is allowed to settle. Water then flows into the north end of the south lake through a weir and filter. Once it enters the south lake, water flows to the south end and is recirculated back to the north end by a pump. The water is managed to prevent algal growth by a combination of aeration and chemicals. No water is discharged into the storm drain system. There is no surface water connection to any jurisdictional waters, therefore these areas would not be subject to U.S. Army Corps of Engineers jurisdiction as waters of the U.S.[5]

Pollutants of Concern

Stormwater runoff and pollutant discharges increase with urbanization due to the increase in impervious surfaces (such as roof tops and driveways), which reduces infiltration of rainfall. As a result, rainfall runs off at accelerated rates, carrying with it a wide variety of pollutants in the process which are eventually transported into the municipal separate storm sewer system (MS4). Pollutants associated with urban runoff can be generally categorized as solids, oxygen-demanding substances, nutrients (nitrogen and phosphorus), pathogens, organics associated with fuels and other petroleum products (e.g., diesel, polycyclic aromatic hydrocarbons (PAHs)), metals, and synthetic (xenobiotic) organics. Common sources of urban stormwater pollutants include: streets and right-of-ways, parking lots and driveways,

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[5] *Hollywood Park Third Party Due Diligence for Stockbridge Capital Partners, LLC September 23, 2005 WRA Environmental Consultants, Evaluation of Potential Section 404 Jurisdictional Areas, August 25, 2005.*

lawns, residential and commercial landscaping, construction activities, atmospheric deposition, soil erosion, animal wastes, automobiles, bridges, industrial areas, corroding metal surfaces, combustion processes, vehicle maintenance areas, gas stations, illicit dumping to storm drains, automobile emissions, leaky sanitary sewer lines and cross-connections, septic systems, and detergents.

Regulatory Framework

Federal Water Pollution Control Act

The 1972 amendments to the Federal Water Pollution Control Act, later referred to as the Clean Water Act (CWA), prohibit the discharge of any pollutant to navigable waters of the United States from a point source unless the discharge is authorized by a National Pollution Discharge Elimination System (NPDES) permit. In 1987, the CWA was amended to require that the United States Environmental Protection Agency (U.S. EPA) establish regulations for permitting of municipal and industrial stormwater discharges under the NPDES permit program. In addition, the CWA requires the States to adopt water quality standards for receiving water bodies and to have those standards approved by the U.S. EPA. Phase I regulations associated with the NPDES program and water quality standards are discussed in more detail below.

NPDES Program - Phase I (MS4s)

In 1990, the U.S. EPA promulgated final regulations that established Phase I requirements for the NPDES program to address, among other discharges, non-point source discharges from large construction activities of five acres or more of land. Under Phase I of the NPDES stormwater program, stormwater discharges have been primarily regulated for (1) 10 categories of specific industrial activities; (2) construction sites disturbing five acres of land or greater; and (3) medium and large municipal separate storm sewer systems (MS4s) generally serving populations greater than 100,000 persons.

In 2001, the LARWQCB issued an NPDES permit and Waste Discharge Requirements under the CWA and the Porter-Cologne Act to the County of Los Angeles and the cities located therein (except Long Beach, which has its own permit) for urban runoff discharges in public storm drains in Los Angeles County. This permit specifically provides that:

> *Federal, state, regional or local entities within the Permittee's boundaries or in jurisdictions outside the Los Angeles County Flood Control District, and not currently named in this Order, may operate storm drain facilities and/or discharge storm water to storm drains and watercourses covered by this Order.*[6]

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[6] *Los Angeles Regional Water Quality Board, Order No. 01-182, effective December 13, 2001.*

The Permittees are the Los Angeles County cities and the County (collectively "the Co-Permittees"). This permit requires that the municipalities adopt regulatory requirements governing a variety of developments within their jurisdictions and regulates stormwater discharges from MS4s in the Project Area. The NPDES permit details requirements for new development and significant redevelopment, including specific sizing criteria for treatment Best Management Practices ("BMPs") and flow control requirements. To implement the requirements of the NPDES permit, the Co-Permittees have developed planning guidance and control measures that control and mitigate stormwater quality and quantity impacts to receiving waters as a result of new development and redevelopment. They are also required to implement other municipal source detection and elimination programs, as well as maintenance measures. The Los Angeles County MS4 Permit was last amended on September 14, 2006 by Order R4-2006-0074.

Stormwater Quality Management Program (SQMP)

The NPDES Permit contains provisions for implementation of the Stormwater Quality Management Program (SQMP) by the Co-Permittees. The primary provisions of the SQMP are described in detail in the water quality technical report (see Appendix F-2 of this Draft EIR). The SQMP states that Permittees are required to implement the most effective combination of Best Management Practices (BMPs) for stormwater/urban runoff pollution control. The objective of the SQMP is to reduce pollutants in urban stormwater discharges to the Maximum Extent Practicable (MEP) in order to attain Water Quality Objectives (WQOs) and to protect the beneficial uses of receiving waters in Los Angeles County.

Standard Urban Stormwater Mitigation Plan (SUSMP)

In 2000, the development planning program requirements, including the Standard Urban Stormwater Mitigation Plan (SUSMP) requirements, were approved by the Regional Water Quality Control Board ("RWQCB") as part of the MS4 program to address stormwater pollution from new construction and redevelopment.[7] The SUSMP requirements went into effect six months following Regional Board approval. The SUSMP is updated as needed in accordance with the MS4 Permit. The SUSMP was last revised in September 2002. The SUSMP contains a list of minimum BMPs that must be employed to infiltrate or treat stormwater runoff, control peak flow discharge, and reduce the post-Project discharge of pollutants from stormwater conveyance systems. Based upon land type, the SUSMP defines the types of practices that must be included and issues that must be addressed as appropriate to the development type and size. Compliance with SUSMP requirements is used as one method to evaluate the significance of a Proposed Project's impacts on surface water runoff.

The County of Los Angeles' 2000 Manual for the Standard Urban Stormwater Mitigation Plan (Manual) details the requirements for new development and significant redevelopment BMPs. The Manual is a

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[7] *Los Angeles Regional Water Quality Board, Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County, approved by the Regional Board Executive Officer March 8, 2000.*

model guidance document for use by Permittees and individual project owners to select post-construction BMPs and otherwise comply with the SUSMP requirements. It addresses water quality and drainage issues by specifying design standards for structural or treatment control BMPs that infiltrate or treat stormwater runoff and control peak flow discharge.[8] Treatment BMP design criteria and guidance are also contained in the MS4 Permit, the Manual, and in the LACDPW's Technical Manual for Stormwater Best Management Practices in the County of Los Angeles (February 2004).

One of the most important requirements within the SUSMP is the specific sizing criteria for stormwater treatment BMPs for new development and significant redevelopment projects. The SUSMP includes sizing criteria for both volume-based and flow-based BMPs. (See Appendix F-3 of this Draft EIR for a list of sizing criteria options for each of these BMPs.) The SUSMP also includes general design specifications for individual priority project categories. These include:

- Single-family hillside homes;
- 100,000 square foot commercial developments;
- Restaurants;
- Retail gasoline outlets;
- Automotive repair shops; and
- Parking lots

For example, commercial developments must have properly designed loading and unloading dock areas, repair and maintenance bays, and vehicle equipment wash areas. Restaurants need to have properly designed equipment and accessory wash areas. Parking lots must be properly designed to limit oil contamination and have regular maintenance of parking lot stormwater treatment systems (e.g., storm drain filters and biofilters).

Construction General Permit

Pursuant to the CWA Section 402(p) (which requires regulations for permitting of certain stormwater discharges), the State Water Resources Control Board (SWRCB) has issued one statewide NPDES General Permit for Stormwater Discharges Associated with Construction Activity (Construction General

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[8] *BMPs are defined in the Manual and the SUSMP as any program, technology, process, sizing criteria, operational methods or measures, or engineered systems, which, when implemented, prevent, control, remove, or reduce pollution.*

Permit)[9] to apply to all construction activities. Under this Construction General Permit, effective March 2003, stormwater discharges from construction sites with a disturbed area of one or more acres are required to either obtain individual NPDES permits for stormwater discharges or be covered by the Construction General Permit. Coverage under the Construction General Permit is initiated by completing and filing a Notice of Intent (NOI) with the SWRCB. Landowners are responsible for obtaining and complying with the permit, but may delegate specific duties to developers and contractors by mutual consent. For construction activities, the permit requires landowners or their designated agent to (a) eliminate or reduce non-stormwater discharges to stormwater systems and other waters of the United States, (b) develop and implement a Stormwater Pollution Prevention Plan (SWPPP) prior to grading and implemented during construction, and (c) perform inspections of stormwater control structures and pollution prevention measures. The primary objective of the SWPPP is to identify, construct, implement, and maintain BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges from the construction site during construction. SWPPPs prepared in compliance with an NPDES Phase I Permit describe site erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and non-stormwater management controls. Dischargers are also required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary. Compliance with the requirements of the Construction General Permit is used as one method to evaluate a project's construction-related impacts on surface water quality.

General Dewatering Permit

The LARWQCB has issued a General NPDES Permit and General Waste Discharge Requirements (WDRs) governing construction-related dewatering discharges within the project development areas (General Dewatering Permit).[10] This permit addresses discharges from temporary dewatering operations associated with construction and permanent dewatering operations associated with development. The discharge requirements include provisions mandating notification, sampling and analysis, and reporting of dewatering and testing-related discharges. The General Dewatering Permit authorizes such construction-related activities so long as all conditions of the permit are fulfilled. Compliance with the requirements of the General Dewatering Permit is used as one method to evaluate a project's construction-related impacts on surface water quality.

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[9] *State Water Resources Control Board, National Pollution Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity, April 26, 2001.*

[10] *State Water Resources Control Board, Order No. R4-2003-0111, NPDES No. CAG994004.*

Total Maximum Daily Load (TMDL)

The CWA requires the States to adopt water quality standards for receiving water bodies and to have those standards approved by the U.S. EPA. Water quality standards consist of designated beneficial uses for a particular receiving water body (e.g. wildlife habitat, agricultural supply, fishing etc.), along with water quality criteria necessary to support those uses. Water quality criteria are either prescribed concentrations or levels of constituents such as lead, suspended sediment, and fecal coliform bacteria, or narrative statements which represent the quality of water that support a particular use.

When designated beneficial uses of a particular receiving water body are being compromised by water quality, Section 303(d) of the CWA requires identifying and listing that water body as "impaired." Once a water body has been deemed impaired, a TMDL must be developed for the impairing pollutant(s). A TMDL is an estimate of the total load of pollutants from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards (with a "factor of safety" included). Once established, the TMDL allocates the loads among current and future pollutant sources to the water body.

California Toxics Rule (CTR)

The CTR is a federal regulation (40 CFR 131.38) issued by the U.S. EPA in 2000 promulgates criteria for priority toxic pollutants in the State of California for inland surface waters and enclosed bays and estuaries. CTR criteria are applicable to the receiving water body and therefore must be calculated based upon the probable hardness values of the receiving waters for evaluation of acute (and chronic) toxicity criteria. At higher hardness concentrations, copper, lead, and zinc are more likely to be complexed (bound with) components in the water column. This in turn reduces the bioavailability and consequently, the toxicity potential of these metals.

Due to the intermittent nature of stormwater runoff (especially in Southern California), the acute criteria are considered to be more applicable to stormwater conditions than chronic criteria and therefore are used in assessing a project's impacts. For example, the average storm duration in the 56-year rainfall record from Los Angeles International Airport (NCDC gauge # 045114) is 9 hours where discrete storm events are defined as periods of rainfall followed by a period of no rainfall for at least 6 hours. However, it should be noted that typical storm events include periods of no rainfall that are not long enough to define a separate storm event, but during which runoff may temporarily cease. Acute criteria represent the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects; chronic criteria equal the highest concentration to which aquatic life can be exposed for an extended period of time (four days) without deleterious effects. While durations of stormwater runoff are expected to frequently exceed one hour, stormwater runoff exposure durations are expected to be on the order of hours rather than days. Hence, the acute criteria are deemed more applicable to stormwater runoff.

Porter-Cologne Water Quality Control Act

The federal CWA places the primary responsibility for the control of surface water pollution and for planning the development and use of water resources with the states, establishing certain guidelines for the states to follow in developing these programs. It also allows the U.S. EPA to withdraw control from states if their implementation mechanisms are found to be inadequate. In California, the NPDES program is administered by the SWRCB through nine Regional Water Quality Control Boards (RWQCBs). The SWRCB and the RWQCBs were established in 1969 by the Porter-Cologne Water Quality Control Act, the principal law governing water quality regulation in California. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product. Each RWQCB must formulate and adopt a Water Quality Control Plan (Basin Plan) for its region. The regional plans are to conform to the policies set forth in the Porter-Cologne Act and by the SWRCB in its state water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.

Los Angeles Basin Plan (Basin Plan)

The LARWQCB's 1994 Basin Plan, as amended, provides quantitative and narrative objectives for a range of water quality constituents applicable to certain receiving water bodies and groundwater basins within the Los Angeles Region. Specific objectives are provided for the larger, designated water bodies within the region, as well as general criteria or guidelines for ocean waters, bays and estuaries, inland surface waters, and ground waters. In general, the narrative objectives require that degradation of water quality does not occur due to increases in pollutant loads that will adversely impact the designated beneficial uses of a water body. For example, the Basin Plan requires that "inland surface waters shall not contain suspended or settleable solids in amounts which cause a nuisance or adversely affect beneficial uses as a result of controllable water quality factors." WQOs apply within receiving waters as opposed to applying directly to runoff; therefore, WQOs from the Basin Plan are utilized as benchmarks as one method to evaluate the potential impacts of a project's runoff on the receiving waters.

