IV. ENVIRONMENTAL IMPACT ANALYSIS
C. HYDROLOGY AND WATER QUALITY

A Hydrology Study for the proposed project was prepared by Crosby Mead Benton and Associates in May 2003 to analyze the potential hydrology impacts associated with the proposed project. A summary of the Hydrology Study with respect to the potential hydrology impacts is set forth below. The Hydrology Study, which is incorporated herein by this reference, is included as Appendix F (as a CD-ROM) to this Draft EIR and is available for public review (in hard copy form) at the Los Angeles Department of City Planning, 200 N. Spring Street, Room 763, Los Angeles, California 90012.

ENVIRONMENTAL SETTING

The irregularly shaped 887-acre project site is located on the northern flank of the Verdugo Mountains. The project site is characterized by steep hilly terrain, with local changes in elevation in excess of 900 feet. Natural slope gradients roughly range from 3:1 to as steep as 0.75:1 (vertical: horizontal). Steep "V" shaped canyons are typical of the drainages on the project site, as well as in the Verdugo Mountains in general. Precipitation falling directly on the project site begins its downslope journey as sheet and rill[1] flows; however, the steep rocky terrain quickly causes the runoff to concentrate in narrow ravines and gorges. Other storm water sources that affect onsite hydrology include: (1) tributary sheet flow and secondary drainage courses flowing primarily southwesterly onto the site from the surrounding hillsides and (2) the westerly flowing La Tuna Canyon Wash that passes through the southerly portion of the project site.

While Interstate 210 bisects the project site into northerly and southerly portions, all surface drainage on the project site generally flows in a southerly direction. Drainage from the northerly portion is directed toward a series of existing Caltrans inlet structures (located adjacent to the north side of the freeway) and storm drain culverts that direct the runoff under the freeway. Runoff from the northerly portion of the project site is discharged into natural drainages on the south side of the freeway, and continues to flow southerly to the La Tuna Canyon Wash, which parallels the project site's southern property line. The southerly portion of the project site drains directly to the La Tuna Canyon Wash. All runoff from the project site is eventually directed offsite via the La Tuna Canyon Wash, which flows westerly toward the San Fernando Valley.

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[1] *A "rill" is a small stream or brook.*

As identified in the Jurisdictional Delineation Report[2] prepared for the Canyon Hills project, there are 23 drainage courses located at least partially within the project site boundaries, of which eight are blue-line drainages as depicted on the U.S. Geological Survey's Sunland, California topographic map (dated 1966 and photorevised in 1988), and the Burbank, California topographic map (dated 1966 and photorevised in 1972).

Storm Water Hydrology

Flood hydrology, applied to determine storm water design quantities for major channel systems and flood regulating or detention structures, is based on a theoretical storm, created from the statistical analysis of data from past measurement records. For the proposed project, a 50-year storm frequency has been analyzed for both the undeveloped and developed conditions. A 50-year storm is a large storm that has the statistical probability of recurring once every 50 years. Because storm frequency probability is inversely related to storm intensity and flood potential, storms that have more frequent recurrence probabilities are also less intensive and have less flood potential. The hydrology calculations presented herein are based on an analytical method adopted by the County of Los Angeles Department of Public Works. This new method computer program "F0601A" is known as the Modified Rational Method, or MORA.[3]

For the undeveloped site conditions (i.e., existing conditions), "clear," "burned," and "bulked" storm flows have been calculated for a 50-year storm. "Bulked" storm flows refer to the volume of storm water runoff mathematically adjusted to account for the additional volume of debris (e.g., sediment and vegetation) that is normally carried along with runoff flowing from undeveloped hillsides. The project site has a bulking factor of 1.81. As a worst-case scenario, a burned condition is also assumed in the calculations. The "burned" condition assumes that the storm would occur shortly after a fire has burned away the hillside vegetation. Normally, vegetation helps to hold back sediment and other debris

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[2] *Glenn Lukos Associates, Jurisdictional Delineation of Canyon Hills in the City of Los Angeles, Los Angeles County, California, Revised May 2003.*

[3] *This methodology determines the runoff from drainage areas based on the average intensity for rainfall in the area according to the time passed (i.e., time of concentration) since the beginning of a given storm. The time of concentration is then followed through the contributing drainage areas of the project study site by calculating the travel time accumulated from drainage to next contributing drainage area.*

