G. Hydrology and Water Quality

This analysis assesses the impacts resulting from the proposed Project to surface drainage, surface water quality, groundwater supply, groundwater quality, and flooding. The campus is largely graded and has been in operation since 1969. Permanent buildings were constructed during the period 1973 to 1979 and in 1992 to 2000. Prior grading activities included creation of level pad areas that step down from east to west from Sophomore Drive to "B" Street in three pad elevations. Two pads descend to Freshman Drive, West of "B" Street between Stocker and Albert Vera Streets. A single west sloping pad descends to Freshman Drive, West of "B" Street between Sophomore Drive and Albert Vera Street. Future development is proposed to take place in two phases, with building on these existing pad areas involving some minor modification of grades to accommodate the new facilities. Off-site second access (three alternate routes) is proposed from the north and east (Figure III-6).

The following project-specific technical reports were utilized for the preparation of this section. Copies of these reports have been included under **Appendix 5**:

- Analysis of the hydrology conditions (Psomas, 2003a),
- Independent third party review of this hydrology report (MEC Geotechnical, 2003), and
- Post-construction Water Quality Management Plan (Psomas, 2003b).

The hydrology report prepared by Psomas compared present site conditions to post-construction conditions. MEC Geotechnical (2003) found that the Psomas report (2003a) "forms an adequate basis for an EIR analysis by demonstrating the feasibility of transporting on-site runoff to offsite facilities." No hydrology and water quality studies are known to have been performed for the proposed off-site second access road alternatives.

Existing Conditions

Regulatory Framework

Federal

The Federal Water Pollution Control Act, otherwise known as the Clean Water Act (CWA), which was adopted by Congress in 1977, regulates water pollution control and water quality management within the United States. Under Section 402 of the Act, a national permitting system known as the National Pollutant Discharge Elimination System (NPDES) was established in order to regulate point and non-point discharges. The 1987 amendments to the CWA established a framework for regulating municipal, industrial, and construction storm water discharges.

As the basic Federal regulatory and enforcement tool under the CWA, the NPDES program, established by the Environmental Protection Agency (EPA), incorporates specific discharge limitations to ensure that water quality standards are met for storm water discharges from municipal separate storm sewer systems (MS4s) and industrial sites. The CWA gives EPA the authority to set effluent limits on an industry-wide (technology-based) basis and on a water-quality basis that ensures protection of the receiving waters. The CWA requires anyone who intends to discharge pollutants to first obtain an NPDES permit. Unauthorized discharge of wastes is considered illegal and would constitute a violation of the CWA.

The CWA allowed EPA to authorize the NPDES Permit Program to state governments, enabling states to perform many of the permitting, administrative, and enforcement aspects of the NPDES Program. In states that have been authorized to implement CWA programs, EPA still retains oversight responsibilities.

State

In addition to standards and regulations established by the Federal program, California has adopted a number of other, more stringent legislative acts, such as the Porter-Cologne Water Quality Act, California Water Code, Title

23 of the California Code of Regulations, and the California Oceans Plan, in order to further strengthen State water quality standards.

Within California, the State Water Resources Control Board (SWRCB) is responsible for developing and implementing water quality control policy. SWRCB is the agency designated by the Environmental Protection Agency (EPA) for administering the applicable Federal CWA programs, which include adopting water quality standards for State waters.

The nine Regional Water Quality Control Boards (RWQCBs) administer these Federal programs, including NPDES compliance. The Los Angeles RWQCB is responsible for water quality permitting in the Culver City (west of the campus) and Los Angeles County where the campus is located. The LARWQCB adopted a Revised Water Quality Control Plan (Basin Plan) on June 13, 1994, California Regional Water Quality Control Board (CRWCB, 1995). The Basin Plan designates beneficial uses and establishes water quality objectives for groundwater and surface water within the Los Angeles Region.

Beneficial uses are designated under CWA Section 303 in accordance with regulations contained in 40 CFR 131. Some examples of designated uses include: Municipal and Domestic supply (MUN), Ground Water Recharge (GWR), Wetland Habitat (WET), etc. These uses, together with water quality objectives, form water quality standards as mandated under the California Water Code and the federal Clean Water Act. Designated uses in California may be existing (E), potential (P) or intermittent (I). The Basin Plan also identifies both narrative and numeric water quality objectives (recognized federally as 'criteria') that apply to all inland surface waters and enclosed bays and estuaries (including wetlands). Beneficial uses, together with Water Quality Objectives, determine the water quality standards. Water quality standards serve as dual role. They establish goals for the specific water body, and serve as the regulatory basis for defining and enforcing treatment controls. States, through the Regional Water Quality Control Boards, designate uses for all water body segments and then set objectives necessary to protect these uses. Consequently, the water quality standards are based on designated uses. A key element of California's water quality standards is the State's Antidegradation Policy. This policy (State Board Resolution No. 68-16), restricts degradation of surface and groundwaters. In particular, this policy protects water bodies where existing quality is higher than is necessary for the protection of beneficial uses.