The Basin Plan also contains water quality criteria for groundwater basins. For example, the Basin Plan requires that "ground waters shall not contain taste or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses."

Hollywood Park NPDES Permits

The RWQCB – Los Angeles Region issued a Waste Discharge Requirements and NPDES Permit to Churchill Downs California Company (Hollywood Park Racing Association) on November 9, 1999. The Hollywood Park stables meet the definitions of both a concentrated animal feeding operation (CAFO) and

a 'feedlot' because over 500 horses are stabled for over 45 days per year and forage growth does not exist in the stables. The stables are also a confined animal facility because the stables confine horses that do not graze.

Hollywood Park Land Company, LLC applied for a new permit in August 2004. The RWQCB-Los Angeles issued a new waste discharge requirement permit under the NPDES to Hollywood Park Land Company, LLC on July 20, 2006 which expires on June 10, 2011. At the time the site ceases to operate as a horse track and CAFO facility, a Notice of Termination (NOT) application must be submitted to the RWQCB to terminate the waste discharge NPDES general industrial and site specific permit requirements that apply exclusively to the site's current use.

ENVIRONMENTAL IMPACTS

Methodology

This section evaluates the potential impacts of the Proposed Project on water quality, waste discharge requirements, groundwater supplies, groundwater recharge, drainage patterns, flood hazard and flood water flows, and stormwater drainage systems.

To evaluate impacts of the Project on water quality, pollutants of concern are identified based on regulatory and other considerations. Potential changes in water quality are addressed for pollutants of concern based on runoff water quality modeling, literature information, and professional judgment. Impacts take into account Project Design Features (PDFs) selected consistent with the Los Angeles County Municipal Separate Storm Sewer System (MS4) National Pollutant Discharge Elimination System (NPDES) Permit (CAS004001), including the Los Angeles County Standard Urban Storm Water Management Plan (SUSMP) requirements. The level of significance of impacts is evaluated using a weight of evidence approach considering significance criteria that include predicted runoff quality for proposed versus existing conditions, MS4 Permit and General Construction Permit requirements, and reference to receiving water quality benchmarks, including Total Maximum Daily Load (TMDL) waste load allocations and water quality standards from the Water Quality Control Plan for the Los Angeles Region (Basin Plan) and California Toxics Rule (CTR).

Thresholds of Significance

In accordance with Appendix G to the State CEQA Guidelines, a project would have a significant impact on the environment if it would:

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 that would exceed the capacity of existing 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 plain as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map;

h) Place within a 100-year floor plain structures which would impede or redirect flood flows;

i) Expose people or structures to a significant risk of loss, inquiry or death involving flooding, including flooding as a result of the failure of a levee or dam; or

j) Expose people or structures to a significant risk of loss, inquiry or death involving inundation by seiche, tsunami, or mudflow.

Impacts Determined to be Less Than Significant

The Initial Study prepared for the Proposed Project determined that the Proposed Project would have no impact with respect to Threshold (i), listed above (see Appendix A). As such, no further analysis of this topic is required under CEQA.

Project Impacts

Pollutants of Concern

The SUSMP requirements mandate that treatment controls address the pollutants of concern, which are defined in the SUSMP Manual as consisting of any pollutants that exhibit one or more of the following characteristics: current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water, elevated levels of the pollutant are found in sediments of a receiving water and/or have

the potential to bioaccumulate in organisms therein, or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna.

Pollutants of concern for the surface water quality analysis were identified for the Proposed Project based on the proposed land uses and water quality data collected from similar land uses, current 303(d) listings and TMDLs in the Dominguez Channel, as well as pollutants that have the potential to cause toxicity or bioaccumulate in the Proposed Project's receiving waters. Pollutants of concern for the groundwater quality analysis were identified for the Proposed Project based on water quality data from the same types of land uses, local hydrological characteristics, and chemical characteristics that include high mobility (low absorption potential), high solubility fractions, and abundance in stormwater. The Basin Plan contains numerical objectives for bacteria, mineral quality, nitrogen, and various toxic chemical compounds, and contains qualitative objectives for taste and odor. Based on these parameters, pollutants of concern for the Proposed Project include the following (see Appendix F-3 to this Draft EIR for a complete list of pollutants of concern, the basis for their selection, and the significance criteria that will be applied for each):

- sediments (total suspended solids (TSS) and turbidity);
- nutrients (phosphorus, nitrate-N, and ammonia-N);
- trace metals (copper, lead, and zinc);
- pathogens (bacteria, viruses, and protozoa);
- petroleum hydrocarbons (oil and grease and PAHs);
- pesticides;
- trash and debris;
- bioaccumulation; and
- methylene blue activated substances (MBAS) and surfactants.

The following surface and groundwater constituents are listed in the Basin Plan, but are not pollutants of concern for the Proposed Project: bacteria; algae, chemical oxygen demand (COD), and dissolved oxygen; mineral quality (TDS, sulfate, chloride, and boron); residual chlorine; color, taste, and odor; pH; chemical constituents and radioactivity; sulfides; toxic substances; and temperature. These constituents are not believed to be pollutants of concern for the Proposed Project based on the mean urban runoff concentrations for each of these constituents in Los Angeles County, which are well below the Basin Plan WQOs (see Appendix F-3 of this Draft EIR for further discussion).

Project Design Features

The Proposed Project includes a number of Project Design Features (PDFs) intended to reduce or avoid water quality and hydrologic impacts. These PDFs include site design, source control, and treatment control Best Management Practices (BMPs) that will be incorporated into the Proposed Project and are thereby considered a part of the Proposed Project for purposes of impact analysis. Site design and source control BMPs help to manage the quantity and quality of both wet and dry weather runoff by limiting the frequency of occurrences and decreasing pollutant concentration. Treatment control BMPs are designed to remove pollutants once they have been mobilized by rainfall and runoff. The following is a brief discussion of the site design, source control, and treatment control PDFs for the Proposed Project.

Site Design, Source Control, and Treatment Control BMPs

As currently planned, stormwater runoff from all urban areas within the Project Site will be routed to structural treatment BMPs. Table IV.F-3 identifies each of these project drainage areas, the proposed treatment BMP's for each, and its location. The majority of the Project Site (64 percent) will be treated by the Arroyo and Lake Park stormwater treatment system. An additional 2 percent will be treated by a vegetated BMP system in Champion Park. The remaining areas (34 percent) will be treated by additional vegetated BMPs or catch basin inserts. At least 2,200 linear feet of swales or bioretention areas (i.e., vegetated BMPs) will be used in the mixed use area and high use parking lots to address trash and debris and petroleum hydrocarbons. Collectively, the water quality treatment control PDFs will treat the pollutants of concern in runoff from the 238-acre development. The proposed treatment control PDFs are described below and are illustrated in Figure IV.F-2, which shows the relative locations of the primary treatment control BMPs, Arroyo Park, Lake Park, and Champion Park. These treatment BMPs, when combined with the site design and source control BMPs described above, will address all of the pollutants of concern.

Arroyo Park

Arroyo Park will be a linear, landscaped PDF located within the median right-of-way of the Arroyo. A shallow, vegetated swale will be seamlessly integrated into the park and will be designed to capture all runoff generated from the approximately 71 acres of adjacent road surfaces and residential parcels. The park will be publicly accessible with street parking along its entire length, multiple access points, footbridges, and picnic areas. Curb cuts or other curb inlet designs along the Arroyo will convey runoff into the swale. Check dams and culverts with headwalls will control flow rates within the swale, which will ultimately discharge via a subsurface storm drain into the south part of the lake. See Figure IV.F-3 for conceptual landscape plans for Arroyo Park and the other treatment control BMPs.

Table IV.F-3
Project Drainage Areas and Treatment Control BMP's

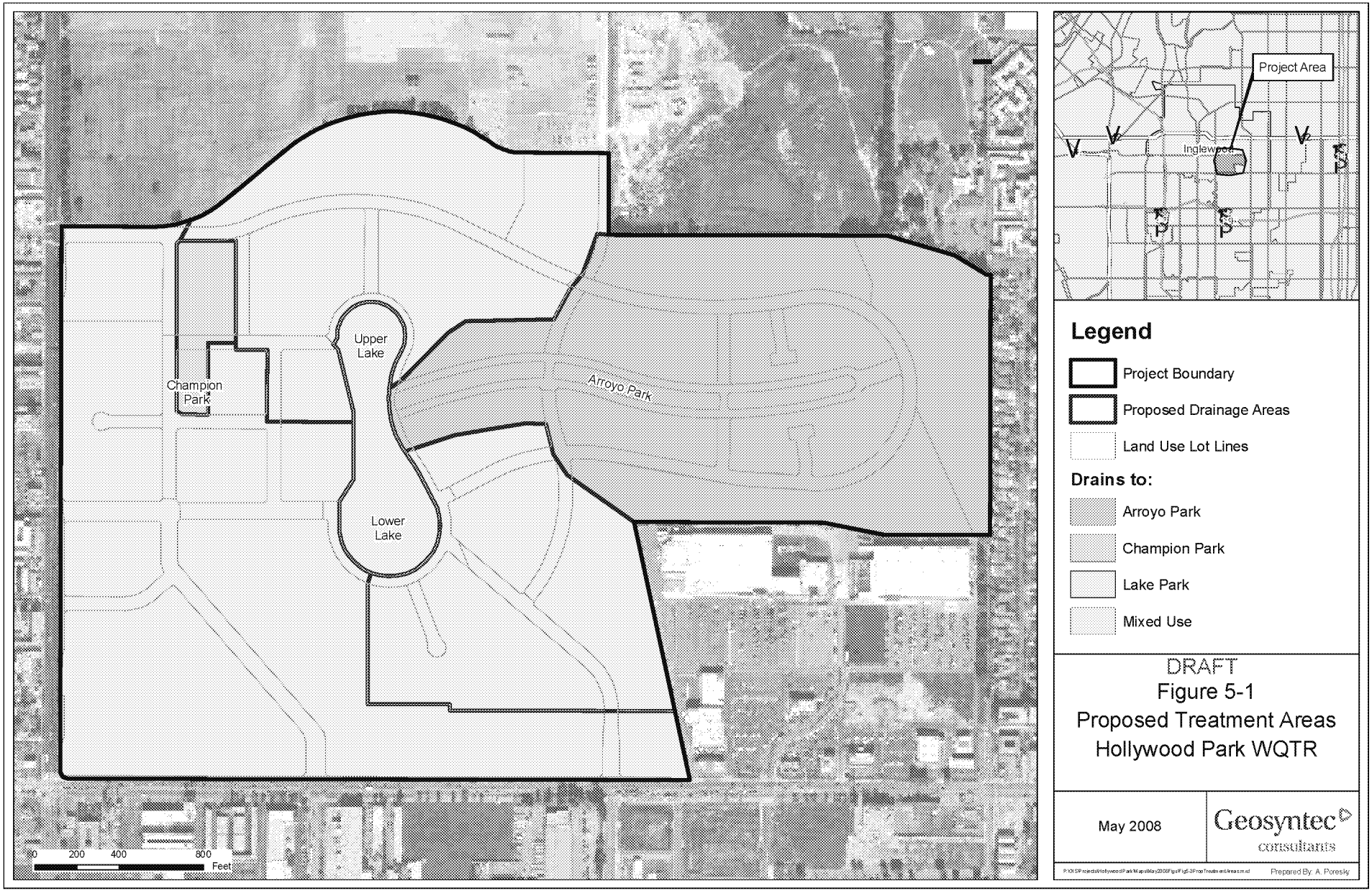
Drainage Area	Area	Treatment BMP's and Location
Arroyo	71.1	Vegetated swale within Arroyo Park
Lake	81.9	Stormwater lake within Lake Park
Champion Park	4.3	Vegetated BMP's within Champion Park
Retail/Commercial Center	81.1	Vegetated BMP's within high use parking lots and perimeter landscaped areas. Catch basin inserts for all areas not receiving vegetated treatment
Source: Geosyntec Consultants, Hollywood Park Water Quality Technical Report, May 2008.		

Lake Park

Lake Park will be a central attraction of Hollywood Park. The approximately nine-acre Lake Park includes an upper and lower lake, and will be landscaped with native and ornamental vegetation around the majority of its perimeter. The upper lake will be shallow and densely vegetated with emergent wetland plants, while the lower lake will be deeper, with a bulk head and some vegetation along its perimeter. A cascading waterfall will separate the upper and lower lakes and a continuously operated pump station will re-circulate water in the lake to ensure stagnation does not occur.

Vegetated BMPs

Vegetated BMPs include an array of BMP types that utilize several natural treatment processes such as vegetative filtration and uptake, infiltration, adsorption, and microbially-mediated transformations. Example of vegetated BMPs include grassed swales, filter strips and bioretention areas. These types of BMPs, when appropriately sized and designed, are effective at removing many pollutants of concern, including sediment and pollutants associated with sediment, as well as some dissolved constituents, such as dissolved copper and zinc. Vegetated BMPs are planned for Champion Park to treat runoff from adjacent residential areas. Swales, filter strips, and/or bioretention areas are planned within several high-use parking lots in the mixed-use area of the Proposed Project. See also Figure IV.F-4 for conceptual illustrations of the types of vegetated BMPs that will be implemented in the Proposed Project.



Source: Geosyntec Consultants, May 2008.