Where drainage areas meet that do not have the same time of concentration for the peak runoff flows being conveyed, the contributing flows are combined (i.e., confluenced) by adjusting the individual contributing flows based on their relative times of concentration and storm intensities. The adjusted flow is thus maximized to a new peak flow for the longest combing time of concentration. Lastly, the MORA methodology adjusts the runoff calculations to emulate a 24-hour typical storm for a 50-year storm frequency from being carried along in the runoff. Without that vegetative anchor, soil infiltration and absorption, the debris volumes and storm runoffs further increase. Thus, the 50-year storm event following a major fire is considered to be the worst-case scenario. This storm flow is termed in this study as "burned and bulked" flow. Although a scenario in which a 50-year storm occurs without a major fire could also be calculated, this flow has not been used in this analysis since it does not represent the worst-case flood condition. Similarly, more frequent storms could also be calculated, but again, would result in less runoff than the design storm.

"Clear and burned" storm flows refer to the results of the above calculations when the bulking factor has not been applied. For the undeveloped condition, "burned and bulked" flows are the relevant calculations. On the other hand, development generally tends to remove the vegetation and soil debris that make up the bulking factor; consequently, "clear" or "burned" or a combination of these flows are the relevant calculations for the developed conditions.

Figure IV.C-1 indicates the undeveloped project site's peak stormwater flows during a 50-year storm. It should be noted that the analysis of the existing conditions focuses on the portion of the project site that affects the proposed development (i.e., a drainage area of approximately 439 acres). An area of approximately 448 acres, most of which is located in the western portion of the project site, would be unaffected by the proposed development. Consequently, the runoff from that area would remain unchanged following development and therefore is not addressed in this analysis. All portions of the open space that are tributary to the Development Areas have been included in the analysis.

Northern Portion

As indicated in Figure IV.C-1, the study area for the northern portion of the project site consists of three sub-drainage areas: North Area "C", "B-5", and "A".[4] The combined area of North Areas "C" and "B-5" consists of 33 acres that drain toward two existing basin inlet structures constructed by Caltrans as part of Interstate 210. The runoff from the basin inlet structures drains to a 60-inch Caltrans corrugated steel pipe (CSP) culvert under the freeway. On the south side of the freeway, the culvert discharges into a natural drainage. During a 50-year storm, the undeveloped North Area "C" and "B-5" drainage areas would produce a burned flow of 133 cubic feet per second (cfs).

The larger sub-drainage area, North Area "A", consists of 327 acres that drain toward another Caltrans basin inlet structure at the foot of Interstate 210. Runoff from this second basin inlet drains to a 96-inch Caltrans pre-stressed concrete pipe (PSCP) culvert under the freeway. During a 50-year frequency storm, this undeveloped sub-drainage area would produce a burned flow of 1,042 cfs.

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[4] *Other drainage areas are examined in the Hydrology Study; however, only sub-areas "C", "B-5" and "D" are relevant for the assessment of project impacts.*

Figure IV.C-1

Hydrology Map

Combined, the analyzed area north of Interstate 210 consists of a total area of 360 acres. During a 50-year frequency storm, this combined area generates a peak burned storm water flow of 1,175 cfs. For the worst-case flow condition of "burned and bulked" flow, the "burned" flow is increased by the site bulking factor of 1.81. This results in a "burned and bulked" flow of 2,126 cfs. Table IV.C-1 summarizes the above hydrology data for the northern portion of the project site in its undeveloped condition.

The two Caltrans culverts that direct the storm water runoff from the northern portion of the project site under the freeway discharge the flows into natural drainages located easterly of the study area on the southern portion of the project site (see Figure IV.C-1). Consequently, the northern and southern portions of the project site are hydrologically separated – runoff from the northern portion does not affect the southern study area.

Southern Portion

Hydrology data for the southern portion is also presented in Table IV.C-1. As indicated in the Table, the southern portion of the study area consists of 79 acres. In its undeveloped condition, the southern portion is calculated to generate a peak "burned" flow of 320 cfs during a 50-year storm or in worst-case condition a "burned and bulked" flow of 579 cfs. Runoff from this portion of the project site flows directly into the La Tuna Canyon Wash and is subsequently directed offsite. Runoff from the southern portion of the project site has no effect on the northern portion of the project site.

