# IV. ENVIRONMENTAL IMPACT ANALYSIS

## F. HYDROLOGY AND WATER QUALITY

The following analysis of hydrology and water quality is based on the Drainage Report prepared by AMEC, dated December 7, 2004. This report is included in its entirely as Appendix H of this Draft EIR.

### EXISTING CONDITIONS

*REGULATORY SETTING*

Surface water pollution can originate from many sources, including accidental spills, improperly treated wastewater, erosion, or from runoff from a storm. This storm water runoff can contain pesticides, trash, bacteria, and air contaminants. The following briefly outlines some of the more pertinent regulatory and permitting processes that have been established to control the quality of water runoff from project sites during construction and operation of projects.

The Clean Water Act of 1972 states that the discharge of pollutants to waters of the United States (e.g., rivers, streams, ponds, lakes, and ditches) from any point source is unlawful unless a National Pollution Discharge Elimination System (NPDES) permit authorizes the discharge. The NPDES permit program is administered in California by the State Water Resources Control Board (SWRCB), in conjunction with its nine Regional Water Quality Control Boards (RWQCB). The project site falls within the jurisdiction of the California RWQCB, Los Angeles Region (Regional Board).

The General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit) is an NPDES permit, which regulates discharges from projects that disturb one or more acres of soil or from projects that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Program (SWPPP). Among other things, the SWPPP is required to list Best Management Practices (BMPs) to protect the quality of storm water runoff.

The City of Los Angeles has implemented several programs and activities that address water quality, including adoption of a storm water regulation and completion of its *Development Best Management Practices Handbook* for both construction and planning activities.

The Los Angeles County Department of Public Works (DPW) is responsible for county flood control functions. The DPW's *Hydrology Manual* sets out procedures and standards used to evaluate storm drain deficiencies and flood hazards. The *Hydrology Manual* was used in the preparation of the Drainage Report included as Appendix H of this Draft EIR.

*EXISTING SITE CONDITIONS*

The project site currently consists of two sloping pad areas separated by an approximately 15-foot high graded slope that runs in an east-west direction through the center of the site. The southern portion of the site is moderately flat with a slight east to west slope. Near the middle of the property, the site begins to slope gradually upward to the north and west, leveling off

somewhat near the existing residential estate area. Elevation on the project site ranges from 1,080 feet above mean sea level (amsl) at the southeasterly property line to 1,145 feet amsl at the northwesterly property line. Thus, the maximum elevation difference on the property is approximately 65 feet. The site drains in a southerly direction towards the proposed Rinaldi Street extension. The lower portion of the site is currently vacant land. The site in its entirety (including both upper and lower pads) is currently 12.0 percent impervious in its current state. Currently, runoff volumes for a 50-year storm are estimated to be 13.8 cubic feet per second (cfs) and are conveyed off-site as sheet flow towards offsite adjacent vacant properties (including the Rinaldi Street right-of-way) and are eventually channeled towards the existing Rinaldi Street terminus east of De Soto Street.

No regulatory or hazardous waste concerns have been identified within the project site. Neither the site nor adjacent properties are listed as hazardous sites or generators of hazardous materials, and the site does not warrant further investigation or clean-up.

The undeveloped City of Los Angeles Department of Water and Power (DWP) property that borders the site on the north slopes in an easterly direction where, historically, storm water runoff has been conveyed via surface flows to partially developed Lurline Avenue. The lack of a storm water drainage system in this area together with the large tributary area of the undeveloped DWP land has led to drainage problems and concerns along existing Lurline Avenue. Historically, sandbags and other drainage retarding devices have been used along the northerly terminus of Lurline Avenue to mitigate drainage and erosion problems associated with the direct runoff of the undeveloped DWP property to Lurline Avenue.

Drainage improvements are being constructed in conjunction with the construction of the Rinaldi Street extension and abandonment of Lurline Avenue. These improvements include the installation of an inlet structure at the location where the undeveloped DWP land currently discharges to existing Lurline Avenue. This inlet structure will route these flows to the proposed storm drain line located in Rinaldi Street, thereby eliminating the historic drainage problems in the area. At the time that the proposed project is developed, the drainage issues associated with Lurline Avenue and the DWP property will have already been corrected as part of the Rinaldi Street extension project. Thus, as with the Rinaldi Street extension, the Rinaldi Street drainage facilities are considered to be an existing condition for purposes of this analysis.

The proposed Rinaldi Street drainage facilities fronting the project site will consist of a 96-inch diameter reinforced concrete pipe (RCP) storm drain main located within the Rinaldi Street right-of-way. Additionally, three lateral catch basin collectors will be located in the Rinaldi Street right-of-way immediately fronting the project site. The three catch basin collector systems in Rinaldi Street will consists of one 30-inch RCP storm drain lateral servicing two 28-foot wide curb opening catch basins, and two 36-inch RCP storm drain laterals each servicing two 28-foot wide curb opening catch basins respectively. (Refer to the pre-development hydrology map contained in the Drainage Report (Appendix C), which is provided as Appendix H of this Draft EIR.)