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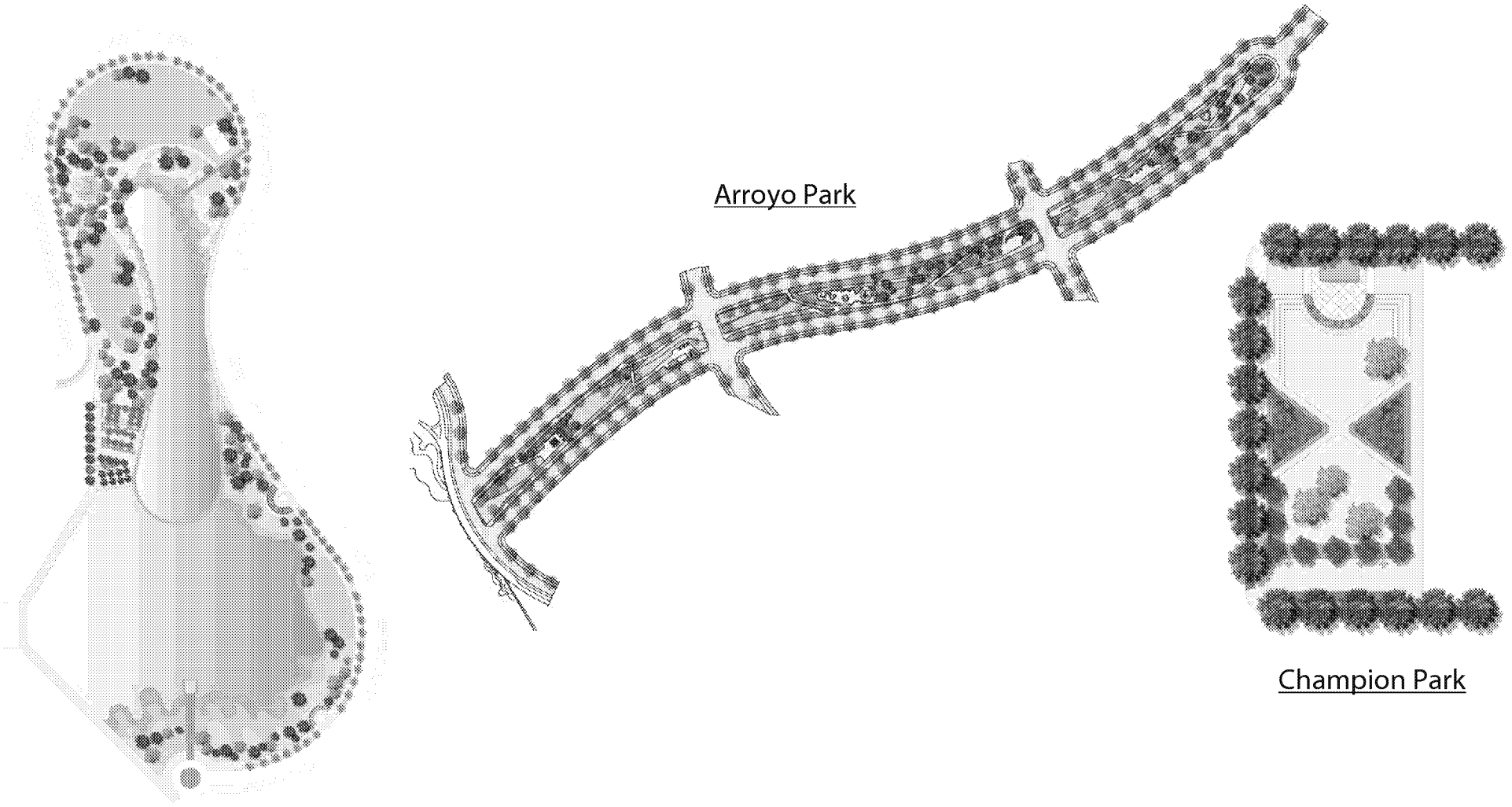
Figure IV.F-2
Proposed Water Quality Treatment Control Areas



Source: Geosyntec Consultants and Mia Lehrer Associates, June 2007.

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Figure IV.F-3
Conceptual Landscape Plans for Treatment Parks

Catch Basin Inserts

Catch basin inserts are stormwater screening and filtration devices that can be placed directly in conventional catch basins. There are several catch basin insert manufacturers and a variety of designs including those that can be placed in both curb inlet and drop inlet type catch basins. Most catch basin inserts utilize screens, filter fabrics, and absorptive media for capturing trash and debris, coarse particulates, and free-floating oil and grease. Catch basin inserts will be utilized in all areas in the mixed-use area that will not receive treatment via vegetated BMPs due to spatial constraints or other engineering factors. The ultimate selection of catch basin insert type is based on the tributary land activities, hydraulic loading rate, and catch basin design.

Volume-Based BMPs

All volume-based treatment control BMPs for the Proposed Project will be sized to capture and treat at least 80 percent of the annual runoff volume from the tributary drainage area. The methodology utilizes historical rainfall data with continuous simulation modeling to calculate the treatment volume for each treatment control BMP. The size of the facilities will be finalized during the design stage by the Project engineer with the final hydrology study, which will be approved by the City of Inglewood prior to issuing the final grading permit(s).

Flow-Based BMPs

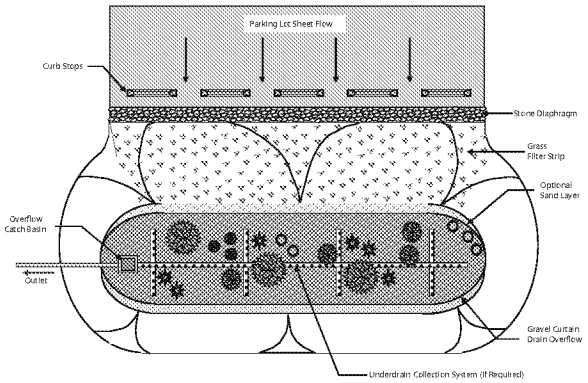
Flow-based BMPs for the Proposed Project will be sized using a rainfall intensity of 0.2 inches per hour, which will result in treatment of the same portion of runoff (ie: at least 80%) as using volumetric standards described above. BMP sizing for the Proposed Project will be finalized during the design stage by the Project engineer with the final hydrology study, which will be approved by the City of Inglewood prior to issuing the final grading permit(s).

Pesticide Control

The Proposed Project will include source control measures such as education programs for owners, occupants, and employees in the proper application, storage, and disposal of pesticides that will be used at the Project Site. For common area landscaping in commercial areas, multi-family residential areas, and parks, an Integrated Pest Management (IPM) Program will be incorporated. The goal of an IPM is to keep pest levels at or below threshold levels, reducing risk and damage from pest presence, while eliminating the risk from the pest control methods used. IPM programs achieve these goals through the use of low risk management options by emphasizing use of natural biological methods and the appropriate use of selective pesticides. IPM programs also incorporate environmental considerations by implementing procedures that minimize intrusion and alteration of biodiversity in ecosystems.

Bioretention Areas

Plan View



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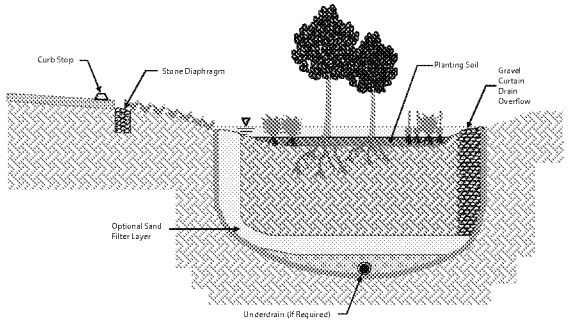
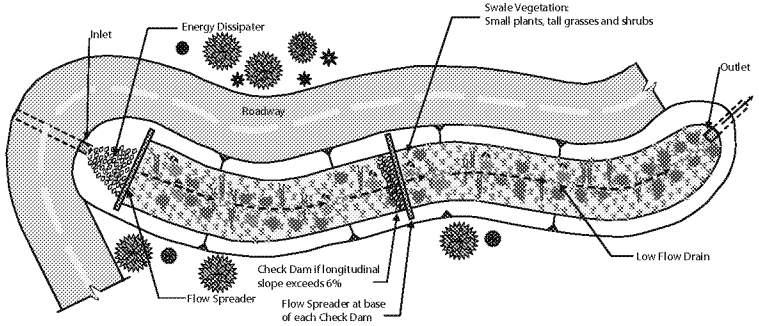


Vegetated Swales

Plan View



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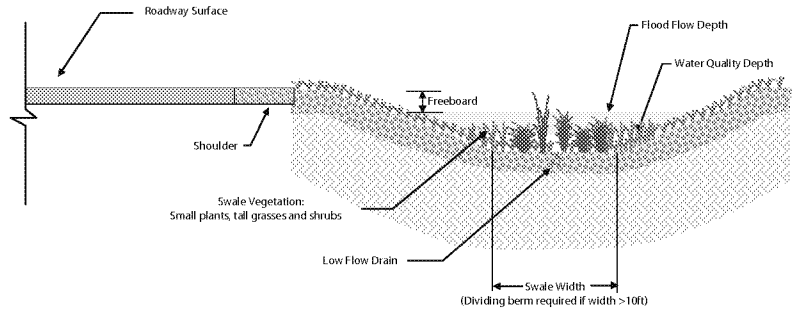

Source: Geosyntec Consultants, June 2007.

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Environmental Planning and Research

Figure IV.F-4
Conceptual Illustrations of Typical Vegetated BMPs

Pathogen Control

The most effective means of controlling pet wastes and wastes from human interaction with wildlife is through source control, specifically education of pet owners, education regarding feeding of waterfowl near waterbodies (e.g., Lake Park), providing products and disposal containers that encourage and facilitate cleaning up after pets, and storm drain cleaning practices. As such, these, and/or similar BMPs will be incorporated as part of the Proposed Project.

Trash and Debris

Source controls such as street sweeping, public education, fines for littering, and storm drain stenciling can be effective in reducing the amount of trash and debris that is available for mobilization during wet and dry weather events. Common area litter control will include a litter patrol, covered trash receptacles, emptying of trash receptacles in a timely fashion, and noting trash violations by tenants/homeowners or businesses and reporting the violations to the owners/HOAs for investigation. Catch basin inserts will be provided for parking lots and other areas not receiving vegetated BMP treatment.

Dry Weather Runoff

In order to minimize the potential generation and transport of dissolved constituents, native or drought-tolerant vegetation that requires little watering and chemical application will be planted in 50 percent or more of the public landscaped areas. Landscape watering in common areas, commercial areas, multiple family residential areas, and in parks will use efficient irrigation technology to minimize excess watering. In addition, educational programs and distribution of materials (source controls) will emphasize appropriate car washing locations (at commercial car washing facilities or the car wash pad in the multi-family residential areas) and techniques (minimizing usage of soap and water), encourage low impact landscaping and appropriate watering techniques, and discourage driveway and sidewalk washing. Illegal dumping will be discouraged by stenciling storm drain inlets and posting signs that illustrate the connection between the storm drain system and the receiving waters and natural systems downstream.

Vegetated BMPs and the lake will infiltrate and/or provide treatment for dry weather flows and small storm events. Water cleansing is a natural function of vegetation, offering a range of treatment mechanisms. Sedimentation of particulates is the major removal mechanism. However the performance is enhanced as plant materials allow pollutants to come in contact with vegetation and soils containing microbes that metabolize and transform pollutants, especially nutrients and trace metals. Plants also take up nutrients in their root system. Some pathogens would be removed through ultraviolet light degradation. Most oil and grease will be effectively adsorbed[11] by the vegetation and soil within the vegetated BMPs and the shallow, vegetated areas in the upper portion of the lake.

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[11] *Adsorption is the accumulation of dissolved substances on the surface of solids.*

Additional BMPs

Appendix F-3 of this Draft EIR provides a complete matrix illustrating how the Project's proposed treatment control BMPs would implement each of the SUSMP requirements (i.e., control peak flows; conserve natural areas; minimize stormwater pollutants of concern; protect slopes and channels; provide storm drain system stenciling/signage; provide proof of ongoing maintenance; design standards for structural or treatment control BMPs; properly design outdoor material storage and trash storage areas, loading/unloading docks, repair maintenance bays, vehicle equipment wash areas, fueling areas, and parking areas; limit oil contamination and perform maintenance; and limit use of infiltration BMPs).

Hydrology/Drainage Flows

Figure IV.F-1 identifies the existing off-site storm drain infrastructure, and the proposed points of connection to serve the Project Site. The Proposed Project would include construction of a new gravity storm drainage network on-site to collect stormwater flows. Storm drains will be sized with sufficient hydraulic capacity to accommodate the design hydrology. The minimum size of main line conduit routes shall be 18 or 24 inches for ease of maintenance, unless otherwise approved by the District / City. These will be installed under roadways within the public right of way or within easements for ease of maintenance. This new system will be maintained and operated by City of Inglewood Department of Public Works upon completion of construction.

Stormwater Runoff Volumes

Table IV.F-4 shows the predicted changes in stormwater runoff mean annual volumes. Mean annual runoff volumes are generally expected to increase with development. The increase is largely a result of an overall increase in percent of impervious surface area at the Project Site. This is primarily due to the fact that runoff from 50 percent the existing area is currently almost completely retained on site (e.g., captured in the existing lakes and re-used for irrigation on site). For example, the effective imperviousness (i.e., the impervious area contributing runoff from the Project Site divided by the total area) of the existing Project Site is approximately 47 percent, while proposed imperviousness is approximately 73 percent. Runoff volume from an area is directly proportional to the area's percent imperviousness. As discussed previously, proposed PDFs include site design, source control, and treatment control BMPs in compliance with the SUSMP requirements.

Flooding

The Project Site is within Flood Zone C of the FEMA map, which denotes areas subject to minimal flooding and determined to be outside the 500-year plain. As a result, the Proposed Project results in a less than significant impact with respect to placing housing within a 100-year flood plain.

Table IV.F-4
Predicted Average Annual Stormwater Runoff Volumes

Site Conditions	Average Annual Stormwater Runoff Volume (acre-ft)
Existing	106
Proposed Project with PDFs	164
Change	+58 [55%]
Source: Geosyntec Consultants, Hollywood Park Water Quality Technical Report, May 2008 (see Appendix F-3).	