Northern and Southern Portions Combined

The total study drainage area for the proposed project consists of approximately 439 acres (including 360 acres on the north side of Interstate 210 and 79 acres on the south side of the freeway). The remaining portions of the 887-acre project site would not be hydrologically affected by the proposed development. As set forth in Table IV.C-1, during a storm with a recurring frequency of 50 years, the contributing portion of the project site, in its current undeveloped condition, would discharge a peak "burned" flow of approximately 1,495 cfs, or in worst-case condition a "burned and bulked" flow of 2,705 cfs, to the La Tuna Canyon Wash.

100-year Flood Hazard Areas

Due to its generally steep topography, runoff flows quickly off most of the project site and does not have the opportunity to pond or cause inundation. Consequently, the project site is not subject to flood inundation. Within the boundaries of the project site, the only 100-year flood hazard area is contained within the La Tuna Canyon Wash.

Table IV.C-1
Hydrology Summary
Canyon Hills Project

Area Designation	Area in Acres	Q50 (DV CLR) CFS	Q50 (UD) CFS	Q50 (UD-Burned) CFS	Q50 (UD-Burned & Bulked) CFS[a]	Allowable flow to existing structure CFS[b]	Detained flow @ detention basin CFS	Remarks
A. North Area Undeveloped and Developed Hydrology – 50 Year Frequency								
North Area "B-5"	3	13	13	14	25	13	0	Outlet flow drains to 36 RCP.
North Area "C" (Area "C-1")	30	116	105	119	215	107	9	Basin outlet flow drains to Caltrans 60" CSP culvert.
North Area "A" (Area "D")	327	1,096	879	1,042	1,886	938	158	Basin outlet flow drains to Caltrans 96" PSCP culvert.
A. Subtotals	360	1,225	997	1,175	2,126	1,058	167	
B. South Area Undeveloped and Developed Hydrology – 50 Year Frequency								
South Area "A"	31	114	102	115	208	104	10	Basin outlet flow drains to La Tuna Canyon Wash.
South Area "B"	22	78	73	83	150	75	3	
South Area "C"	8	35	34	38	69	34	1	
South Area "D"	13	56	53	60	109	54	2	
South Area "E"	5	24	22	24	43	22	2	
B. Subtotals	79	307	284	320	579	289	18	
Overall Totals								
North & South	**439**	**1,532**	**1,281**	**1,495**	**2,705**	**1,347**	**185**	Total flow to outlet at La Tuna Canyon Wash.

[a] *Project site peak bulking factor = 1.81.*
[b] *Allowable flow is designed as ninety percent (90%) of the undeveloped and burned runoff (Q50 UD-Burned).*

Regulatory Framework

The 1987 amendments to the Federal Water Pollution Control Act, or Clean Water Act, added Section 402(p), which establishes a framework for regulating municipal and industrial storm water discharges under the National Pollution Discharge Elimination System (NPDES) program. Subsequently, the EPA published final regulations that establish requirements for applications for storm water permits for specified categories of industries and construction activities of 5 acres or more.

In 1992, the California State Water Resources Control Board (SWRCB) adopted the General Construction Activity Storm Water Permit (GCASWP), which was "…required for all storm water discharges associated with construction activity where clearing, grading, and excavation results in a land disturbance of 5 or more acres." However, by Modification of Water Quality Order 99-08-DWQ (approved by Motion on December 2, 2002), the SWRCB lowered the threshold acreage of soil disturbance requiring permit coverage from 5 acres to 1 acre. Since the proposed project site falls within these criteria, a permit must be obtained from the SWRCB prior to start of construction. In order to be covered under the General Permit, the project developer must submit a Notice of Intent (NOI) to the SWRCB.

The General Permit requires all owners of land where construction activities occur (dischargers) to:

- Eliminate or reduce non-storm water discharges to storm sewer systems and other waters of the nation;
- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP); and
- Perform inspections of storm water pollution prevention measures (control practices).

The General Permit authorizes the discharge of storm water associated with construction activity from construction sites. However, it prohibits the discharge of materials other than storm water and all discharges which contain hazardous substances in excess of reportable quantities established at 40 Code of Federal Regulations 117.3 or CFR 302.4, unless a separate NPDES permit has been issued to regulate those discharges.