The Regional Water Quality Control Boards ensure that the integrity of State's waters are protected through the issuance of permits such as NPDES and (Waste Discharge Requirements (WDR). Site-specific effluent and receiving water limits are specified in the permits, which are developed to comply with the objectives and beneficial uses of the Basin Plan.

Storm water management during construction activities on campus would be permitted under the statewide NPDES General Permit for Storm Water Discharges Associated with Construction Activity (General Construction Permit) (Order No. 99-08-DWQ, Permit No. CAS000002). Under this program, construction activities that would result in earth disturbance of 1 or more acres are required to file a Notice of Intent (NOI) to obtain a General Construction Permit. Along with the NOI, the applicant is required to develop a Storm Water Pollution Prevention Plan (SWPPP), which identifies a range of structural and non-structural Best Management Practices (BMPs) to control and manage storm water runoff from the project site. The management of storm water runoff must be implemented at a construction site before initiation of construction activities and throughout the construction phase. Construction phase BMPs, which are generally temporary in nature, are primarily geared to control runoff and erosion impacts from the construction sites. Temporary erosion control BMPs may include silt fences, temporary check dams, etc, while post-constrcution BMPs, which are more permanent in nature, my include detention ponds, bioswales, etc.

Each state is required to divide water bodies into segments for CWA planning and implementation program. The CWA requires states to submit plans to EPA defining water quality standards to be achieved for each segment identified, in order to achieve designated beneficial uses. States designate uses for all water body segments and

then set criteria necessary to protect these uses. In addition, each state identifies waters failing to meet standards for specific pollutants. If the state determines that waters are impaired for one or more constituents, and the standards cannot be met through point source controls, the CWA requires the establishment of Total Maximum Daily Loads (TMDLs) that will achieve applicable standards. TMDLs represent the allowable pollutant load from all sources (point, non-point, and natural) for a given watershed. The Total Daily Maximum Limit (TDML) for trash was established for Ballona Creek in LARWQCB Resolution No. 01-014 in June 2001.

Section 13260(a)(1) of the California Water Code (CWC) addresses waste discharges that could affect the State's waters. It requires that any person discharging wastes or proposing to discharge wastes that could affect the quality of State waters, into other than a community wastewater collection system, must file a Report of Waste Discharge with the RWQCB. The RWQCB would then prescribe requirements for the discharge or proposed discharge of wastes in accordance with provisions in Section 13260(i) of the CWC. Refer to Psomas (2003b) for additional details.

Local

The proposed Project site lies within the County of Los Angeles Public Works Department jurisdiction for approvals and permitting relating to flood control and associated infrastructure. Therefore, the County of Los Angeles is the permitting agency for this Project.

The County of Los Angeles is a Permitee under the "State of California Regional Water Quality Control Board Los Angeles Region Order No. 01-182 NPDES Permit No. CAS004001 Waste Discharge Requirements For Municipal Storm Water And Urban Runoff Discharges Within The County Of Los Angeles, And The Incorporated Cities Therein, Except The City Of Long Beach", called the NPDES permit. The County discharges or contributes to discharges of storm water and urban runoff from municipal separate storm sewer systems, also called storm drain systems. The discharges, which flow into receiving waters of the Los Angeles Region, are covered under countywide waste discharge requirements contained in Order No. 96-054 adopted by the Regional Board on July 15, 1996, which replaced Order No. 90-079 adopted by the Regional Board on June 18, 1990. Order No. 96-054 also serves as a NPDES permit for the discharge of municipal storm water.

Each Permitee must incorporate into its CEQA process procedures for considering potential storm water quality impacts and providing for appropriate mitigation when preparing and reviewing CEQA documents. The procedures require consideration of the following:

- Potential impact of project construction on storm water runoff;
- Potential impact of project post-construction activity on storm water runoff;
- Potential for discharge of storm water from areas from material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous NPDES CAS004001 - 41 - Order No. 01-182 materials handling or storage, delivery areas or loading docks, or other outdoor work areas;
- Potential for discharge of storm water to impair the beneficial uses of the receiving waters or areas that provide water quality benefit;
- Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and water bodies;
- Potential for significant changes in the flow velocity or volume of storm water runoff that can cause environmental harm; and
- Potential for significant increases in erosion of the project site or surrounding areas.

As a requirement of the NPDES Permit, the County of Los Angeles has a Development Planning Program (LACDPW, 2002). A part of this program is the Standard Urban Stormwater Mitigation Plan (SUSMP). The

SUSMP outlines the necessary Best Management Practices (BMPs), which must be incorporated into a project's design plans. The following categories of development and/or redevelopment are considered subject to the SUSMP requirements and BMPs:

1. Single-family hillside homes (only development of one acre or more of surface area is subject to the SUSMP numerical design criteria requirement);
2. Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments);
3. Automotive service facilities (SIC codes 5013, 5014, 5541, 7532-7534, and 7536- 7539);
4. Restaurants (SIC code 5812);
5. 100,000 or more square-feet of impervious surface in industrial/commercial development;
6. Retail gasoline outlet;
7. Parking lot 5,000 square feet or more of surface area or with 25 or more parking spaces;
8. Redevelopment projects in subject categories that meet redevelopment thresholds; and
9. Location within or directly adjacent to or discharging directly to an environmentally sensitive area if the discharge is likely to impact a sensitive biological species or habitat and the development creates 2500 square feet or more of impervious surface.