As shown in Table IV.F-4, the treatment control BMPs proposed for the Project Site would provide some runoff volume reduction. Compared to the Proposed Project without PDF's (73% imperviousness), the Proposed Project with PDF's yields a reduction in percent imperviousness (55%). Based on BMP monitoring data in the International Stormwater BMP Database, a 25 percent reduction in stormwater runoff volume was assumed to occur in the Arroyo Park swale and Champion Park. Additional volume reductions would likely occur within the lake due to evapotranspiration and within other vegetated BMPs, but these reductions were not explicitly accounted for in the model. Thus, predicted increases for the Proposed Project shown in Table IV.F-4, above, are conservative in that they assume higher numbers than those likely to result after implementation of all project BMPs.

As discussed above, the Proposed Project also includes an Arroyo Park and Lake Park within the public open space areas. Stormwater flows, where watershed topography allows, will be routed via these vegetated bio-filtration swales and wet ponds where they are incorporated into their respective areas. These non-structural BMP measures will reduce rates of runoff, attenuate flow, and improve the quality of stormwater leaving the site. For areas where it is not physically possible to route stormwater via the proposed Arroyo or Lake Park, the proposed on-site drainage system will take all reasonable measures to comply with the requirements of the SUSMP and use stormwater management methods to reduce rates of discharge from site and improve water quality levels using appropriate BMPs. For the proposed condition, the on-site storm drains will be designed to provide Urban Flood protection, a 25-year frequency design storm falling on a saturated watershed.

The proposed lake will be designed to have a static water level and will be sized to provide the necessary storage capacity. The static water level will be maintained with top-up water and collection of rainfall precipitation as required.

The lake will have a flood control volume above the static water level sufficient to detain the occurrence of a 50-year flood. In addition, a one-foot freeboard will be applied in excess of the flood control level to set adjacent building threshold levels. Under normal operating conditions the lake will outfall via a *weir*, a small overflow type dam, to control flows entering the on-site storm drainage system at allowable rates before discharging into the Los Angeles County storm drains located off-site. Any emergency overflow

from the lake will be routed along the proposed on-site streets to channel flows off-site towards Prairie Avenue should severe storm event occur (i.e. 100-year storm and above).

To help intercept waste, the storm drainage system will include trash collection technology such as catch-basin insert trash racks, along storm drainage routes that discharge into the lake. A lake recirculation system will be used to maintain and improve water quality within the lake waterbody and supply water for the proposed waterfall.

Where permitted by the Department of Fish and Game or any other applicable agency regulations, mosquito fish (*Gambusia affinis*) will be introduced into the pond to naturally control the population of mosquitoes and midges. If the fish are introduced, vegetation should be controlled, especially around the edges of the pond, to ensure that the fish have access to all areas.

As shown in Figure IV.F-1, the current redevelopment proposals will require the relocation and quit claim (termination of property rights) of the existing LACFCD Project 4401 (Line B), a 90-inch storm drain and associated easement that crosses the site. It is currently intended to relocate this route below the proposed public street network accordingly within the Proposed Project. This storm drain will still be operated and maintained by LACDPW.

The current development proposals will also require the relocation of the existing Hollywood Park (MTD 922) private storm drain that crosses the site. This will be used to route off-site flows separately from on-site flows across the site. The existing off-site points of connection will be retained and routed through the new relocated on-site MTD 922 route. The relocated MTD 922 piped route will not be connected to any of the proposed on-site drainage serving the site lots or routed via any of the on-site BMP systems. It is currently intended to relocate this route below the proposed public street network in the right of way and/or within easements within the Proposed Project accordingly. It is proposed that this storm drain will be operated and maintained by Los Angeles County in the future.

Based on preliminary post-development hydrology calculations the design runoff would be managed to not exceed the recommended and allowable runoff flows determined by LACDPW. The design runoff for Project 681 & 4402 is approximately 65.8 cfs, which is less than the LACDPW allowable rate of 72.1 cfs. The design runoff for Project 4401, Line A and DDI #8 is approximately 270 cfs, which would be reduced to an allowable runoff of 124.5 cfs by utilizing the Lake as a detention basin. These measures will ensure that Project 4401, Line A and DDI #8 do not exceed LACDPW's recommended allowable discharge of 286 cfs.

Water Quality

Construction Impacts

Three general sources of potential short-term construction-related stormwater pollution associated with construction projects are: 1) the handling, storage, and disposal of construction materials containing

pollutants; 2) the maintenance and operation of construction equipment; and 3) earth moving activities which, when not controlled, may generate soil erosion and transportation, via stormwater runoff or mechanical equipment and subsurface activities may also impact groundwater quality through the release of construction-related chemicals into the groundwater.

Stormwater discharges during construction activities can compromise the biological, chemical, and physical integrity of a receiving water body (e.g., the Pacific Ocean). The interconnected process of erosion, sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients (particularly phosphorus), metals, and organic compounds into aquatic systems. The potential impacts of construction activities, construction materials, and non-stormwater runoff on water quality focus primarily on sediment (TSS and turbidity) releases. Non-sediment related pollutants that are also of concern during construction include: construction waste materials; chemicals; liquid products; petroleum hydrocarbon products used in building construction or the maintenance of heavy equipment; and concrete-related waste streams. During construction, soil is generally exposed to natural processes such as precipitation (depending on the time of year) and runoff, which would all be contained on site.

Construction activities associated with the Hollywood Park redevelopment would be required to obtain an NPDES statewide General Construction Activity Permit. In addition, in compliance with the General Construction Permit and County of Los Angeles Standard Conditions, the Project Developer would file an NOI with the SWRCB and prepare an SWPPP prior to any construction activity. As part of the SWPPP, construction activities for the proposed development would be required to implement effective erosion and sediment control BMPs as well as BMPs that control other potential construction-related pollutants to minimize water pollution to the maximum extent practical, meeting or exceeding measures required by the General Construction Permit. Erosion control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap sediment once it has been mobilized. The General Permit requires the SWPPP to include a menu of BMPs to be selected and implemented based on the phase of construction and weather conditions to effectively control erosion and sediment to the Best Available Technology Economically Achievable and Best Conventional Pollutant Control Technology (BAT/BCT) standards.[12] Example BMPs to be included in this menu may include, but are not limited to: soil stabilization using rock or vegetation, re-vegetation, hydro-seeding or using tackifiers on exposed areas and stockpiles, installation of energy dissipaters, drop structures, catch basin inlet protection, construction materials management, and cover and containment of construction materials and wastes. This permit requires BMP selection, implementation, and maintenance during the construction phase of development. In addition, the final drainage plans would be required to provide structural or treatment control BMPs to mitigate (infiltrate or treat) stormwater runoff. Implementation of the BMPs in the project SWPPP and compliance with the County of Los Angeles' discharge requirements for water entering the County's storm drains would ensure effective control of not only sediment discharge, but also of pollutants associated with sediments such as nutrients, heavy metals, and certain pesticides, including legacy

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[12] *Clean Water Act §304(b)(2)(B) and §304(b)(4)(B).*

pesticides, such that the project construction would not violate any water quality standards or discharge requirements or otherwise substantially degrade water quality. Specific construction-related PDFs and BMPs are discussed below.

Dewatering

Construction on the Project site may require dewatering and non-stormwater related discharges. For example, dewatering may be necessary for the construction of the lake features if groundwater is encountered during grading, or to allow discharges associated with testing of water lines, sprinkler systems and other facilities. In general, the General Construction Permit authorizes construction dewatering activities and other construction-related non-stormwater discharges as long as they (a) comply with Section A.9 of the General Permit; (b) do not cause or contribute to violation of any water quality standards, (c) do not violate any other provisions of the General Permit, (d) do not require a non-stormwater permit as issued by some RWQCBs, and (e) are not prohibited by a Basin Plan provision. Full compliance with applicable local, State and federal water quality standards by the Applicant would assure that potential impacts from dewatering discharges are less than significant.

An additional PDF will be implemented to protect receiving waters from dewatering and construction related non-stormwater discharges. Such discharges will be implemented in compliance with the LARWQCB's General Waste Discharge Requirements (WDRs) under Order No. R4-2003-0111, NPDES No. CAG994004 governing construction-related dewatering discharges within the Project Site. Typical BMPs for construction dewatering include infiltration of clean groundwater; on-site treatment using suitable treatment technologies; on- or off-site transport for sanitary sewer discharge with local sewer district approval; or use of a sedimentation bag for small volumes of localized dewatering. Compliance with this PDF would further assure that the impacts of these discharges are less than significant.

Pesticides

There are no known pesticide contaminated soils on-site. Nonetheless, disturbance and/or transport of potential pesticides adsorbed to existing site sediments may be a concern during the construction phase. The Construction SWPPP would contain sediment and erosion control BMPs pursuant to the General Construction Permit, and those BMPs would effectively control erosion and the discharge of sediment along with other pollutants per the BAT/BCT standards.

Hydrocarbons

During the construction phase of the Proposed Project, hydrocarbons in site runoff could result from construction equipment/vehicle fueling or spills. However, pursuant to the General Construction Permit, the Construction SWPPP must include BMPs that address proper handling of petroleum products on the construction site, such as proper petroleum product storage and spill response practices, and those BMPs must effectively prevent the release of hydrocarbons to runoff per the BAT/BCT standards. Polycyclic

Aromatic Hydrocarbon (PAH) that is adsorbed to sediment during the construction phase would be effectively controlled via the erosion and sediment control BMPs.

Trash and Debris

During the construction phase of the Proposed Project, there is potential for an increase in trash and debris loads due to lack of proper good housekeeping practices at the Project Site. Per the General Construction Permit, the SWPPP for the site will include BMPs for trash control (catch basin inserts, good housekeeping practices, etc.). Compliance with the Permit Requirements and inclusion of these BMPs, meeting BAT/BCT, in the SWPPP will mitigate impacts from trash and debris to a level less than significant.

Turbidity

With respect to turbidity, the Construction SWPPP must contain sediment and erosion control BMPs pursuant to the General Construction Permit, and those BMPs must effectively control erosion and discharge of sediment, along with other pollutants, per the BAT/BCT standards. Additionally, fertilizer control and non-visible pollutant monitoring and trash control BMPs in the SWPPP will combine to help control turbidity during construction. Proposed PDFs, including source controls (such as common area landscape management and common area litter control) and treatment control BMPs in compliance with the SUSMP requirements, to prevent or reduce the release of organic materials and nutrients (which might contribute to algal blooms) to receiving waters. Furthermore, as described above under "Modeled Pollutants of Concern," nutrients in post-development runoff are not predicted to cause significant water quality impacts. Based upon the implementation of the proposed PDFs and construction-related controls described previously in this Section, runoff discharges from the Proposed Project would not cause increases in turbidity that could result in adverse affects to beneficial uses in the receiving waters and the water quality impacts related to turbidity during construction are considered less than significant. The Mitigation Measures identified herein will ensure that BMPs are implemented where appropriate and to reduce impacts related to polluted runoff during construction to less than significant levels.

Operational Impacts

Paved and developed areas contribute substantially greater quantities of water to the storm drain system than pervious landscaped areas. The quality of stormwater is generally affected by the length of time since the last rainfall, rainfall intensity, land use in the area, and quantity of transported sediment. Street and parking lot surfaces are the primary source of stormwater pollution in urban areas. Stormwater runoff from parking lots has the potential to contribute oil and grease, suspended solids, metals, gasoline, pesticides, and pathogens to the stormwater conveyance system. As such, new developments are required to be designed so as to reduce water pollution to the Maximum Extent Practicable (MEP).

The Project Site currently provides an expansive paved surface parking lot and several existing structures including the Hollywood Park Racetrack, Grandstand and Casino. Existing land uses both on and off site

suggest that unknown quantities of oil, grease, heavy metals, and dust/sediment are currently entering the system without any filtration during periods of moderate to heavy rainfall.

As such, a water quality model was used to estimate loads and concentrations for pollutants of concern under existing and post-construction conditions. The model, described in detail in Appendix F-3 to this Draft EIR, develops estimates of mean annual loads and concentrations based on the probability distribution of observed rainfall event depths, the probability distribution of event mean concentrations, and the probability distribution of the number of storm events per year. This model also takes into account the inclusion of certain structural treatment PDFs but does not take into account the source control PDFs (e.g., street sweeping) or certain treatment BMPs (e.g., vegetated BMPs in mixed use area or parking lot catch basin inserts) which would also improve water quality; thus the model provides conservative results that tend to overestimate pollutant loads and concentrations.

The following pollutants of concern for the Proposed Project were modeled using flow composite sampling data in the Los Angeles County database, which measures average water quality during a storm event in relation to: TSS (sediment); total phosphorus (TP); nitrate-nitrogen, nitrite-nitrogen, ammonia, and total nitrogen (TN); and dissolved copper, total lead, and dissolved zinc. Table IV.F-5 shows the existing and predicted average annual concentration and loads for the modeled pollutants of concern.