The General Permit requires development and implementation of a SWPPP, emphasizing Best Management Practices (BMP), which is defined as "schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States." The SWPPP has two major objectives:

- To help identify the sources of sediment and other pollutants that affect the quality of storm water discharges; and

- To describe and ensure the implementation of practices to reduce sediment and other pollutants in storm water discharges, both during and after construction.

In addition, dischargers are required to conduct inspections before and after storm events and to annually certify that they are in compliance with the General Permit.

Sections 64.70 et seq. of the LAMC (Ordinance No. 172,176) provide for Stormwater and Urban Runoff Pollution Control in hillside areas and requires the application of BMPs to minimize water quality degradation. In addition, Chapter IX, Division 70 of the LAMC addresses BMPs to minimize storm water pollution associated with grading, excavations and fills. All grading activities require grading permits from the Department of Building and Safety. Additional provisions are required for grading activities within "hillside" areas.

ENVIRONMENTAL IMPACTS

Thresholds of Significance

In accordance with Appendix G to the CEQA Guidelines, the proposed project would have a significant hydrology impact if:

- The project would 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.

- The project would 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.

- The project would create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems.

- The project would 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.

- The project would place within a 100-year flood hazard area structures which would impede or redirect flood flows.

- The project would expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

- The project would expose people or structures to a significant risk of loss, injury or death involving inundation by seiche, tsunami, or mudflow.

In addition, the project would have a significant water quality impact if it would cause any of the following conditions to occur:

- Violation of any water quality standards or waste discharge requirements.

- Otherwise substantially degrade water quality.

Proposed Project

The proposed project's storm drainage improvements have been designed to convey storm water runoff safely from the Development Areas without increasing flood and erosion hazards either on the project site or downstream. The proposed onsite storm drainage improvements have been designed to reduce the project site's developed conditions peak storm water flows, during a 50-year storm, to no more than 90 percent of the undeveloped burned flows. Thus, whereas the undeveloped site during a 50-year storm would generate a burned peak flow of 1,495 cfs, the developed site would generate a peak flow of 1,347 cfs, or 148 cfs (10 percent) less than existing conditions.

The proposed storm drainage improvements for the project include several major elements. A series of storm drains would be constructed within the internal street system to pick up the flows from the Development Areas. Street curbs and gutters would direct street flows to collection points, where the flows can enter the storm drain system. In some locations, storm drains would be used to convey storm waters to natural drainages. In other locations, storm drains would be strategically placed to pickup flows in drainages in order to convey those flows through the Development Areas. Eleven debris and/or detention basins – six in Development Area A and five in Development Area B - would be installed. An integral feature of the storm drainage system would be the provision of Urban Runoff Mitigation Areas. These facilities would be designed to provide "first flush" cleansing before the urban runoff is released back into the natural drainage courses. The proposed storm drainage improvements are presented schematically in Figure IV.C-2.

Figure IV.C-2

DRAINAGE CONCEPT

Project Impacts

Hydrologically, the proposed project consists of two independent systems. Development Area A (north of Interstate 210) drains to existing Caltrans' culverts that direct drainage under the freeway and into natural drainages on the south side. Those natural drainages discharge directly into La Tuna Canyon Wash upstream (easterly) of Development Area B. Development Area B discharges directly into La Tuna Canyon Wash downstream (westerly) of the Development Area A points of discharge.

Development Area A

The proposed construction would increase the rate of runoff from the northern portion of the project site as a result of creating new impermeable surfaces (i.e., paved roads, driveways, structures and residential hardscape). Within Development Area A, there would be approximately 44.6 acres of impermeable surface area. The corollary of this development is that the areas susceptible to burned and bulked flows would be similarly reduced. Hence, it is estimated that development within Development Area A would result in the elimination of approximately 48,000 cubic yards of debris (e.g., sediment and brush) during a 50-year storm.[5] As this debris would no longer accumulate in the downstream Los Angeles County debris basin in the La Tuna Canyon Wash, this is considered a beneficial effect of the project. Nevertheless, some debris would still be produced by undeveloped areas within and adjacent to Development Area A. Most of this debris would be removed by six proposed onsite debris basins, the locations of which are indicated on Figure IV.C-2.