Development and/or redevelopment projects having the following characteristics or activities will be required to address the applicable sections of the above-mentioned SUSMP when completing the project design:

1. Vehicle or equipment fueling areas;
2. Vehicle or equipment maintenance areas, including washing and repair;
3. Commercial or industrial waste handling or storage;
4. Outdoor handling or storage of hazardous materials;
5. Outdoor manufacturing areas;
6. Outdoor food handling or processing;
7. Outdoor animal care, confinement, or slaughter; or
8. Outdoor horticulture activities.

Regional and Local Setting

Watershed and Surface Drainage

The Project site and the alternative second access road locations, are located within the Los Angeles-San Gabriel Hydrologic Unit, specifically within Ballona Creek, which is identified as Hydrologic Unit 405.13. Storm water runoff from the Project site passes through several existing storm drainage facilities before discharging into Ballona Creek. Ballona Creek is within the Ballona Creek Watershed Management Area (WMA), which is in hydrologic connection with the Marina del Rey Harbor, Ballona Lagoon and Venice Canals, Del Rey Lagoon and Ballona Wetlands downstream from the discharge point. The Los Angeles County Hydrology Manual (1989; Figures C.1.7 and C.1.17) indicates that the 50-year frequency maximum 24-hour precipitation for the site should be 6 to 7 inches.

Ballona Creek WMA drains portions of the Los Angeles Basin to the larger Santa Monica Bay WMA. Some moderately steep slopes are within this generally low relief subwatershed. A description of the watershed by the L. A. County Department of Public Works is as follows:

"Ballona Creek is a nine-mile long flood protection channel that drains the Los Angeles basin, from the Santa Monica Mountains on the north, the Harbor Freeway (110) on the east, and the Baldwin Hills on the south. The Ballona Creek Watershed totals about 130 square miles. Its land use consists of 64% residential, 8% commercial, 4% industrial, and 17% open space. The major tributaries to the Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous storm drains. Ballona Creek is designed to discharge to Santa Monica Bay approximately 71,400 cubic feet per second from a 50-year frequency storm event. The watershed is comprised of all or parts of the Cities of Beverly Hills, Culver City, Inglewood, Los Angeles, Santa Monica, West Hollywood, and unincorporated Los Angeles County."

The primary drainage course that captures flow from the Project site is Ballona Creek, located about 1,000 feet down gradient from the entrance to the Project site. Surface drainage from the site flows to two storm drains, one a reinforced concrete pipe (RCP) ranging from 21-inch to 48-inch diameter along Sophomore Drive, and the other a 60-inch to 42-inch RCP and a trapezoidal channel along Freshman Drive. Both off-site storm drains connect into a third storm drain which outlets to Ballona Creek. No specific drainage structure information is known for the second access road areas.

Psomas (2003a) prepared a hydrology report for the Project site (campus), which has a total watershed area of 72 acres. The Project site watershed is divided into four sub-areas (A-1, A-2, B, and C; **Figure V.G-1**). Sub-area A-1 encompasses most of the southern and eastern portions of the Project site. Sub-area A-2 is in the west-central area with Sub-are B just to the north. Sub-area C includes Sophomore Road and the northern one-quarter of the football field area. Together Sub-areas A-1 (42.2 acres) and A-2 (20.5 acres) encompass 62.7 acres, Sub-area B 5.9 acres and Subarea C 4.4 acres. At the southwest and northwest Project entrances campus storm water flow enters the L. A. County Department of Public Works (LACDPW) storm drain system where it passes to the south and the combined flows enter the storm drain under Overland Avenue. Flow continues northwest in the LACDPW system to Ballona Creek where flow makes its way to the ocean through Ballona Creek, the Ballona Creek Estuary and the Ballona Wetlands.

Hydrology calculations conducted for the proposed project site compared the existing allowable discharges into LACDPW storm drain systems adjacent to the campus, to the post-development site-runoff discharge volumes (Psomas,2003a). The hydrological calculations indicate the need for an on-site storm drain system, in conjunction with on-site detention structures, to accommodate potential post-construction storm water loadings into to the existing storm drain system, which would then protect the campus and adjacent areas from flooding. **Table V.G-1** summarizes the sub-area sizes, the calculated 25-year storm flow rates after project construction, the allowable discharge rates based on LACDPW, and required water storage for each subarea to meet the allowable flow rates.

Table V.G-1

Los Angeles County Hydrology Manual Calculation Results for Allowable Off-Site Peak Flow Rates to Existing County Storm Drain Facilities

Subarea	Area (acres)	Calculated Q_{25} (cfs)	Allowable Q (cfs)	Required Detention (cu. ft.)
A	62.7	86	78	3964
B	5.9	10	7	1394
C	4.4	6	6	479

On-site storm drains for Sub-areas A and B will connect to the existing LACDPW storm drain in two places along Freshman Dr. The on-site storm drains for Subarea C will connect to the existing near the intersection of Freshman Drive and Sophomore Drive.