Table IV.F-5
Predicted Average Annual Concentrations and Load for Modeled Pollutants of Concern

Pollutant of Concern	Site Conditions	Average Annual Concentrations	Average Annual Load
Total Suspended Solids (TSS)	Existing	53 mg/L	7.6 tons/year
	Proposed Project with PDFs	35 mg/L	7.7 tons/year
	Change	*-18 mg/L*	*+0.1 tons/year*
Total Phosphorous (TP)	Existing	0.31 mg/L	88.2 lbs/year
	Proposed Project with PDFs	0.21 mg/L	95.3 lbs/year
	Change	*-0.10 mg/L*	*+7.1 lbs/year*
Nitrate+Nitrite-Nitrogen	Existing	0.52 mg/L	149 lbs/year
	Proposed Project with PDFs	0.59 mg/L	263 lbs/year
	Change	*+0.07 mg/L*	*+114 lbs/year*
Ammonia-Nitrogen	Existing	0.76 mg/L	218 lbs/year
	Proposed Project with PDFs	0.37 mg/L	163 lbs/year
	Change	*-0.39 mg/L*	*-55 lbs/year*
Dissolved Copper	Existing	10 (µg/L)	2.8 lbs/year
	Proposed Project with PDFs	8 (µg/L)	3.5 lbs/year
	Change	*-2 (µg/L)*	*-0.7 lbs/year*
Total Lead	Existing	8 (µg/L)	2.3 lbs/year
	Proposed Project with PDFs	5 (µg/L)	2.1 lbs/year
	Change	*-3 (µg/L)*	*-0.2 lbs/year*
Dissolved Zinc	Existing	128 (µg/L)	37 lbs/year
	Proposed Project with PDFs	64 (µg/L)	28 lbs/year
	Change	*-64 (µg/L)*	*-9 lbs/year*

Source: Geosyntec Consultants, Hollywood Park Water Quality Technical Report, May 2008 (see Appendix F).

Table IV.F-6 compares the predicted average annual concentrations of each of the pollutants of concern in stormwater runoff from the Project Site to Basin Plan WQOs and benchmarks, CTR criteria, and concentrations observed in the Dominguez Channel, where applicable.

Table IV.F-6
Comparison of Predicted Concentrations with Water Quality Criteria and Concentrations Observed in Dominguez Channel

Pollutant of Concern	Predicted Average Annual Concentration (mg/L)	Basin Plan WQOs [a]	CTR Acute Criteria [b]	Observed Average Annual Concentrations in Dominguez Channel [c]
Total Suspended Solids (TSS)	35	Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses	NA	70 - 269 mg/L
Total Phosphorous (TP)	0.21	Water shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.	NA	0.18 – 0.34 mg/L
Nitrate+Nitrite-Nitrogen	0.59	10 mg/L	NA	0.62 - 1.31 mg/L
Ammonia-Nitrogen	0.37	1.0 mg/L	NA	0.27 - 0.88 mg/L
Dissolved Copper	8 µg/L	Waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.	12 µg/L	9.6 - 17.6 µg/L
Total Lead	5 µg/L		55 µg/L	2.5 - 12.2 µg/L
Dissolved Zinc	64 µg/L		103 µg/L	61.1 - 109 µg/L

[a] *Basin Plan WQO for ammonia-N is pH and temperature dependent. A pH of 7, based on Dominguez Channel monitoring data, and temperature of 30°C were conservatively assumed.*
[b] *Hardness = 86 mg/L, based on average annual median observed value by LACDPW at the Dominguez Channel mass emissions station for the monitoring years 2001-2006. Lead criterion is for total recoverable lead.*
[c] *Range of average annual concentrations observed by LACDPW at the Dominguez Channel mass emissions station for the monitoring years 2001-2006.*
Source: Geosyntec Consultants, Hollywood Park Water Quality Technical Report, May 2008 (see Appendix F-3).

The other pollutants of concern, such as pesticides, pathogens, hydrocarbons, and trash and debris are not amenable to this type of sampling either because of short holding times (e.g., pathogens), difficulties in obtaining a representative sample (e.g., hydrocarbons; trash and debris), or low detection levels (e.g., pesticides, dissolved lead). Therefore, the following pollutants were addressed qualitatively using a literature review, knowledge of unit processes expected in BMPs, and best professional judgment: turbidity; pesticides; pathogens (bacteria, viruses, and protozoa); hydrocarbons (oil and grease, PAH);

trash and debris; and MBAS.

Modeled Pollutants of Concern

Total Suspended Solids (TSS). As is demonstrated in Table IV.F-5, while the conversion from a horse racing facility with substantial areas of exposed soils to the proposed urban land uses would be expected to significantly reduce sediment loadings, the lack of existing runoff from the currently exposed soil areas results in only a small estimated reduction in the average TSS concentration and a slight increase in average annual TSS loads from the Project Site after treatment.

As is shown in Table IV.F-6, the predicted TSS concentration is well below the average values observed in Dominguez Channel. Based on the comprehensive site design, source control, and treatment control strategy, and the comparison with available instream data and Basin Plan benchmark objectives, the TSS in stormwater runoff from the Proposed Project will not adversely affect beneficial uses in the receiving waters.

Based on the comprehensive site design, source control, and treatment control strategy and the comparison with available instream monitoring data and Basin Plan benchmark objectives, potential impacts associated with TSS are considered less than significant.

Total Phosphorous (TP). As is demonstrated in Table IV.F-5, TP load is predicted to increase slightly and TP concentration is predicted to decrease slightly post-construction compared to existing conditions. While existing TP loadings may be expected to be higher due to the current horse racing and stabling activities, the minimal discharge of runoff that currently occurs from the Project Site results in only a small change in predicted loadings for the Proposed Project with the incorporation of treatment PDFs.

There are no numeric objectives for TP in the Basin Plan. The low predicted TP concentrations in Project-related stormwater discharges will not promote (i.e., increase) algae growth and therefore will comply with the narrative objective for biostimulatory substances in the Basin Plan presented in Table IV.F-6. As shown in Table IV.F-6, the predicted TP concentration is at the low-end range of observed concentrations in the Dominguez Channel.

Based on the comprehensive site design, source control, and treatment control strategy and the comparison with available instream monitoring data and Basin Plan benchmark objectives, potential impacts associated with TP are considered less than significant.

Nitrogen Compounds. As is demonstrated in Table IV.F-5, average concentrations of nitrate-nitrogen plus nitrite-nitrogen are predicted to slightly increase as loads are predicted to increase by approximately 77 percent. Since only a slight increase in average concentrations are predicted, the increase of nitrate-nitrogen plus nitrite-nitrogen load is primarily attributed to the estimated increase in annual average runoff volume. Both ammonia-nitrogen concentrations and loads are predicted to decrease, which is

attributed to the treatment provided by the proposed PDFs.

As shown in Table IV.F-6, average annual stormwater concentration of ammonia is predicted to be considerably less than the Basin Plan objective, and within the low-end range of observed concentrations in Dominguez Channel. Likewise, the average annual stormwater concentration of nitrate-N plus nitrite-N is predicted to be considerably less than the Basin Plan WQO and below the range of observed concentrations for Dominguez Channel.

While nitrate-N plus nitrite-N load is predicted to increase with the Proposed Project, due to the substantial estimated load reduction in ammonia-N (a 303d-listed pollutant) along with concentration reductions in all modeled nitrogen species with values below numeric benchmarks, the Proposed Project's impacts associated with nitrogen compounds are considered less than significant.

Metals. Copper, lead, and zinc are the most prevalent metals typically found in urban runoff. Other trace metals, such as cadmium, chromium, and mercury, are typically not detected in urban runoff or are detected at very low levels.[13] As demonstrated in Table IV.F-6, although runoff volume will increase with the Proposed Project, the change in land use with the planned level of treatment is predicted to decrease the runoff concentration of all three trace metals. While the annual load of dissolved copper is predicted to slightly increase because of the increase in runoff volume, lead and zinc loads are predicted to decrease from existing conditions.

Proposed PDFs include site design, source control, and treatment control BMPs in compliance with the SUSMP requirements. The natural treatment processes provided by the Arroyo Park and Lake Park, as well as the vegetated BMPs planned for Champion Park and dispersed throughout parking lots in the mixed-use area will provide additional treatment of trace metals not specifically accounted for in the model. Furthermore, the selection of building material for roof gutters and downspouts that do not include copper or zinc will help minimize increases in trace metals. Other source control PDFs that target metals include education of property owners, BMP maintenance, and street sweeping of private streets and parking lots. Only the effects of the treatment control PDFs are reflected in the model results.

The California Toxics Rule (CTR) criteria are the applicable WQOs for protection of aquatic life and human health. The CTR criteria are expressed for acute and chronic (four-day average) conditions; however, only acute conditions were considered to be applicable for stormwater discharges because the duration of stormwater discharge at the Project Site is consistently less than four days. The CTR criteria are calculated on the basis of the hardness of the receiving waters. Lower hardness concentrations result in lower, more stringent CTR criteria. An average hardness value of 86 mg/L as CaCO3 observed in the Dominguez Channel at the Los Angeles County mass emissions station was used to estimate the acute CTR benchmarks for trace metals. The comparison of the Proposed Project to the benchmark CTR values

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[13] *Los Angeles County Department of Public Works, 2005 (see Appendix F-3 to this Draft EIR).*

presented in Table IV.F-6 shows that all of the trace metal concentrations are well below the criteria. In addition, predicted trace metal concentrations are less than or at the low end of the range of observed average concentrations for copper, lead, and zinc at the LACDPW monitoring station downstream of the Project Site.

Based on the comprehensive site design, source control, and treatment strategy and the comparison with the instream water quality monitoring data and benchmark CTR values, the Proposed Project's potential impacts associated with trace metals are considered less than significant.

Non-Modeled Pollutants of Concern

Turbidity. Turbidity is a measure of suspended matter that interferes with the passage of light through the water or in which visual depth is restricted.[14] Discharges of turbid runoff are primarily of concern during the construction phase of development, discussed previously in this Section. As described therein, based upon the implementation of the proposed PDFs and construction-related controls described previously in this Section, runoff discharges from the Proposed Project would not cause increases in turbidity that could result in adverse affects to beneficial uses in the receiving waters and the water quality impacts related to turbidity are considered less than significant.

Pesticides. Pesticides would be applied to common landscaped areas and residential lawns and gardens during operation of the Proposed Project. Diazinon and chlorpyrifos are two pesticides commonly found in urban streams and that are of concern due to their potential toxicity to receiving waters. The U.S. EPA banned all indoor uses of diazinon in 2002 and stopped sales for all outdoor non-agricultural use in 2003.[15] The U.S. EPA is also phasing out all indoor and outdoor residential uses of chlorpyrifos and has stopped all non-residential uses where children may be exposed. Use of chlorpyrifos in the Proposed Project is not expected, with the possible exception of emergency fire ant eradications, until such time as reasonable alternative products are available and only with appropriate application practices in accordance with the landscape pesticide management program. As discussed previously in this Section, the Proposed Project will include a number of PDFs, including an education program for owners, occupants, and employees, as well as an Integrated Pest Management (IPM) program. As part of the IPM program, careful consideration will be made as to the appropriate type of pesticides for use on the Project Site. While pesticide use is likely to occur due to maintenance of landscaped areas, particularly in the residential portions of the development, careful selection, storage and application of these chemicals for use in common areas per the IPM Program following LAUSD standards will help prevent adverse water quality impacts from occurring. Additionally, removal of sediments as part of the proposed PDFs will remove sediment-adsorbed pesticides. Based on the incorporation of site design, source control, and

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[14] *Sawyer et al, 1994 (see Appendix F-3 to this Draft EIR).*

[15] *U.S. Environmental Protection Agency, 2002.*

treatment control BMPs pursuant to SUSMP requirements and the use of an IPM program, potential operational Project impacts associated with pesticides are considered less than significant.

Pathogens. Natural levels of bacteria are present in the Project Site's receiving waters and control of such natural sources is not required nor desired by regulatory agencies. The primary sources of fecal coliform from the Proposed Project would likely be sediment, pet wastes, wildlife, and regrowth in the storm drain itself. Other sources of pathogens and pathogen indicators, such as cross connections between sanitary and storm sewers, are unlikely given modern sanitary sewer installation methods and inspection and maintenance practices. A number of existing studies conducted for pathogens in receiving waters in urban areas (such as the Proposed Project) support the conclusion that the development of the Proposed Project would not result in appreciable changes in pathogen levels in receiving waters compared to existing conditions (see Appendix F-3 to this Draft EIR). As discussed previously in this Section, the Proposed Project will include a number of source controls, and treatment control PDFs, including an education programs for owners, occupants, and employees, aimed to reduce the amount of pet waste entering receiving waters. With the incorporation of proposed PDFs, the Proposed Project would not result in appreciable changes in pathogen levels to receiving waters compared to existing conditions, and potential water quality impacts related to pathogens are considered less than significant.

Hydrocarbons. Although the concentration of hydrocarbons in runoff is expected to increase slightly with the completion of the Proposed Project due to the increase in roadways, driveways, parking areas, and vehicle use, the proposed PDFs are expected to prevent appreciable increases in hydrocarbon concentrations from leaving the Project Site. Source control PDFs that address petroleum hydrocarbons include educational materials on used oil programs, carpooling, and public transportation alternatives to driving; BMP maintenance; and street sweeping private streets. It is anticipated that vehicles associated with the Proposed Project will, in general, be well-maintained and will include newer models which will help to limit emissions and leaks. Lastly, the proposed parking lot site design, source controls, treatment BMPs, and vegetation and soils within the treatment control PDFs will adsorb the low levels of emulsified oils in stormwater runoff, preventing discharge of hydrocarbons and visible film in the discharge or the coating of objects in the receiving water. Overall, the Proposed Project's effect on petroleum hydrocarbon levels in the receiving waters is considered less than significant.

Trash and debris. Urbanization can significantly increase trash and debris loads, which imposes an oxygen demand on a water body as organic matter decomposes. However, the proposed PDFs, that include both source control and treatment BMPs, will remove or prevent the release of floating materials, including solids, liquids, foam, or scum, from runoff discharges and will therefore mitigate impacts on dissolved oxygen in the receiving water. For these reasons, water quality impacts related to trash and debris are considered less than significant.