As summarized in Table IV.C-1 and shown in Figure IV.C-1, Development Area A would generate peak clear flow of 1,225 cfs during a 50-year storm. As indicated above, the project's design objective is to reduce future peak flows to no more than 90 percent of the existing burned peak flows (i.e., 1,175 cfs - 90% = 1,058 cfs). To achieve this reduction, Development Area A must detain approximately 167 cfs of peak flow during a 50-year storm. This has been achieved because the detention basins are designed to release no more than a combined peak flow of 1,058 cfs (i.e. 1,225 cfs – 167 cfs = 1,058 cfs) during a 50-year storm.

Development Area B

The proposed construction within Development Area B would cause the creation of approximately 15.2 acres of impermeable surface area. As a result, runoff would increase and debris production would decrease. It is estimated that the development of Development Area B would result in the elimination of 10,600 cubic yards of debris (during a 50-year storm) that would otherwise wash through the project

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5 *The project site is within the DPA-2 zone of debris production. The area, as per Debris Production Rate Curves of Los Angeles Basin, generates 134.4 cubic yards per acre of debris.*

site and eventually accumulate downstream in the La Tuna Canyon debris basin. Nevertheless, some debris would still be produced by undeveloped areas within and adjacent to Development Area B. Most of this remaining debris would be removed by the five proposed onsite debris basins.

As summarized in Table IV.C-1 and shown in Figure IV.C-1, Development Area B would generate a peak clear flow of 307 cfs during a 50-year storm. However, the project's design objective is to discharge 90 percent of the undeveloped and burned runoff (i.e., 320 cfs). To achieve this reduction, Development Area B must detain 18 cfs of peak flow during a 50-year storm. This has been achieved because the detention basins are designed to release no more than a combined peak flow of 289 cfs.

Development Areas A and B Combined

The development of the proposed project would eliminate approximately 58,600 cubic yards of debris which would otherwise wash into the La Tuna Canyon Wash and eventually into the downstream debris basin.

As summarized in Table IV.C-1 and shown in Figure IV.C-1, without storm water detention, Development Areas A and B would contribute a combined total of 1,532 cfs to La Tuna Canyon Wash during a 50-year storm. This represents an increase of 37 cfs beyond the burned peak flow generated by the undeveloped site (i.e., 1,495 cfs). However, with the 11 proposed storm water detention basins, which have been designed to detain 185 cfs of peak flow during a 50-year storm, the 50-year peak flow from the developed project site would be reduced by 10 percent to 1,347 cfs, or 148 cfs less than the existing undeveloped condition. In other words, during a 50-year storm, the project would reduce current peak flows in La Tuna Canyon Wash by 148 cfs (10 percent) downstream of the project site.

Erosion or Siltation

According to the Geotechnical Feasibility Evaluation prepared for the Canyon Hills project (see Section IV.A, Geology and Soils), the graded and natural areas of the proposed project would be subject to erosion and sedimentation. Mitigation measures are recommended below to reduce these potential impacts to a less-than-significant level.

However, the project would reduce future peak runoff by an amount equivalent to 10 percent of the undeveloped conditions peak flow. This reduction in peak flows would reduce runoff velocities, resulting in a decreased potential for downstream erosion and sedimentation.

Alteration of Existing Drainage Pattern

Project site development would result in minor alterations of drainage patterns, due to the construction of a storm drain system. However, no substantial alteration of the existing drainage pattern would occur. All site runoff would continue to flow to the La Tuna Canyon Wash in approximately the same location as it does currently. Therefore, the project would have a less-than-significant impact with respect to alteration of existing drainage patterns.

On and Off-Site Flooding Potential

As discussed above, peak flow runoff from the developed portions of the project site would be reduced by approximately 10 percent of the existing flows. This would have a beneficial effect on downstream conditions, by helping to reduce the potential for downstream flooding. Therefore, the project would have a less-than-significant impact with respect to increasing the rate or amount of surface runoff.