Figure V.G-1 Existing Hydrology Map

Surface Water Quality

As described above, Ballona Creek is a primary surface drainage system in the Project area. Water quality within Ballona Creek WMA can be affected by a number of point and non-point sources including surface water runoff, septic system seepage and effluent discharges. Point sources and non-point sources contribute elevated nitrogen levels. Ballona Creek is perennial and the Los Angeles Region Water Quality Control Board's (LARWQCB) Water Quality Control Plan (CRWQCB, 1995) identifies Ballona Creek WMA as an impaired water body. This identification is made by the LARWQCB due to either the potential for long-term loss of the designated beneficial use, short-term impairment of the designated beneficial use, or general degradation of water quality. The impairments identified are cadmium, ChemA, copper, pesticides (dissolved DDT, Dieldrin, Chlordane), tributyltin (TBT), enteric viruses, high coliform count, lead, dissolved PCBs, pH, sediment toxicity, total selenium, lead, arsenic, silver, water column toxicity, dissolved zinc, exotic vegetation, habitat alterations, hydromodification, reduced tidal flushing, and trash.

The Basin Plan for the Los Angeles Region has defined the following existing and potential beneficial uses for Ballona Creek, the Ballona Creek Estuary and the Ballona Wetlands. Beneficial uses identified for Ballona Creek include Municipal and Domestic Supply (MUN), Contact Water Recreation (REC-1), Non-Contact Water Recreation (REC-2), Warm Freshwater Habitat (WARM), and Wildlife Habitat (WILD). Beneficial uses identified for the Ballona Creek Estuary include Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Migration of Aquatic Organisms (MIGR), Navigation (NAV), Rare, Threatened or Endangered Species (RARE), Contact Water Recreation (REC-1), Non-Contact Water Recreation (REC-2), Shellfish Harvesting (SHELL), Spawning, Reproduction and/or Early Development (SPWN), and Wildlife Habitat (WILD). Beneficial uses identified for the Ballona Wetlands include: Estuarine Habitat (EST), Migration of Aquatic Organisms (MIGR), Rare, Threatened or Endangered Species (RARE), Contact Water Recreation (REC-1), Non-Contact Water Recreation (REC-2), Spawning, Reproduction and/or Early Development (SPWN), Wetland Habitat (WET), and Wildlife Habitat (WILD)."

There are no waterbody specific objectives identified for the Ballona Creek Watershed (CRWCB, 1995). However, as shown in **Table V.G.-2** the Basin Plan recommends the following mineral or nutrient quality objectives that would be applicable to protect the various designated issues and may be used as a guideline for establishing effluents limits for the project area:

Table V.G-2

Beneficial Uses

Recommended Objective (mg/L)	Beneficial Use Categories				
	MUN (Drinking Water Standards)	PROC	AGR	AQ LIFE (Freshwater)	GWR
TDS	500 (USEPA secondary MCL)	50-1,500	450-2,000		Limits based on appropriate groundwater basin objectives and/or beneficial uses.
Chloride	250 (USEPA secondary MCL)	20-1,000	100-335	230 (4 day Ave. continuous conc)	
Sulfate	400-500 (USEPA secondary MCL)	20-300	350-600		
Boron			0.5-4.0		
Nitrogen	10 (USEPA MCL)				
Sources: LARWQCB Basin Plan.					

No site-specific surface water quality information is known for the drainages entering (east of the campus) and leaving the Project site. It is possible that activities up stream from the site may be introducing pollutants to the north, south, or east edges of the site, which would pass through the Project site and exit by the campus drainage system (Figure V.G-1). There are many identified point sources of pollutants within the Ballona Creek WMA based on the LARWQCB Basin Plan[1]. The Los Angeles County Department of Public Works (LACDPW) provides a list of constituents (Mass Emissions Data, 1994-2000) that were detected in Ballona Creek (Source: http://ladpw.org/wmd/npdes/9400_wq_tbl/Table_4-6a.pdf, 2003). The general category of the constituents detected include: Poly Aromatic Hydrocarbons (PAHs), Pesticides, Indicatory Bacteria, Miscellaneous Constituents (Petroleum Hudrocarbons, Oil and Grease, Total Phenols, etc.), General Minerals, Nutrients, and Metals.

Groundwater Occurrence

Groundwater is present in the alluvium beneath the site and beneath Ballona Creek along its length to the ocean. This area is within the Ballona Aquifer (Gap) portion of the Santa Monica Groundwater Basin, otherwise known as the "50-foot gravel" due to its general coarse composition and shallow depth (see **Figure V.G-2**). No water wells were found in the California Department of Water Resources database (CDWR, 2003) therefore the immediate area of the campus is not considered a potable groundwater basin. Depth to groundwater in Ballona Aquifer is not known from readily available data, but due to the presence of a liquefaction hazard (CGS, 2001) historic high groundwater has been mapped to be within about 10 feet of the surface along Ballona Creek. Groundwater may be present in shallow perched layers in some areas, but this does not appear to be the case in the Project area (CCW, 1992; LA, 1999). Deeper water typically occurs in granular sand and silt deposits of the San Pedro Formation within the Baldwin Hills.