Methylene Blue Activated Substances (MBAS). MBAS, which is related to the presence of detergents in runoff, may be incidentally associated with urban development due to commercial and/or residential vehicle washing or other outdoor washing activities. Surfactants, wetting agents which allow for easier

spreading, disturb the surface tension which affects insects and the function of gills in aquatic life. The Proposed Project will control the presence of soap by implementing source control PDFs, including a public education program on residential and charity car washing, and the provision of a car wash pad connected to sanitary sewer in the multi-family residential areas. Other sources of MBAS, such as cross connections between sanitary and storm sewers, are unlikely given modern sanitary sewer installation methods and inspection and maintenance practices. For these reasons, potential water quality impacts related to MBAS are considered less than significant.

Bioaccumulation

The potential for bioaccumulation impacts from the lake and proposed vegetated BMPs will be minimal because the Project Site is largely impervious with very little coarse solids. The vegetation in the proposed facilities will trap sediments and pollutants in the soils, which contain bacteria that metabolize and transform trace metals, thereby reducing the potential for these pollutants to enter the food chain. While the lake may attract water fowl and other wildlife, runoff will be treated in the Arroyo swale prior to discharge to the lake, reducing concentrations of potentially bioaccumulative compounds. The recirculation of lake water and the use of aerators will ensure the water column stays oxygenated and that any volatile compounds are released to the atmosphere. Furthermore, the Proposed Project would not introduce any of the primary pollutants of concern with regard to bioaccumulation, which include mercury, selenium, and legacy pesticides, such as DDT. Therefore, the potential for bioaccumulation and adverse effects on waterfowl and other species is considered less than significant.

Dry Weather Runoff

While there are no specific requirements in the MS4 Permit and the SUSMP requirements to treat dry-weather discharges from the Project Site, pollutants during dry weather flow could also be of concern because these conditions occur throughout a large majority of the year. Dry weather flow is typically low in sediment because the flow is relatively low, and therefore, coarse suspended sediment tends to settle out or is filtered out by vegetation. As a consequence, pollutants that tend to be associated with suspended solids (e.g., phosphorus, some bacteria, some trace metals, and some pesticides) are typically found in very low concentrations during dry weather flow. Nonetheless, the Proposed Project will be a new development with new storm drains and sanitary sewer systems, which are expected to have minimal, if any, leakage. Assuming that control PDFs will reduce the volume of dry weather runoff, and treatment control PDFs will capture and treat the majority of the dry weather runoff that may occur (see discussion of PDFs previously in this Section), the potential impact from dry weather flows is considered less than significant.

Direct Groundwater Quality Impacts

The Project's impact on groundwater will occur through general infiltration of irrigation water and through incidental infiltration of urban runoff through the proposed treatment control PDFs (e.g. Arroyo

swale and other vegetated BMPs). Since the historical shallow groundwater level at the site is deeper than 50 feet (Group Delta, 2007) impacts to groundwater caused by infiltration of irrigation water and treated urban runoff is considered less than significant. Groundwater quality will be fully protected through implementation of the Project's site design, source control, and treatment control PDFs prior to reaching groundwater. With respect to groundwater, the pollutant of concern is nitrate-N plus nitrite-N. The Basin Plan groundwater quality objective for nitrate-nitrogen plus nitrite-nitrogen is 10 mg/L (which is more stringent than the objective for nitrate-nitrogen alone (10 mg/L) plus nitrite-nitrogen alone (1 mg/L)). The predicted nitrate-nitrogen plus nitrite-nitrogen concentration in runoff after treatment in the Project PDFs is 0.6 mg/L, which is well below the groundwater quality objective. The typical irrigation water supply nitrate-nitrogen concentration is 0.63 mg/L, which is also well below the groundwater quality objective. On this basis, and the fact that the groundwater table is greater than 50 feet below ground, the potential to adversely affect groundwater quality is considered less than significant.

Water Quality Impacts and Safety Concerns from the Hollywood Park Lake

There are several potential public health concerns associated with manmade lakes and water features, and the lake at Hollywood Park is designed to alleviate each. The discussion below describes the various public health concerns that may be associated with a manmade lake and the design features that alleviate each concern. The lake at Hollywood Park will be designed to be a safe, attractive amenity for the neighborhood with specialized design features to maintain the quality of the lake. The lake at Hollywood Park will be designed to maintain excellent water quality at all times and to provide excellent treatment for stormwater that will pass through the lake for treatment.

Mosquitoes in Manmade Lakes and Water Features

The Hollywood Park lake will be constructed with several design features specifically designed to limit the available habitat for mosquito breeding. Mosquito production is a concern for any body of water, especially in Southern California where warm weather permits year-round mosquito breeding if water conditions are favorable. There are many species of mosquito in California, but typically only a few create most of the problems in developed areas. These problem mosquitoes breed in stagnant, polluted waters which lack fish or other predators that prey on the defenseless aquatic mosquito larvae. Typical mosquito breeding locations include small pools of water in tires, unmaintained bird baths, trash such as paper cups or cans, or areas where leaking or poorly adjusted irrigation systems create persistent pools of water. Large, clean bodies of water such as well maintained lakes do not typically support significant mosquito populations. The lake at Hollywood Park will be constructed with hardened edges, deeper water in emergent wetlands, and water quality systems, all of which eliminate mosquito breeding habitat. The edges of the lake will consist of different engineered concrete shorelines and bulkheads. Some of these shorelines will be constructed with roughened surfaces and include natural rock to mimic the appearance of a natural shoreline. In contrast to many natural shorelines, however, the hardened shoreline will provide little extremely shallow water less than a few inches deep that could allow mosquito larvae to survive while excluding fish and other larval predators. Similarly, emergent wetlands within the lake will

be designed with a minimum of approximately 6 inches of water. This will allow fish and other predators of mosquito larva access to the wetlands where they will effectively eliminate mosquito larvae. Another feature of the lake that will minimize mosquito production is the excellent water quality. Clean water not only supports fish and other predators but also renders the lake unattractive to many of the most troublesome species of mosquitoes. Finally, the large open water surface of the lake will result in ripples and waves that will make survival difficult for mosquito larvae. Overall the lake will provide very little suitable habitat for mosquito larvae and will support healthy populations of mosquito predators, and very few mosquitoes will successfully breed in the lake.

Other Vectors and Nuisance Animals

In addition to mosquitoes, several other types of potential disease vectors are often associated with lakes, although this association is not typically rooted in fact. Rats may be associated with water bodies because they are commonly found at wharfs and harbors, and are associated with storm sewers, which can be used to carry stormwater to manmade lakes. However, properly designed and constructed manmade lakes (and natural lakes as well) provide very little suitable habitat for Norway or Black Rats, the species of rats that cause problems for humans. Norway Rats typically live in or near buildings, pipes, barns, or other manmade structures, and are unlikely to inhabit the edges of a lake. Black Rats, or Roof Rats as they are also called, are more arboreal than Norway Rats, and commonly live on vine-covered fences and dense ornamental vegetation, as well as occasionally living in dense riparian vegetation along lakes or streams. Although Black Rats can live near lakes, especially lakes with dense ornamental vegetation, they can also live throughout landscaped residential areas, and the lake should not be considered as an attractor of rats, but rather as another potential, but not necessarily preferred, habitat for a very widespread pest.

Muskrats are semi-aquatic native rodents that may be attracted to manmade lakes, but should not be confused with Norway or Black Rats. Muskrats are wild animals, in the same category as rabbits, squirrels, or other small mammals that inhabit natural areas and suitable manmade environments. Muskrats can be a nuisance to lake owners, but do not transmit diseases, damage crops, or infest buildings the way Norway or Black Rats may. Muskrats are not found everywhere in California and may not be present in the vicinity of this project.

In the same way that mosquitoes spend part of their lives in and out of aquatic environments, other insects have a similar life history and can inhabit manmade ponds or water features. Some of these insects can occur in numbers that can create a nuisance; however, none of them bites humans, transmits disease, or is attracted to humans the way mosquitoes are.

Midges are small flying insects that begin life in the waters and sediments of ponds, lakes and rivers. Upon reaching adulthood, midges emerge from the water and embark on courtship flights, typically over or near the water in which they were born. These courtship flights take the form of groups of midges flying in masses that hover in a location and often occur near dusk. These flights generally happen near the water, and in some cases occur over trails frequented by people. These masses of midges are not

attracted to people, but when a person happens to walk into the mass of midges it is easy to mistake the courtship flight for an organized attack; a midge looks very much like a mosquito. It should be noted that reports of thick swarms of mosquitoes are often due to flights of midges.

Midges occur in clean waters, and abundant midges are an indication of a healthy lake. Although midges represent an important part of the aquatic food chain, in many cases predators do not easily control their numbers, and chemical control of midges with pesticides is generally not feasible or desirable, making the control of midges difficult. Midges are attracted to lights, so careful design of lighting near the lake may offer the best solution for controlling the interaction between people and midges.

Crane flies are large relatives of mosquitoes that, like their biting cousins, start life in water. Crane flies rarely occur in large numbers like midges, but due to their large size may be more easily noticed by community residents. Crane flies do not bite and are a harmless part of the aquatic ecosystem.

Shoreline Safety

The safety of the public is a primary concern of lake designers, and the lake at Hollywood Park will be designed to provide a safe shoreline environment. The shoreline will be constructed with a maximum water depth of 18 inches at the edge, bordered by a gently sloping submerged concrete shelf that extends to a depth of approximately 4 feet creating a "safety ledge." The shallow edge allows anyone who might accidentally fall into the lake to easily exit the lake. The engineered shoreline for this project will generally consist of two types, either a vertical concrete bulkhead or an eroded concrete sloping shoreline. The primary function of an engineered shoreline is to prevent erosion from wind waves. The eroded concrete shoreline will have a slope at the immediate water edge and will be no steeper than 1:1 and the roughened concrete and rock provide secure footing for anyone who needs to get out of the lake. The engineered shoreline will extend above the normal operating level of the lake an addition 24" to 30" in order to provide sufficient freeboard for surcharge storage of stormwater within the lake. Beyond the immediate face of the submerged shoreline, a submerged concrete safety ledge (roughened to resemble soil or rock) will gradually lead to deeper water. This gentle slope of approximately 4:1 (horizontal:vertical) is steep enough that anyone wading into the lake will be aware that the water is getting deeper toward the middle, but flat enough that the wader can easily retreat from the lake. Beyond the four foot depth a liner system on the bottom over the soil will extend at a slope that may be up to a maximum 3.5:1 (H:V), but 4:1 preferred. The overall effect of the safety edge is to provide a situation in which nobody can accidentally find themselves in deep water. There are no specific safety regulations or public health/building codes, which require fencing of open water bodies. Fencing is required by California Health and Safety Codes for swimming pools which are defined as water bodies with surface area less than 20,000 square feet. The lake has a surface area that exceeds this definition so fencing is not required. Safety liability is limited to duty of care through posting warning signs.

Fecal Coliform Bacteria

Fecal coliform bacteria are a class of bacteria present in human intestines and ubiquitous in municipal wastewater and stormwater runoff. Fecal coliforms are not themselves harmful, but rather are used as indicator bacteria – the presence of fecal coliforms indicates that human waste might have entered the water and other dangerous bacteria and viruses may, like the fecal coliform, have survived in substantial numbers. In most cases the dangerous disease-causing microbes are more difficult to detect in water, and therefore tests to identify fecal coliform are used instead to indicate the potential presence of dangerous microbes.

Fecal coliforms are typically present in all southern California streams, whether the streams drain developed or undisturbed watersheds. Fecal coliforms and other bacteria are living organisms that behave differently than other pollutants. Fecal coliforms may die in lakes as a result of ultraviolet light exposure, lack of sufficient nutrients or other required constituents, or other mechanisms. In some cases fecal coliforms can grow in water, particularly in nutrient-rich water such as can be found in storm drains or polluted lakes or streams.

A lake has many potential sources of fecal coliform bacteria, including storm drains, runoff directly into the lake, and wildlife that will be attracted to the lake. All lakes, including manmade lakes, attract waterfowl that deposit bacteria including fecal coliform bacteria into the lake. However, birds and wildlife do not generally produce human pathogens, and of course, their droppings do not indicate the presence of untreated sewage. Therefore fecal coliforms are not a perfect indicator of pathogens in a lake. The bacteria loads from waterfowl are readily treated by the in-lake water quality systems that will be present at Hollywood Park. Bridgeport Lake in Valencia, California, a manmade lake very similar to Hollywood Park Lake has large numbers of waterfowl all year long, yet the water is typically very low in fecal coliforms, as indicated in Appendix F-4 to this Draft EIR. Thus, the lake at Hollywood Park is expected to have similar low levels of bacteria despite the inevitable presence of waterfowl, other wildlife, and pets that are attracted to a manmade lake.

The lake will serve as an efficient BMP for removing fecal coliform and other bacteria from stormwater, and the lake will not serve as a significant source of indicator bacteria or pathogens to the receiving water. Because of the water quality systems in the lake and many natural processes that remove bacteria from surface waters, the lake will exhibit consistently low concentrations of fecal coliforms, as indicated by monitoring data from Bridgeport Lake. As indicated in Appendix F-4 to this Draft EIR, the lake will have fecal coliform levels at least ten orders of magnitude lower than the levels in typical stormwater runoff monitored by Los Angeles County. Due to dilution and various physical, chemical, and biological processes, the proposed lake will significantly reduce the concentration of fecal coliform compared to typical urban runoff, resulting in runoff that is very low in fecal coliform compared to typical urban runoff treated in standard BMPs. Thus the lake will significantly reduce the discharge of bacteria and pathogens from the site as compared to typical urban developments.