Impacts to Existing or Planned Stormwater Drainage Systems

The only relevant downstream storm drainage improvements consist of the Los Angeles County debris basin located in La Tuna Canyon Wash. The project would reduce peak flows to the debris basin by 148 cfs (with respect to a 50-year storm) and reduce debris accumulation by 58,600 cubic yards of debris. Therefore, the project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems. The proposed project would have a less-than-significant impact with respect to existing or planned stormwater drainage systems.

100-Year Flood Hazard Area

The project would not place any housing within a designated 100-year flood hazard area. Further, the project would not place any structures within a 100-year flood hazard area that would impede or redirect flood flows. Free-span bridges are proposed for crossing La Tuna Canyon Wash. Therefore, no impact would occur with respect to 100-year flood hazard areas.

Failure of Levees or Dams

There are no levees or dams upstream from the project site. Therefore, the project would not expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam. Therefore, no impact due to flooding caused by a dam or levee failure would occur.

Inundation by Seiche, Tsunami, or Mudflow

There are no upstream bodies of water that might be subject the project site to seiche hazards. The project site is not near the ocean and is not subject to inundation from tsunamis. Therefore, no impact due to inundation by a seiche or tsunami would occur.

Water Quality - Construction-Related Impacts

Construction of the Canyon Hills project has the potential to affect the quality of storm water runoff entering La Tuna Canyon Wash. There are three general sources of short-term construction-related storm water pollution associated with the proposed project: (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.

The project construction site would contain a variety of construction materials that are potential sources of storm water pollution, including the following: adhesives; cleaning agents; landscaping materials; plumbing, painting, heating/cooling, and masonry materials; floor and wall coverings; and demolition debris. Construction material spills can be a source of storm water pollution and/or soil contamination.

According to the Los Angeles City Bureau of Engineering, routine safety precautions for handling and storing toxic and hazardous materials, and maintaining construction equipment in proper working condition, may effectively control the potential pollution of storm water by these materials. These same types of common sense, "good housekeeping" procedures can also be extended to non-hazardous storm water pollutants such as sawdust and other solid wastes.

Soil erosion is the process by which soil particles are removed from the land surface by wind, water and/or gravity. Soil particles removed by storm water runoff are pollutants that, when deposited in local watercourses, can have negative impacts on downstream conditions. Grading and brush clearing activities can greatly increase erosion processes. Two general strategies are typically required to prevent construction silt from entering drainage courses. First, the amount of exposed soil is typically limited and erosion control procedures implemented for those areas that must be exposed. Appropriate dust suppression techniques, such as watering or tarping, are used in areas that must be exposed. The City Bureau of Engineering indicates that many of the common mitigation measures for controlling fugitive dust emissions, such as covering truck loads and street sweeping, are also effective in controlling storm water. Second, the construction area is secured to control off-site migration of pollutants. Erosion control devices, including temporary diversion dikes/berms, drainage swales, and siltation basins, are typically required around construction areas to insure that sediment is trapped and properly removed.

Implementation of the BMPs in the project's SWPPP and compliance with the discharge requirements of the GCASWP would ensure that the project construction would not violate any water quality standards or discharge requirements, or otherwise substantially degrade water quality. Therefore, the project's short-term, construction-related water quality impacts would be less than significant.

Water Quality - Long-Term Operational Impacts

If not properly designed and constructed, the proposed project could increase the rate of urban pollutant introduction into storm water runoff, and increase erosion, transport of sediment load and downstream siltation, all of which constitute avoidable impacts to surface water quality. In order to prevent these potential impacts, the project would be designed in compliance with (1) Section 402(p) of the Federal Water Pollution Control Act, or Clean Water Act (CWA), and (2) Order No. 90-079 of the Regional Water Quality Control Board, Los Angeles Region, which regulates the issuance of waste discharge requirements to Los Angeles County and Cities tributary to the County under NPDES Permit No. CA0061654.

Two basic areas of concern related to the long-term operation of the proposed project are storm water quality and quantity. BMPs such as regular sweeping of paved areas, can be used to address quality concerns. BMPs that address design considerations, such as channeling runoff from paved areas into landscaped areas, can effectively address both quality and quantity considerations. In general, it is desirable to minimize the amount of paved area, use permeable types of paving materials whenever possible, design onsite drainage to move water into landscaped areas, and grade landscaped areas to maximize the retention of runoff. BMPs to be implemented as a part of the proposed project are listed below in the Mitigation Measures section.