Additionally, according to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community Panel Number 060137 0010 C, the project site is located in Flood Zone Designation “C”. This zone corresponds to areas of minimal flooding.

## ENVIRONMENTAL IMPACTS

*THRESHOLD OF SIGNIFICANCE*

### Water Quality

Based on the City of Los Angeles *L.A. CEQA Thresholds Guide*, a significant impact to surface water quality would occur if:

- The project results in discharges that would create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code or that cause regulatory standards to be violated, as defined in the applicable NPDES storm water permit or Water Quality Control Plan for the receiving water body.

### Hydrology

Based on the City of Los Angeles *L.A. CEQA Thresholds Guide*, a significant impact to hydrology would occur if:

- The project causes flooding during the projected 50-year developed storm event that would have the potential to harm people or damage property or sensitive biological resources;

- The project substantially reduces or increases the amount of surface water in a water body; or

- The project results in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current direction of the water flow.

*PROJECT IMPACTS*

### Water Quality

Upon completion of the proposed project, the area of disturbed soil on the site would be less than five acres but greater than two acres. Thus, the project applicant will be required to submit a local SWPPP during the building permit process, pursuant to the City and County of Los Angeles RWQCB NPDES Permit. Per these requirements, a temporary erosion control plan will be developed that will identify erosion control devices and other BMPs to address potential water quality impacts during construction of the proposed project. Implementation of these BMPs would serve to minimize sedimentation, reduce or eliminate pollutants in storm water runoff, and reduce or eliminate non-storm water discharges. With adherence to these requirements, construction of the project would not create pollution, contamination, or nuisance, or result in the violation of regulatory standards. Thus, water quality impacts during construction of the project would be less than significant.

Operation of the project could result in the discharge of pollutants that would likely be limited to trash and debris, with some vehicle-related discharges such as oil and grease. The SWPPP discussed above would identify post-construction BMPs that would minimize storm water

pollution throughout operation of the project. These BMPs, which are required to be incorporated into the design of the project, would serve to capture and treat water originating from the parking and trash collection areas on the project site. Underground clarifiers and catch basin inserts would be utilized to provide first flush treatment of all runoff prior to discharging to the storm drain system in Rinaldi Street.[1] Adherence to regulatory requirements, including incorporation of BMPs during operation of the project, would ensure that operation of the project would not create pollution, contamination, or nuisance, or result in the violation of regulatory standards. As such, water quality impacts during operation of the project would be less than significant.

**Hydrology**

Upon completion of project construction, approximately 79 percent of the project site (3.9 acres) would be covered with impervious surfaces including buildings and hardscaped surfaces. For purposes of analysis, the hydrology study assumed an 81.9 percent impervious factor for schools, as recommended by the LA County DPW Hydrology Manual. Although the undeveloped site was calculated as 12.0 percent impervious, for purposes of analysis and comparison of pre- to post- developed runoff, a 41.8 percent impervious factor was used for the site to simulate single-family residential development. This is the value recommended by the DPW Hydrology manual for single-family residential development and was originally assumed for this site as part of the original hydrology that sized the Rinaldi storm drain facilities. In choosing the 41.8 percent impervious factor for the pre-developed ("existing") condition, a comparison can be made as to the effects of increasing the imperviousness of the site (with school) to the original anticipated use of the site (single family residential) and associated storm water runoff increases. Additionally, a hydrology calculation was also conducted using the actual calculated site impervious value of 12.0 percent for informational purposes. Although these associated pre-developed peak run-off rates are presented for informational purposes, the effects of pre- to post- construction must be measured in terms of the increases associated with the post-developed condition with those actually intended to be conveyed to the storm drain facilities in Rinaldi Street (i.e. the single-family residential development with 41.8 percent impervious areas). Currently, runoff from the site is conveyed as sheet flow towards offsite adjacent vacant properties (including the Rinaldi Street right-of-way) and is eventually channeled towards the existing Rinaldi Street terminus east of De Soto Street.

Runoff from the completed project site would continue to flow in a southwesterly direction towards the existing Rinaldi Street terminus as does the existing site runoff in its current condition. The completed project site, however, would utilize the Rinaldi Street storm drainage system as a means of conveyance. Therefore, the flows from the completed project site would not be diverted to other off-site areas as occurs with the current condition.

Storm water runoff from the project site would be collected via a combination of surface flows, gutter flows, roof gutters, catch basins, and an underground storm drainage system. All concentrated drainage from the project site would be outlet to the Rinaldi Street storm drainage system through a direct connection to the catch basin facilities located in Rinaldi Street. There are a total of three separate tributary catchment areas, which would be routed independently to each of the three catch basin collector systems located in Rinaldi Street. (Refer to the post-development hydrology map contained in the Drainage Report (Appendix C), which is provided as Appendix H of this Draft EIR.)

[1] First flush refers to the first few minutes of a storm, when the concentration of pollutants in the runoff is greatest.