Pathogenic Organisms

Pathogenic organisms will be present in very low concentrations in the lake at Hollywood Park as indicated by the low levels of fecal coliform bacteria present in lakes of similar construction. Various types of potential pathogenic (disease-causing) organisms can be present in water, and the presence of most of them is associated with leaks of untreated sewage into storm drains or other waterways. Each pathogenic organism requires a separate test to directly identify the organism in water, and many of the tests are costly, time-consuming, or of variable accuracy. In addition, many pathogenic organisms are present in low concentrations, making it possible that a sample drawn for testing may not contain enough of the organisms to be detected despite the presence of the organism in the water body. Therefore, indicator bacteria are examined to indicate the presence of sewage in water bodies; the presence of high levels of indicator bacteria indicates that untreated sewage is present in a water body and thus there is a high probability that high levels of pathogenic organisms may also be present. Fecal coliform bacteria are present in high concentrations in untreated sewage (typically much higher concentrations than pathogens) and are easily detected in water, and therefore fecal coliforms are the most commonly used indicator bacteria in surface water bodies. The levels of fecal coliform bacteria are expected to be low in the lake, as indicated in Appendix F-4 to this Draft EIR, and thus the levels of pathogenic organisms are expected to be very low as well.

Inadvertent Body Contact

The lake at Hollywood Park will not be designed for swimming, boating, or other contact recreation, but the public will be encouraged to visit the lakeside paths and gardens. Because of this, inadvertent human contact with the water may occur, but should not result in health issues. Waters designated for contact recreation (e.g., swimming) must meet USEPA's 'REC1' water quality standards, while waters designated for non-contact activities (e.g., fishing or boating) must meet 'REC2' standards. The lake at Hollywood Park is not designated for any recreational uses, and therefore is not required to meet either water quality standard, but comparison of lake water quality with REC1 and REC2 standards is a useful way to examine the potential impacts of inadvertent public contact with lake water.

Based on water quality monitoring conducted at Bridgeport Lake (see Appendix F-4 for detailed supporting data), the lake is expected to meet even the stringent REC1 standards for water quality most of the time. The long-term average count of fecal coliforms in Bridgeport Lake is exactly 126 as the Most Probable Number of colony-forming units per 100 ml of water (MPN/100ml), exactly the same as the E. coli average in the REC-1 standard. It is important to note that the Bridgeport data includes all fecal coliforms, while the REC-1 data applies only to one type of bacteria counted in the fecal coliform test. Thus, the Bridgeport E. coli count is likely considerably lower than 126 MPN/100ml. The monitoring done at Bridgeport Lake was conducted for general monitoring of the lake, and was not done following the protocols used for recreational waters, therefore the Bridgeport Lake monitoring data is not strictly comparable to REC standards. However, the monitoring does give an indication of the level of bacteria expected in the lake at Hollywood Park. The monitoring data at Bridgeport Lake examines fecal coliforms. REC standards apply to counts of E. coli, which is one of the bacteria counted as fecal

coliforms. Thus, the monitoring data from Bridgeport Lake gives an upper limit on the level of E. coli that could be present in the lake.

USEPA REC-1 (contact recreation) and REC-2 (non-contact water recreation) standards are given below. Levels of fecal coliforms in Bridgeport Lake are, most of the time, below even the REC-1 standard. Because E. coli is only one of the bacteria that are counted as fecal coliforms, Bridgeport Lake gives an upper limit on the counts of E. coli that may be present in the lake. Similarly, the lake generally meets REC-2 standards, indicating that it will be safe for boating and similar activities. The occasional spike in bacteria counts in Bridgeport Lake is probably due to waterfowl, which can be numerous on the lake, and does not necessarily indicate any human waste in the lake.

Table IV.F-7
USEPA Recreational Water Quality Standards

E. Coli Concentration per 100 ml			
	Average	**Single Sample Maximum**	
REC 1	126	235	Designated Bathing Beach
		298	Moderate Full Body Contact
		406	Lightly Used Full Body Contact
REC 2	200	576	Infrequently Used
		400	

Pace Advanced Water Engineering, Technical Memorandum Re: Hollywood Park Manmade Lake – Public Health Concerns Mitigation, June 12, 2008 (Appendix F-4).

Like the Bridgeport Lake, it is anticipated that the lake at Hollywood Park will, most of the time, meet the REC-1 and REC-2 standards shown in Table IV.F-7, and thereby would be considered safe for contact and non-contact recreational activities. These activities involve prolonged contact with the water and create a greater opportunity for disease transmission than inadvertent contact would create. Therefore the lake should be considered safe for any inadvertent or accidental contact that may occur.

Offensive Odors

Offensive or unpleasant odors will not be present at the lake at Hollywood Park because the lake will have excellent water quality at all times and will be well aerated throughout the lake. Odors associated with lakes are typically released under conditions of low dissolved oxygen in the water and are associated with large blooms of algae, especially blue-green algae, or anaerobic lake-bottom sediments. The lake at Hollywood Park will be equipped with several water quality maintenance systems to prevent large algae

blooms by limiting the amount of available nutrients in the water. In addition, the lake will be constantly aerated by a mechanical aeration system that will maintain the dissolved oxygen near the saturation point throughout the water column. This will prevent the discharge of unpleasant odors from lake bottom sediments and prevent drops in dissolved oxygen content caused by the growth or die-off of algae in the lake.

Groundwater Contamination

The water in the lake at Hollywood Park will not mix with groundwater that may be present beneath the lake, preventing any potential for contamination of groundwater by constituents that may be in the lake, or contamination of the lake by constituents that may be present in the groundwater. The lake will be constructed with a synthetic membrane liner that will be continuous beneath the entire lake. The liner will be impermeable – waterproof – and will prevent any mixing of lake water with groundwater.

Water Quality Treatment

The lake at Hollywood Park will serve as a treatment facility for stormwater originating on the project site. The lake will receive stormwater runoff from the project site through the drainage system. The lake will be designed with several types of water quality systems to ensure that stormwater entering the lake is treated to a very high level before discharge, and that water residing in the lake is continuously treated to maintain excellent water quality in the lake at all times.

In Los Angeles County stormwater runoff treatment is required by the SUSMP that has been adopted by the County of Los Angeles and most of the cities within the county as well. The SUSMP requires a variety of measures to minimize stormwater runoff, minimize the pollution of the runoff, and treat stormwater before it is released downstream. The Hollywood Park project will follow all applicable parts of the SUSMP, including providing stormwater treatment, which will take place within the lake. The lake will be designed in a similar manner as the lake at Bridgeport, located in Los Angeles County. Bridgeport Lake has received a Water Quality Award from the Los Angeles Regional Water Quality Control Board, indicating that the lake is an accepted and outstanding approach to stormwater treatment.

Within the lake at Hollywood Park, stormwater runoff will pass through a series of treatment steps before any of the water is released downstream. The first line of stormwater treatment will occur in the pretreatment wetlands situated at the outfall from each drainage area. The pretreatment wetlands are wetlands constructed within the manmade lake at each storm drain outfall. Water from the storm drain must pass through the pretreatment wetland before entering the lake. As the water passes through the gravel substrate of the pretreatment wetland it encounters bacteria, plants, and algae that capture nutrients and degrade organic material, while sediments are trapped by adhesion or settling. Pretreatment wetlands are sized to provide 24-hour detention for the anticipated dry weather flow from each storm drain. The detention time provided for storm flows will vary, depending on the intensity of the storm. The pretreatment wetlands are not intended to meet SUSMP requirements as stand-alone stormwater treatment

facilities, but rather serve as a pretreatment before water enters the lake, which is the main treatment facility for the site.

Observed pollutant removal rates for wetlands indicate that the relatively short detention time provided by the pretreatment wetlands will provide significant water quality benefits. Appendix F-4 to this Draft EIR provides empirical data from an extended dry detention basin printed in the State of Minnesota BMP Handbook. Similar results would be expected anywhere in the US. As indicated in Appendix F-4 to this Draft EIR, even detention times as short as six hours can provide significant water quality benefits.

These stormwater pretreatment wetlands improve water quality prior to pond-input via the following mechanisms:

- sediment reduction
- settling of particulate phosphorus and metals
- denitrification and filtration by wetland plants and indigenous bacteria
- biological removal (consumption) of pesticides and hydrocarbons

The preferred detention time for surface flows varies based on density of submergent and emergent vegetation, water depth, and water temperature. Higher flows will result in lower detention time, but higher flows also have lower concentrations of water quality pollutant constituents due to dilution.

Typically the "first flush" or initial volume of surface flow to the pond will contain the highest concentrations of nutrient and other constituents (salts and trace metals) due to suspension of loose debris and minerals accumulated during dry periods. Subsequent flow after the first flush will generally be of higher quality, as these water quality constituents are essentially washed away by the first flush. More significant stormwater flows will be transported by gravity through the pretreatment wetlands and into the pond with shorter treatment retention times.

The smaller nuisance and first flush stormwater volumes will be detained in the pretreatment wetlands for a longer period. Reduction of nitrogen concentrations of 1 mg/L per day or more for water temperatures exceeding 70 degrees Fahrenheit can be expected. Reduction of phosphorus and metals via settling can occur dependent on detention time, bonding with particulate wetland carbon, and oxidation conditions in the pretreatment wetlands. Sedimentation may successfully remove over 50% of particulates in less than 6 hours of detention. Sediment that accumulates in the pretreatment wetlands will eventually need to be dredged and removed to maintain design performance. However, because the only sediment that will

enter the pretreatment wetlands will be derived from the developed portions of the site, which typically produce very little sediment, maintenance will be required only very infrequently.[16]

Another water quality feature of the lake will be aquatic submergent and emergent vegetation. The emergent vegetation will be largely confined to wetland planters to control its spread and simplify lake maintenance. The in-lake wetland planters provide aesthetic benefits, ecosystem value such as food and shelter for wildlife, removal of nutrients, and filtration of turbid waters. Vegetated wetland planters are similar in appearance to pretreatment wetlands, but are not connected to storm drain outfalls, and therefore do not require the periodic removal of trash or accumulated sediment. The purpose of a vegetated wetland planter is to support emergent or aquatic vegetation while containing the growth of the vegetation to a defined and easily maintained area. The vegetation provides water quality benefits, wildlife habitat, and aesthetic interest to the lake. The most common nutrients found in stormwater are nitrogen and phosphorous, and both are removed from the water by various processes that occur in lakes and wetlands. Nitrogen in lake water (i.e. ammonia, nitrate, and organic nitrogen) is converted from nitrate to nitrogen gas by anoxic bacteria in wetland sediment. Phosphorus undergoes attachment and settling to the wetland sediment. In addition, both nitrogen and phosphorus are incorporated into cell tissue by wetland plants. Nuisance algae and excessive growth of aquatic plants are generally present only in lakes with high concentrations of nutrients. Therefore, the removal of nutrients from lake water is the primary goal of the water quality systems included in the lake in this project, such as wetland planters.

Another water quality feature of the lake will be underwater biofilters. A biofilter is an underwater gravel bed through which pond water is pumped to provide treatment of the water. The lake biofilters are typically 3 to 4 feet deep, filled with gravel media and submerged 18 to 24 inches below the lake water surface. The media provides attachment sites for activated biomass used for nutrient removal. A perforated herringbone piping network will be located beneath the media for distributed water flow upward through the media for biological treatment and physical filtration. Water will be pumped through the piping network from the recirculation system pumps. Similar to a wastewater treatment nutrient removal filter, the custom gravel media biofilter is capable of high rate biological organic carbon consumption and denitrification (nitrogen conversion and removal) as compared to wetlands. Combined areas of aerobic and anoxic conditions in the biofilter, particularly on the biological flocs, provide an ideal environment for aerobic BOD reduction and nitrification and anoxic nitrate reduction. In addition, phosphorus removal via physical filtration and biological uptake has been demonstrated to occur in biofilters. Coliform, an indicator of pathogens, may be effectively removed by biological predadation in the media biofilters. A biofilter is shown during construction in Appendix F-4 to this Draft EIR, with another photo of the same biofilter. Biofilters are located below the water surface and cannot be seen during normal lake operation. Biofilters require occasional backwashing to remove accumulated sediment and biological growth.

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[16] *See Appendix F-4 for an outline of the pond maintenance plan.*

Aeration will be provided for the lake in order to vertically mix the pond water, prevent stratification, and introduce dissolved oxygen into the water. Aeration for the lake will be provided via fine bubble diffusers placed at several locations on the lake bottom. Introducing compressed air to the bottom of the lake helps mix oxygen-poor bottom water to the surface, allowing it to become aerated through contact with the atmosphere. Aeration also disrupts the formation of thermal stratification in the lake, further reducing the likelihood of oxygen-poor water developing in the lake. Aerated lakes have generally better water quality, fewer problem algae blooms, and fewer problems with odors than lake that are not mechanically aerated.

The lake at Hollywood Park will also have a pumped circulation system that will work together with the biofilters. Water circulation improves the water quality in a lake by eliminating stagnant areas where high temperatures and low dissolved oxygen concentrations can lead to odors, excessive algal growth, and other aesthetic problems. Within any lake, recirculation occurs naturally via wind, convection, and wave action at low efficiency. The pumped circulation designed for this project will provide much more comprehensive circulation throughout the entire lake.

In summary, water quality impacts and safety concerns from the lake at Hollywood Park would be less than significant.

Land Use Equivalency Program

The Proposed Equivalency Program allows for specific limited exchanges in the types of land uses occurring within the Hollywood Park Specific Plan Area.

The exchange of land uses would occur at relatively limited locations within the Project Site and could be accomplished using the same building parameters. There would be no substantial variation in the Project's land use plan, building pad elevations, or the depth of excavation. Potential changes in land use under the Land Use Equivalency Program would therefore have no substantial effect on the predicted loads and concentrations, BMPs, or groundwater use and their associated impacts, because only the use is changing. Specifically, surface water and groundwater water quality requirements for the Proposed Project would be the same under the Land Use Equivalency Program. Minor variations regarding foundation types or in the preparation of landscaping areas could occur, however such variation would be within the range of construction procedures anticipated to occur with the Proposed Project. In addition, development under the Land Use Equivalency Program would not cause or exacerbate any impacts that would occur under the Proposed Project.