BMPs that limit the runoff generation from a project site often provide mitigation with respect to quality concerns as well. The proposed project has been designed to return storm water flows to 90 percent of pre-development conditions. By utilizing onsite detention of storm water within the storm drainage system, the proposed project reduces both the downstream flooding and erosion potential by decreasing peak flows.

As discussed above, an integral feature of the storm drainage system would be the provision of Urban Runoff Mitigation Areas. These facilities would be designed to provide “first flush” cleansing before the urban runoff is released back into the natural drainage courses. Compliance with LAMC Sections 64.70 et seq., which provide for Stormwater and Urban Runoff Pollution Control in hillside areas, would ensure that long-term operational aspects of the project would not violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality. Therefore, the project’s long-term, operational-related water quality impacts would be less than significant.

MITIGATION MEASURES

Storm Water Runoff

The proposed project will be required to submit site drainage plans to the City Engineer and other responsible agencies for review and approval prior to development of any drainage improvements. For the reasons discussed above, with the implementation of the approved drainage plans, no significant long-term operational impact from storm water runoff would be expected. Therefore, mitigation measures are not required under CEQA. Notwithstanding the above, the following measures are recommended to reduce further the project's less-than-significant impacts from storm water runoff:

C-1 Drainage from the building sites shall be directed toward the street in non-erosive drainage devices.

C-2 Building pads shall have sufficient height above the curb to drain toward the street on a slope of two percent. Pad drainage may be conveyed to the street via side lot swales, as required.

C-3 Where the tributary area is deemed sufficient by the City Engineer and approved by the decision-maker, paved drainage terraces shall be provided along terraces, at the top of cuts, and behind retaining structures.

C-4 Mulch shall be used to the extent feasible in all landscape areas.

C-5 Existing trees and shrubs shall be preserved and protected, to the extent feasible.

C-6 Efficient irrigation systems that minimize runoff and evaporation, and maximize the water that would reach the plant roots, such as a dripline system, shall be installed.

C-7 Timed irrigation system shall be provided for water conservation.

C-8 Slopes shall be graded so that runoff of surface water is minimized.

C-9 Permanent drainage and debris control facilities shall be constructed to the satisfaction of the City Engineer. As proposed, such facilities shall include:

- Underground stormdrains with capacity for a 50-year frequency storm.
- Terrace drains provided in compliance with the requirements of the LAMC.
- Energy dissipators installed at any outlet structure where the velocity is considered erosive.
- Roof runoff collected in a rain gutter and downspout system and directed to approved areas via non-erodible conductors.

C-10 Semi-permeable pavement shall be utilized for hardscape areas.

C-11 Project shall adhere to applicable provisions of the LAMC, Flood Hazard Management Specific Plan and the recommendations of the City Engineer/Department of Building and Safety.

Water Quality

Implementation of the proposed project in compliance with the established water quality control programs listed below would ensure that the project's short-term construction-related water quality impacts, as well as the long-term operational water quality impacts, would be less than significant. The following are standard water quality control programs with which the project would be required to comply:

- LAMC Sections 64.70 et seq., which provide for Stormwater and Urban Runoff Pollution Control in hillside areas.
- National Pollution Discharge Elimination System (NPDES), including all provisions of the General Construction Activity Storm Water Permit which requires the preparation of a Storm Water Pollution Prevention Plan (SWPPP) that emphasizes the use of Best Management Practices (BMPs).
- Section 402 (p) of the Federal Water Pollution Control Act, or Clean Water Act.
- Order No. 90-079 of the Regional Water Quality Control Board, Los Angeles Region, which regulates the issuance of waste discharge requirements to Los Angeles County and cities tributary to the County under NPDES Permit No. CA0061654.

While mitigation measures are not required under CEQA with respect to the project's less-than-significant water quality-related impacts, the following measures are recommended to reduce further those impacts:

C-12 The project developer and homeowners' association(s) shall work with the City to make residents aware of used motor oil recycling facilities and household hazardous waste drop-off centers in the area. Availability of centers can reduce the amount of toxic contaminants found in urban runoff.

C-13 Signage shall be installed on all project storm drain inlets to read: "NO DUMPING OF WASTE-DRAINS TO OCEAN," or other similar signage consistent with forthcoming City policies.