Groundwater was not encountered at the Project site by the geotechnical exploration borings that extended to a maximum depth of 55 feet. However, prior geotechnical study in the area noted water at 72 feet deep in 1972 near the intersection or Stocker Street and Freshman Drive. Since the unnamed drainages along the east edge of the site may carry flows during certain times, shallow (perched, ephemeral) water in the alluvium is possible depending upon the season.

No active water wells were identified at the Project site or in the vicinity (within Township 1 South [T1S]-Range 14 West [R14W]) based on the California Department of Water Resources database (CDWR, 2003). However, since this database may not record all currently inactive or previously abandoned wells, it is not known if any inactive or abandoned wells exist on the Project site.

Groundwater Quality

The Basin Plan (CRWQCB, 1995) defines specific numerical mineral objectives for selected constituents for the Santa Monica Basin groundwater as follows:

Groundwater Basin	**Objectives (mg/L)**			
	TDS	Sulfate	Chloride	Boron
Santa Monica	1,000	250	200	0.5

In addition, the Basin Plan also identified general narrative objectives are provided for bacteria, chemical constituents and radioactivity, nitrogen (nitrate and nitrite), and taste and odor. Table 1 of the attached Water Quality Management Plan (Psomas, 2003b) provides a complete listing of the 2002 Section 303(d) listings and TMDL priority schedule for identified pollutants for Ballona Creek, Ballona Estuary and the Ballona Wetlands.

[1] http://www.swrcb.ca.gov/rwqcb4/html/meetings/tmdl/Basin_plan

Figure V.G-2 Los Angeles Coastal Groundwater Basins

Groundwater quality at the Project site and in the vicinity of Ballona Creek is not known to exist from general sources, and no site-specific subsurface water quality information is known for the alluvium or bedrock formations within or around the Project site. A significant up-stream source of potential pollutants is known due to the oil field development in the neighboring Baldwin Hills bordering the site on the east. Previous uses of the Project site were limited prior to the campus development, but may have included human activity producing urban and possibly agricultural pollutants. See Section V.F (Hazardous Materials) for more discussion of man-induced pollution.

Subsurface water is present under most of the site at depths greater than 40-50 feet in the thin alluvium. This water should be mobile with a flow direction to the west and southwest; therefore any contaminants that may enter the subsurface from the infiltration of surface water should move away from the site toward the Ballona Aquifer. There are no known uses of the subsurface water within the site's unnamed boundaries. Since the Ballona Aquifer groundwater system is just west of the site, potential contamination from the Project site is possible.

Flooding

Local canyons like those within and adjacent to the Project site may be periodically subject to flooding. The nearest flood zone to the Project area is in Ballona Creek approximately 1,000 feet west of the site. No Flood Insurance Rate Map (FIRM) is provided since the site has no flood designation that creates a potentially significant impact. Scour potential exists along any smaller drainage subject to local flooding where severe erosion of surface materials (natural soils or artificial fill) takes place due to the action of flowing water in a channel. This issue is discussed in Section V.E, Geology. The areas of the access road alternatives traverse existing roads and undeveloped natural topography consisting of ridges and valleys ranging in elevation from 60 to 350 feet. The natural topography may be subject to local flooding.

Thresholds of Significance

The following significance thresholds are based on the CEQA Guidelines Environmental Checklist Form (Appendix G). The proposed Project's impacts are considered significant if they:

Watershed and Surface Drainage

- 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 of amount of surface runoff in a manner that would result in flooding on-site or off-site.
- Create or contribute runoff water that would exceed the capacity of existing or planned storm water drainage systems to provide substantial additional sources of polluted runoff.

Water Quality-Surface and Groundwater

- Violate any water quality standards or waste discharge requirements.
- Otherwise substantially degrade water quality.

Groundwater Supply (Recharge)

- Substantially deplete groundwater supplies, or interfere substantially with groundwater recharge such that there would be net deficit in aquifer volume or a lowering of the local groundwater table (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).

Flooding Hazards

- Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Place within a 100-year flood hazard area structures that would impede or redirect flood flow.
- Expose people or structures to a significant risk or loss, injury or death involving flooding.

Project Impacts

Compliance With Existing Regulations and Permit Requirements

There is a range of hydrology and water quality conditions within the overall setting described above that could potentially lead to significant impacts should the proposed Project be approved and implemented without proper compliance with existing regulations. Uncontrolled, pollutants carried by surface runoff from the Project area generated during construction and post-construction phases, could adversely affect water quality downstream, which include Ballona Creek and Santa Monica Bay. Storm runoff from driveways and parking areas carries oil, grease and other materials deposited on the parking lot pavement. Runoff from landscaped areas might contain pesticides, herbicides and other chemical compounds. Drainage from non-vegetated areas could carry substantial soil. Implementation of inadequate erosion control measures could result in the release of a high volume of sediment and general site detritus (trash).