All Project Design Features and/or recommended mitigation measures to minimize water quality impacts under the Proposed Project would be implemented, as appropriate, under the Land Use Equivalency Program. With the implementation of the mitigation measures, hydrology and water quality impacts attributable to the Land Use Equivalency Program would, therefore, be less than significant as with the Proposed Project.

CUMULATIVE IMPACTS

Development of the Proposed Project in conjunction with the Related Projects identified in Section III (Related Projects) would result in further development within the City of Inglewood. Since the Dominguez Channel watershed is currently 96 percent developed, future urban development will, similar to the Proposed Project, mostly entail redevelopment of existing developed sites that will require the treatment of urban runoff. As discussed throughout this Section, the Proposed Project would not substantially deplete groundwater supplies, alter the existing drainage pattern (resulting in substantial erosion or flooding), or exceed storm drain capacities, and would include mitigation measures to reduce impacts related to polluted runoff during construction and operation. The Proposed Project, including Proposed Project Design Features (PDFs), would comply with adopted regulatory requirements designed by the LARWQCB to assure that regional development does not adversely affect water quality, including MS4 Permit and SUSMP requirements; General Construction Permit requirements; General Dewatering Permit requirements; benchmark Basin Plan Water Quality Objectives (WQOs), and California Toxics Rule (CTR) criteria. Any future urban development or redevelopment occurring in the Dominguez Channel watershed would be expected to comply with these requirements.

As such, the Proposed Project would not contribute to a cumulatively significant impact in any of those areas discussed. In addition, prior to construction of each of the Related Projects, an analysis of the existing drainage system and any potential individual impacts on site hydrology or the drainage system would be required. Each individual Related Project would be required to analyze its surface water flows, comply with all federal, regional and local laws and regulations pertaining to surface water quality, and develop and implement appropriate mitigation measures, similar to the analysis and mitigation measures set forth in this EIR. With appropriate project design, and compliance with the applicable federal, State and local regulations, and permit provisions, cumulative impacts related to hydrology and water quality would be less than significant.

PROJECT DESIGN FEATURES

The following PDFs are proposed to be incorporated into the project description or were used in the basis for formulating portions of the environmental analysis with respect to hydrology and water quality impacts. As such, it is recommended that the lead agency incorporate the following project design features as conditions of project approval.

PDF F-1. Hydrologic source controls will include minimizing runoff from impervious surfaces by routing flows to the Arroyo and Lake Park and using bioretention and other vegetated treatment control BMPs to reduce runoff volumes through evapotranspiration and infiltration.

PDF F-2. Native and/or climate-appropriate vegetation will be utilized in at least 50% of the developed landscaped areas.

PDF F-3. The Project's stormwater management system will include the use of the vegetated treatment BMPs, including the Arroyo and Lake Park, as well as parking lot bioretention areas and vegetated swales (where applicable).

PDF F-4. Treatment control BMPs will be selected to address the pollutants of concern for the Project (see Appendix F-3). These treatment BMPs for the Project include the Arroyo swale, Lake Park, vegetated BMPs, and catch basin inserts. These BMPs are designed to minimize discharge of pollutants to the Maximum Extent Practicable (MEP). Types of treatment control BMPs that will be employed include swales, bioretention areas, catch basin media filtration units, and a wet pond system (e.g., Lake Park).

PDF F-5. The Project will include numerous source controls, including education programs, animal waste bag stations, street sweeping and catch basin cleaning, an Integrated Pest Management (IPM) Program per the LAUSD standards for common area landscaping in commercial and multi-family residential areas, use of native and/or non-invasive vegetation, product substitution to minimize zinc and copper roofing materials, and directing runoff to vegetated areas.

PDF F-6. An education program will be implemented that includes both the education of residents and commercial businesses regarding water quality issues. Topics will include services that could affect water quality, such as carpet cleaners and others that may not properly dispose of cleaning wastes; community car washes (e.g., fund raisers); and residential car washing. The education program will emphasize animal waste management, such as the importance of cleaning up after pets and not feeding pigeons, seagulls, ducks, and geese.

PDF F-7. The Arroyo swale will be designed to safely convey storm flows without scouring the bottom, eroding banks, or re-suspending sediment.

PDF F-8. All shorelines within Lake Park will be landscaped and maintained to prevent erosion.

PDF F-9. All storm drain inlets and water quality inlets will be stenciled or labeled.

PDF F-10. "No Dumping" signs will be posted around the Arroyo and Lake Park and any other locations that appear prone to illicit dumping.

PDF F-11. The Home Owners' Associations will maintain stencils and signs described in PDF F-9 and PDF F-10.

PDF F-12. Pesticides, fertilizers, paints, and other hazardous materials used for maintenance of common areas, parks, commercial areas, and multifamily residential common areas will be kept offsite or in enclosed storage areas.

PDF F-13. All trash containers will be covered to prevent contact with stormwater.

PDF F-14. The Home Owners' Associations or a Landscape Maintenance District will be responsible for operations and maintenance of the Arroyo, Lake Park, vegetated BMPs, and catch basin media filtration BMPs. Maintenance will be in accordance with a maintenance manual approved by the Director of Planning and Building.

PDF F-15. Stormwater treatment facilities will be designed to meet or exceed the sizing standards in the LA County SUSMP requirements.

PDF F-16. Volume-based treatment control BMPs for the Project (i.e., Lake Park, vegetated volume-based BMPs) will be designed to capture 80 percent or more of the annual runoff volume per criteria 2 of the SUSMP.

PDF F-17. Flow-based BMPs (e.g., the Arroyo, vegetated flow-based BMPs) will be sized using criteria 3, which will provide 80 percent capture or more of annual runoff volume per criteria of the SUSMP.

PDF F-18. As portions of the site are designed, the size of the facilities will be finalized during the design stage for that portion of the Project by the Project engineer with the final hydrology study, which will be approved by the County of Los Angeles and the City of Inglewood prior to issuing the grading permit(s).

PDF F-19. The structural BMPs in the stormwater treatment system will be configured to achieve treatment in multiple BMP facilities for the majority of the developed areas. This "treatment train" approach provides more reliable and consistent pollutant removal.

PDF F-20. Loading dock areas will be covered or designed to minimize run-on and will include catch basin inserts or other appropriate treatment control BMP for treating all runoff prior to discharging to the storm drain system.

PDF F-21. Direct connections to storm drains from depressed loading docks (truck wells) will be prohibited.

PDF F-22. Loading docks will be kept in a clean and orderly condition through weekly sweeping and litter control at a minimum, and immediate cleanup of spills and broken containers without the use of water.

PDF F-23. Commercial areas will not have repair/maintenance bays or the bays will comply with design requirements.

PDF F-24. Areas for washing/steam cleaning of vehicles will be self-contained or covered with a roof or overhang; will be equipped with wash racks and with the prior approval of the sewering agency; will be equipped with a clarifier or other pretreatment facility, and will be properly connected to a sanitary sewer.

PDF F-25. Retail gasoline outlets or fueling areas will not be included in the Hollywood Park redevelopment.

PDF F-26. Automotive repair shops will not be included in the Hollywood Park redevelopment.

PDF F-27. Where feasible, commercial and multifamily parking lots will incorporate vegetated swales or bioretention facilities located in islands or perimeter landscaped areas to promote filtration and infiltration of runoff.

PDF F-28. Catch basin inserts or media filter vaults will be used to treat parking lot runoff from all areas not treated by vegetated BMPs.

PDF F-29. Treatment of runoff in bioretention (or vegetated swales) and catch basin inserts will be used to address oil and petroleum hydrocarbons from high-use parking lots.

PDF F-30. Mosquito fish will be introduced into the pond to naturally control the population of mosquitoes and midges.

MITIGATION MEASURES

The following mitigation measures are recommended to reduce impacts related to polluted runoff during project construction and operation:

Construction

MM F-1. All waste shall be disposed of properly. Appropriately labeled recycling bins shall be used to recycle construction materials including: solvents, water-based paints, vehicle fluids, broken asphalt and concrete, wood, and vegetation. Non recyclable materials/wastes shall be taken to an appropriate landfill. Toxic wastes shall be discarded at a licensed regulated disposal site.

MM F-2. Leaks, drips and spills shall be cleaned immediately to prevent contaminated soil on paved surfaces that can be washed away into the storm drains.

MM F-3. Hosing down of pavement at material spills shall be prohibited. Dry cleanup methods shall be used whenever possible.

MM F-4. Dumpsters shall be covered and maintained. Uncovered dumpsters shall be placed under a roof or covered with tarps or plastic sheeting.

MM F-5. Gravel approaches shall be used where truck traffic is frequent to reduce soil compaction and limit the tracking of sediment into streets.

MM F-6. All vehicle/equipment maintenance, repair, and washing shall be conducted away from storm drains. All major repairs shall be conducted off-site. Drip pans or drop clothes shall be used to catch drips and spills.

MM F-7. Prior to issuance of any grading, building or B-Permit, a Stormwater Pollution Prevention Plan (SWPPP) shall be prepared for the Proposed Project. The SWPPP shall identify temporary Best Management Practices (BMPs) to be implemented in accordance with the General Construction Permit issued by the Regional Water Quality Control Board (RWQCB).

Operation

MM F-8. At a minimum, the Proposed Project shall implement stormwater BMPs to retain or treat the runoff from a storm event producing 0.75 inch of rainfall in a 24-hour period. The design of structural BMPs shall be in accordance with the LACDPW Development Planning Manual for Stormwater Management (Manual for Standard Urban Stormwater Plan). A signed certificate from a California licensed civil engineer or licensed architect that the proposed BMPs meet this numerical threshold standard shall be required.

MM F-9. The Proposed Project shall be designed such that post development peak stormwater runoff discharge rates shall not exceed the estimated pre-development rate for developments where the increase peak stormwater discharge rate will result in increased potential for downstream erosion. A signed certificate from a California licensed civil engineer to confirm that the Proposed Project is designed in such a manner shall be required.

MM F-10. Appropriate erosion control and drainage devices shall be incorporated, such as interceptor terraces, berms, vee-channels, and inlet and outlet structures. Outlets of culverts, conduits or channels shall be protected from erosion by discharge velocities by installing rock outlet protection. (Rock outlet protection is a physical device composed of rock, grouted riprap, or concrete rubble placed at the outlet of a pipe.) Sediment traps shall be installed below the pipe-outlet. Outlet protection shall be inspected, repaired, and maintained after each significant rain.

MM F-11. Potentially hazardous materials with the potential to contaminate stormwater shall be: (1) placed in an enclosure such as, but not limited to, a cabinet, shed, or similar structure; or (2) protected by secondary containment structures such as berms, dikes, or curbs.

MM F-12. Storage areas for hazardous materials shall be paved and sufficiently impervious to contain leaks and spills.

MM F-13. Storage areas for hazardous materials shall have a roof or awning to minimize collection of stormwater within the secondary containment area.

MM F-14. Runoff shall be treated prior to release into the storm drain. Three types of treatments are available: (1) dynamic flow separator; (2) a filtration or (3) infiltration. Dynamic flow separator uses hydrodynamic force to remove debris, and oil and grease, and is located underground. Filtration utilizes catch basins with filter inserts. Infiltration methods are typically constructed on-site and are determined by various factors such as soil types and groundwater table. If utilized, filter inserts shall be inspected every six months and after major storms, and cleaned at least twice a year.

MM F-15. At least 2,200 linear feet of swales or bioretention areas (i.e., vegetated BMPs) will be used in the mixed use area and high use parking lots to address trash and debris and petroleum hydrocarbons.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

As discussed above, threshold question (i) does not apply to this analysis and no further discussion is warranted.

With respect to threshold questions (a) and (f), the Proposed Project would not violate any water quality standards or waste discharge requirements, and would not otherwise substantially degrade water quality. Implementation of the above identified PDF's and mitigation measures which are recommended to reduce impacts related to polluted runoff would ensure that the Proposed Project is designed and developed in a manner that ensures water quality standards are met.

With respect to threshold questions (b) and (c), the Proposed Project would not 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 levels (see Appendix F-6 to this Draft EIR regarding groundwater). The proposed increase in effective imperviousness (due to both the addition of drainage area that is not retained, as well as the increase in impervious surface area) would not substantially interfere with groundwater recharge. In addition, the Proposed Project would not 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. Implementation of the above identified PDF's and mitigation measures recommended to reduce impacts related to erosion and siltation would ensure that the Proposed Project is designed and developed in a manner that ensures water quality and hydrology impacts are minimized to insignificant levels.

With respect to threshold questions (d) and (e), the Proposed Project would not create or contribute runoff water that would exceed the capacity of existing planned stormwater drainage systems or provide substantial additional sources of polluted runoff, and would not 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. Implementation of the above identified PDF's (which include hydrologic source controls and treatment control BMP's to ensure stormwater runoff volumes are adequately managed, as well as mitigation measures designed to reduce impacts related to polluted runoff during project construction and operation) would ensure that the Proposed Project is designed and developed in a manner that ensures storm drain systems are not adversely impacted, flood hazard is mitigated, and runoff is not polluted. Thus, impacts would be less than significant.

With respect to threshold questions (g), (h) and (j), the Proposed Project would not place housing within a 100-year flood plain as mapped on federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, would not place structures within a 100-year floor plain or redirect flood flows, and would not expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow. Implementation of the above identified PDF's (which include BMP's designed to capture annual site runoff volumes consistent with the criteria of the SUSMP and the LACDPW Development Planning Manual for Stormwater Management) would ensure that the Proposed Project is designed and developed in a manner that ensures potential flood hazard impacts are minimized to insignificant levels.

The Proposed Project's impacts to hydrology and water quality, including waste discharge requirements, groundwater supplies, groundwater recharge, drainage patterns, flood hazard and flood water flows, and stormwater drainage systems, would therefore be less than significant after mitigation.