A comparison of the pre-developed peak 50-year flows and the post-developed peak 50-year flows as well as the design capacity for each tributary area/catch basin collector system for the Rinaldi Street storm drainage system is presented in **Table V.F-1**. As shown, the total pre-development peak discharge rate is 15.6 cubic feet per second (cfs), the post-development peak discharge rate from the project site would be 17.0 cfs, and the design capacity peak discharge rate for the system is 26.1 cfs. Thus, the post-developed peak flows would be 1.4 cfs or 9.0 percent greater than the pre-developed peak flows originally anticipated for the site. However, the total post-development peak flow to the Rinaldi Street extension storm drain system actually would be 9.1 cfs less than the design capacity peak flows for the system.

The project would not substantially reduce or increase the amount of surface water in a water body. In addition, the project would not result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current direction of the water flow. Thus, impacts associated with these thresholds would be less than significant.

**TABLE V.F-1**
**DISCHARGE RATES**
**NO PROJECT, WITH PROJECT, AND DESIGN CAPACITY**

| Area ID | Pre-Developed Tributary Area (acres) | Post-Developed Tributary Area (acres) | Pre-Developed Peak (Q50) Flows with 12.0% Imperv. (cfs)[1] | Pre-Developed Peak (Q50) Flows with 41.8% Imperv. (cfs)[2] | Post-Developed Peak (Q50) Flows with 81.9% Imperv. (cfs)[3] | Pre- vs Post-Over (+) /Under (-)[4] | Catch Basin Collector System Design Capacity (cfs)[5] | Post- vs Capacity Over (+) /Under (-) |
|---|---|---|---|---|---|---|---|---|
| 1 | 1.57 | 2.70 | 4.4 | 4.8 | 9.5 | +4.7 | 9.5 | +0.0 |
| 2 | 1.74 | 0.54 | 4.5 | 5.4 | 2.1 | -3.3 | 7.7 | -5.6 |
| 3 | 1.59 | 1.66 | 4.9 | 5.4 | 5.4 | 0.0 | 8.9 | -3.5 |
| **TOTAL** | **4.90** | **4.90** | **13.8** | **15.6** | **17.0** | **+1.4** | **26.1** | **-9.1** |

1 Actual existing Peak flows from the site calculated as 12.0% impervious (shown for information only).
2 Original anticipated Peak flows from the site assumed as 41.8% impervious Single Family Residential Development per original design intent of Rinaldi Storm Drain facilities.
3 Peak flows from the site after development of the project with 81.9% Impervious.
4 For comparison purposes, pre-developed assumes the single family residential development with 41.8% impervious areas with Rinaldi.
5 Capacity for collector system obtained from Rinaldi Street Storm Drain Improvement Plan Catch Basin Lateral Hydraulics for each collector system.

Q50 = flow rate during the 50-year storm event.
cfs = cubic feet per second

**SOURCE:** AMEC, Drainage Report, December 7, 2004 (Appendix H of this Draft EIR).

## MITIGATION MEASURES

### *WATER QUALITY*

The project would be subject to several requirements related to water quality, including the preparation of a SWPPP and incorporation of construction and post-construction BMPs. No

significant water quality impacts would occur as a result of the project. Thus, no water quality-related mitigation measures would be required.

*HYDROLOGY*

The project would be subject to several mandatory regulatory requirements regarding drainage conditions. Consequently, no additional mitigation measures above and beyond regulatory compliance is required.

**CUMULATIVE IMPACTS**

As with the proposed project, all of the 30 related projects identified in Section IV, Environmental Setting of this Draft EIR would be subject to NPDES permit requirements, RWQCB regulations, and drainage requirements. The only project which could potentially convey runoff to shared facilities in Rinaldi Street is a 40-unit subdivision to the north and east of the property (Related Project No. 11). As part of the Building Permit process and policies and regulations of the Department of Public Works, the project cannot impact downstream facilities by increasing runoff flows beyond available drainage improvement capacities. Any increases beyond available capacity would require onsite detention facilities as to not impact downstream facilities. These requirements would ensure that the volume and quality of storm water would not be detrimental to the local storm drain system or to the environment. In the event that any unforeseen impacts arise from related projects, they would not compound any potentially significant project impacts, as project impacts would be less than significant. Therefore, cumulative impacts associated with water quality and hydrology would be less than significant.

**LEVEL OF SIGNIFICANCE AFTER MITIGATION**

*WATER QUALITY*

As stated above, mandatory compliance with regulatory requirements pertaining to water quality during construction and operation of the project would ensure that the project would not create pollution, contamination, or nuisance, or result in the violation of regulatory standards. As such, no unavoidable significant water quality impacts would occur.

*HYDROLOGY*

The project would not substantially reduce or increase the amount of surface water in a water body or result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current direction of the water flow. Furthermore, the project would not cause flooding during the projected 50-year development storm event that would have the potential to harm people or damage property or sensitive biological resources. Therefore, no unavoidable significant hydrology impacts would occur.