Impacts from pollutants carried by surface runoff are rendered less than significant by compliance of the Project plans and adherence to water quality standards as implemented through the Los Angeles County Department of Public Works (LACDPW) and the Los Angeles Regional Water Quality Control Board (LARWQCB). The necessary permits are required from LACDPW and LARWQCB before the proposed facility development will be approved. For off-site second access roads, the LACDPW will establish the criteria for roadway drainage and construction once a final route has been selected.

Psomas has prepared hydrology and water quality reports to address the on-site peak runoff, water quality standards and other related issues affecting design. As the hydrology and water quality consultant-of-record, they would prepare follow up reports, updates, and supplements for the Project site developments, and for the chosen second access road route. The Applicant, in preparation of final design plans and construction specifications will use such existing and future reports as an integral part of the planning, design, and implementation stages for the buildings/facilities proposed for Phases 1 and 2. The Applicant shall adhere to the recommendations in the reports as they may apply to the grading, construction, and operational phases of the proposed development. Periodically the recommendations are amended by the LACDPW and LARWQCB, and the Applicant would be required to adhere to the changes as well. In conjunction with field inspections under the supervision of the Project hydrology and water quality consultant-of-record, additional changes would be implemented as necessary to ensure that proper design and construction guidelines are followed as part of the Project development.

The following sections briefly describe the nature of the potential impacts on the environment or the Project. If the potential impact is less than significant or will be reduced to less than significant based on the Project plans and/or existing regulations, that is so indicated without extensive discussion. Based on this study and analysis of the cited information, it was determined that there are no potentially significant adverse impacts that cannot be remedied through compliance with existing regulations and therefore no mitigation measures are deemed necessary. However mitigation measures have been included to further reduce less than significant impacts. Following sub-sections identify and discuss what the impacts could be and how current plans and compliance with existing regulations would lessen their impacts to less than significant. There were no potentially significant impacts requiring additional investigation related to site peak runoff and adherence to water quality standards. With regard to the off-site second access roadway, issues of substantial alteration of drainage patterns, off-site surface drainage, surface water quality, flooding, and diversion of floodplain waters to adjacent properties may result in significant impacts based on the fact that a preferred route has not been chosen and no route-specific studies have been performed.

However, again compliance with existing regulations would lessen their impacts to less than significant. The suggested scope of the investigation for the off-site second access roadway route-specific studies is provided below.

Considering the significance thresholds listed above with regard to the issues of substantial alteration of drainage patterns, depletion of water supply, interference with groundwater recharge, location within a 100-year floodplain, and diversion of floodplain waters to adjacent properties, there should be less than significant impacts for the Project site. Similarly, with regard to the issues of, depletion of water supply, interference with groundwater recharge, and location within a 100-year floodplain, there should be less than significant impacts for the off-site second access roadway. A brief discussion of these issues follows.

The project will not deplete local groundwater supplies because no groundwater wells will be installed or pumped as part of the project (campus and off-site access roadway). Water sources for the project are described in Section V.N.3, Utilities. There are currently no known groundwater pumping wells (within the California DWA database) near the project site and therefore no local interference with groundwater recharge is expected.

The increased impermeable surfaces on the off-site access roadway would generate increased total runoff that would reach Ballona Creek and the Ballona Aquifer through existing surface and subsurface pathways. However, the net change to the Santa Monica Basin water supply would be minimal.

Neither the campus nor the off-site access roadway are within a defined 100-year floodplain, and therefore there would be no flooding impacts. Proposed campus construction would be within the confines of the existing campus roadway and would not alter in any significant way (if at all) the drainage system that allows water onto the campus. Therefore, no significant local runoff ("floodwaters") diversions would be made. On-site surface flow is to be captured and routed off-site in an upgraded system (Psomas, 2003a) that will release flow in a controlled manner to the existing L. A. County storm drainages so that no diversion to other systems is proposed.

The construction of additional facilities on the WLAC campus will increase the amount of impervious area and provide sources of potential contamination from urban pollutants. Increased impervious area could cause a higher volume of precipitation and surface flow to exit the site during peak storm periods than is currently the case, which could overload the existing storm drain facilities causing local flooding. This flooding could lead to nuisance, or possibly to property damage and serious injuries. Additional campus facilities will increase parking lot/roadway asphalt area, increase automobile residues (oil, grease, particulates), add pesticides/insecticides, and create more trash. If these urban pollutants were allowed to leave the project site uncontrolled, they could end up in storm drains and surface drainages that lead to Ballona Creek and the ocean. Where these conditions exist, there could be damage to property within or adjacent to the campus and water quality impacts off-site without proper adherence to existing regulations and/or mitigation arising from existing report recommendations.