C-14 Reducing pesticide and fertilizer use at the source can remove these pollutants from urban runoff. The project developer and homeowners' association(s) shall adopt Integrated Pest

Management (IPM) programs for use on their own public grounds in addition to promoting their use to project residents.

C-15 "Pooper-scooper" regulations shall be included in CC&Rs to require proper disposal of animal waste and to prevent additional nutrient loading of storm drains.

C-16 Newly-excavated sites tend to contribute significant amounts of sediments and toxic materials to the drainage systems. The following steps shall be taken to minimize this process:

- Where feasible, phase construction to limit activity during the wettest months of the year (i.e., December, January and February).
- Stabilize exposed surfaces immediately after construction is complete, and ensure that permanent stabilization is successful, through implementation of the following:
    - Minimization of stripped areas;
    - Use of straw bale filters and sand bagging;
    - Temporary seeding and mulching of all stripped areas;
    - Conservation cultivation practices on steep slopes;
    - Traffic control on construction sites;
    - Berms and crushed stone on construction roads;
    - Reduction of effective slope length in critical areas with benches or terraces; and
    - Slopes shall be planted with protective vegetation and a suitable watering system (in conformance with City requirements) installed as soon as practical after completion of grading.
- Use of accepted materials storage procedures, spill prevention and other "housekeeping" practices to prevent runoff contamination by toxic chemicals such as paints, solvents, pesticides, metals from building materials, or fuels.

C-17 Cleaning of wastes and debris from all project area debris retention and water detention basins shall be completed by the homeowners' association(s) on a quarterly basis (or more frequently if reasonably required). Special importance shall be given to the cleaning of debris retention and water detention basins prior to the first rainstorm of the year, in order to reduce "first flush" effects on the area watershed and to prevent unnecessary sediment and waste load transport.

C-18 The project developer shall be responsible for obtaining the necessary NPDES Construction Permit for the project site from the Regional Water Resources Control Board, Wastewater Division. The project developer shall obtain a Notice of Intent (NOI) for compliance with the State's NPDES General Construction Permit prior to issuance of a grading permit. The Construction Permit NOI shall include a SWPPP to address construction sediment and erosion control. The project developer would also be required to address long-term monitoring and the implementation of BMPs to the "maximum extent practicable". Maximum extent practicable means to the maximum extent possible, taking into account the latest available technology and economic feasibility.

C-19 Temporary erosion control measures, such as landscaping, berms, etc., shall be implemented following grading to minimize sedimentation impacts to onsite drainages. Available measures include introduction of rapid developing, soil-anchoring groundcover (of native plant species), and strategic placement of runoff-detaining structures. These runoff-detaining structures and all remaining construction sediment and debris shall be removed at the time of project completion.

CUMULATIVE IMPACTS

Development of the proposed project in conjunction with the related projects listed in Table II-3 would cumulatively increase the amount of impervious surface area, runoff, and landform and drainage pattern alternation in the general Sunland-Tujunga area. However, only one related project located in close proximity to the Canyon Hills project site, the Duke Project, would have the potential to combine with the proposed project to create cumulative hydrology impacts. All the other related projects are located in other drainage areas and would have no cumulative effect on the La Tuna Canyon area.

All runoff from the Duke Project flows into La Tuna Canyon Wash. According to the Duke Project EIR, development of the Duke Project would result in a decrease in runoff directed into La Tuna Canyon Wash from 191 cfs (undeveloped condition) to 122.5 cfs (developed condition). Thus, the combined effect of reduced runoff from the proposed project and the Duke Project would be to reduce further runoff and potential downstream flooding in La Tuna Canyon Wash. No cumulative hydrology impacts would occur.

LEVEL OF SIGNIFICANCE AFTER MITIGATION

No significant hydrology-related impacts are anticipated. The Hydrology Study demonstrates that runoff from the Development Areas would be reduced to 90 percent of the peak flow from the existing undeveloped conditions. The study also indicates that, during a 50-year storm, debris production would be reduced by approximately 58,600 cubic yards. These hazard reductions are considered beneficial aspects of the proposed project. Also, implementation of the recommended mitigation measures, in combination with the project's compliance with the required water-quality control programs, would ensure that the proposed project's water quality impacts would be less than significant.