Watershed and Surface Drainage

The current surface drainage and storm drain system in the Project area includes the on-site channels, areas of sheet flow and subsurface drain piping, and off-site connections to the County storm drain facilities mentioned above. Psomas (2003b) has analyzed the three sub-areas that comprise the Project site using the standard methodology prescribed by the LACDPW Hydrology Manual. According to Psomas "All storm drains are designed for a 10-year frequency storm with detention volumes designed based on a 25-year storm per LACDPW criteria. Flows in excess of the LACDPW allowable discharge rate will be detained on site." Using a combination of sheet flow, new underground drainpipes, flow within surface streets, and trapezoidal channel flow, surface runoff will be transported to detention basins within each sub-area (**Figure V.G-3**). Psomas (2003b) has sized the detention basins to delay the peak flow sufficiently to maintain an allowable discharge to the existing LACDPW storm drain system south along Freshman Drive and west along Overland Avenue to Ballona Creek.

Figure V.G-3 Proposed Hydrology Map

MEC Geotechnical (2003) reviewed the Psomas report and determined that the study was performed using the proper methodology. The flow system components up stream from the detention basins were not analyzed for this study, but the pipes and channels must be sized to accommodate the area drained to each inlet structure. Based on the Psomas (2003a) analysis and MEC's review, the hydrology analysis for the proposed drainage system is adequate to demonstrate the feasibility of the accommodating flows generated at the proposed Project site. No impacts to the offsite project area watersheds due to increased storm runoff are anticipated with Project implementation as specified by Psomas (2003a). Prior to approval of grading plans and issuance of building permits, the LACDPW will review and approve the final system in conformance with existing regulations.

The Psomas (2003a) project site hydrology system design cannot be considered a final design until it is submitted for approval with the Applicants final project plans and specifications. For purposes of the evaluation with regard to potential drainage impacts, it is assumed that the Project drainage system would be designed and constructed in a manner similar to that indicated by Psomas (2003a). In this case, there is no need for additional mitigation measures for surface drainage.

Surface Water and Groundwater Quality

Storm water runoff from driveways and parking areas carries oil, grease and other materials deposited on the pavement surfaces. Runoff from landscaped areas may contain pesticides, herbicides and other chemical compounds. Left untreated, the pollutants discharged into receiving waters would potentially result in changes to receiving water quality, that could impair their designated uses. These potential impacts could constitute violation of Federal and State water quality regulations if not addressed.

There is also a potential for contamination of groundwater in the shallow Ballona Aquifer where the off-site flow enters the Ballona Creek, Estuary and Wetland system down stream from the Project site. If on-site surface drainage (during construction or during operations prior to treatment) were allowed to infiltrate into the surface soils and local geologic formations, there could be local degradation to the non-potable water under the site. No dewatering is planned or needed based on the significant depth to groundwater (40 feet) beneath the Project site.

The L.A. County Standard Urban Stormwater Mitigation Plan (SUSMP) requires Best Management Practices (BMPs) to avoid water quality impacts, including measures to assure that urban pollutants do not leave a site without treatment during 24-hour rainfall events that produce a specific volume of runoff. A variety of filter treatment BMPs are available to meet regulatory requirements. These are described in more detail in numerous publications, including the California Storm Water BMP Construction Handbook (Source: http://www.cabmphandbooks.com/Construction.asp). Collection and treatment/filtering measures during construction and operations to control site runoff and minimize possible contaminated runoff reaching Ballona Creek and are proposed as part of the Project and have been identified, at least conceptually, by Psomas (2003b).

Additional information regarding site-specific designs for conveyance of storm water is provided in the referenced supplementary information provided by the design engineer, Psomas. Final design details will be provided to support construction planning phases and future permit applications. Design solutions will remain consistent with Standard Urban Storm Water Mitigation Plan (SUSMP) requirements, which require "treatment" for on the order of 85% of the total annual runoff. Because it is desired to apply the Best Available Technologies (BAT) as a part of BMPs implementation, and many of these technologies are still under development for storm water applications, performance objectives will be maintained in conjunction with BMP implementation.

The SUSMP includes the implementation of specific BMPs as required to comply with existing State and Federal water quality regulations. However, for purposes of this assessment, the proposed Project is considered to have the potential for a significant water quality impact prior to implementation of these BMPs. These impacts are associated with construction and operation. As described below, implementation of these measures would reduce potential surface water impacts to a less than significant level.

Psomas (2003b) outlines the six minimum control measures and reporting requirements to be implemented as a requirement of the Stormwater Management Plan (SWMP) for the West Los Angeles College campus. These are: (1) public education, (2) public participation, (3) illicit discharge detection and elimination, (4) construction site storm water runoff control, (5) post-construction storm water management, and (6) pollution prevention and good housekeeping for municipal operators. Since these are minimum requirements that must be met by the Applicant and are discussed in more detail by Psomas (2003b). The SWMP will be developed prior to submitting an application to the LACDPW for a permit to construct the initial Phase I project.

Psomas (2003b) describes a number of post-construction structural or treatment control BMPs (listed below) that can be used to minimize or prevent the introduction of storm water pollutants from new development or re-development projects. Their discussion describes design considerations used to determine the physical size, shape, and location of treatment control BMPs. These detailed determinations would be made at the project permitting stage after an assessment about their feasibility at particular sites can be made. Post-construction structural BMPs recommended include:

- Catch Basin Inserts
- Hydrodynamic Separation Systems and/or Gross Solids Removal Devices (HSS/GSRD)
- Biofiltration Swales and Strips
- Detention Basins

Psomas (2003b) describes two proposed alternatives for implementing structural BMPs at the Project site. Alternative 1 uses three separate HSS/GSRD's and one catch basin insert, as well as biofiltration swales and strips. With this alternative there would be separate detention basins to provide the hydrologic (peak flow reduction) mitigations described above. Alternative 2 uses one HSS/GSRD, one catch basin insert, and incorporates treatment into two detention basins; biofiltration swales and strips are also proposed. With this alternative much or all of the hydrologic (peak flow reduction) mitigations described above would be handled in these same detention basins. Based on the analysis provided, either alternative would be acceptable as described in detail in the Psomas (2003b) report.

The proposed Project surface water quality maintenance system described above would also prevent the potential adverse affects to groundwater quality through the introduction of urban contaminants by uncontrolled off-site flow. The potential for effects on groundwater depend on the extent to which contaminants infiltrate into groundwater sources. As described in the existing conditions, subsurface water is present west of and under the site in connection to the Ballona Aquifer. This water may be quite mobile, therefore any contaminants that may enter the subsurface from the infiltration of surface water could reach a useable groundwater source. While there are no known uses of the subsurface water within the immediate vicinity of the Project site, the potential resource must be protected. With implementation of the BMPs described above, impacts to groundwater quality would be less than significant.

Cumulative Impacts

Several related projects are proposed for development within the general study area. A list of these projects, proposed project size are shown in the Environmental Setting, Section I.V. In addition Figure I.V-2 identifies where these projects are located in relation to the proposed project. The 28 related projects represent a mix of residential, commercial, and institutional projects, with some open space and associated recreational land uses, which will have various changes in the amount of impervious surfaces and the degree of potential surface water quality degradation before necessary regulatory requirements are met. Continued redevelopment, infill, and urbanization of the Ballona Creek WMA are expected to have significant water quality impacts to Ballona Creek and Santa Monica Bay. However, the Project's contribution to the cumulative condition after proper implementation of Project design

measures, and compliance with all applicable regulations and permit conditions is not cumulatively considerable and therefore, results in a less than significant impact.

Mitigation Measures

After implementation of project plans and compliance with necessary regulatory requirement summarized in previous sections, the proposed on-site campus Phase I and Phase II Project expansion is not expected to result in significant impacts related to on-site and off-site surface drainage, surface water and groundwater quality, and flooding. Therefore mitigation measures pertaining to the on-site campus Phase I and Phase II Project expansion issues are not required.

The selected second access road route will require a thorough hydrology and water quality evaluation, which is necessary required based on compliance with existing County laws, regulations, codes, and statutes applicable to the surface drainage, flooding, and water quality. The following mitigation applies:

HW-1 Hydrology and Water Quality Management Report for Offsite Proposed Second Access Road Alignments. Prior to the completion of final plans and specifications, the Applicant shall prepare a hydrology and water quality investigation program report describing the existing hydrology and drainage, projected peak flows, potential flooding issues, and characteristics of runoff water quality for each proposed roadway alignment. In addition, for each proposed alignment, artificial and natural drainage crossings, and roadway grades to be created by the development process shall be described. The report shall provide recommendations for the proper re-direction of all existing drainage patterns, the proper size and location of drainage structures, appropriate construction stormwater maintenance plans, and the proper size, type and location of all water quality maintenance devices (structural BMPs). The report shall also recommend the appropriate water quality monitoring procedures, including the constituents to be samples, frequency, locations, etc. In all cases, methods, techniques, and analyses shall be consistent with the engineering, planning, building, and safety guidelines established by the Los Angeles County Department of Public Works. This report shall be submitted to the Los Angeles County Department of Public Works for review and shall be finalized prior to initiation of the project construction activities. This report shall also be submitted to the Los Angles Regional Water Quality Control Board as part of the permit process (see Mitigation Measure HW-2 below)

HW-2 Coordination of Project Site Water Quality Management Plan (WQMP). The post –construction Water Quality Management Plan (WQMP) prepared for the project site (**Appendix 6**), shall complement the Storm Water Pollution Prevention Plan (SWPPP), which is required as part of the Construction General Permit for the project. As part of the permit acquisition process, copies of both the SWPPP and WQMP shall be provided to the Los Angeles Regional Water Quality Control Board and the Los Angles County Department of Public Works for their review and finalized before initiation of construction activities.

Significant Project Impacts After Mitigation

The proposed Project will not result in significant impacts related to on-site and off-site surface drainage, surface water and groundwater quality, and flooding, and therefore would not result in unavoidable adverse impacts with respect to these issues. With implementation of the all project drainage and water quality maintenance plans during Phase I, adherence to regulations identified above and implementation of Mitigation Measures HW-1 and HW-2, the proposed Project's potential impact on hydrology and water quality would be less than significant. Therefore, the proposed Project would not result in significant unavoidable adverse impacts on hydrology and water quality.