

3.7 HYDROLOGY AND WATER QUALITY

3.7.1 Introduction

This section describes the potential adverse impacts on existing hydrological and water quality characteristics of the project site and its vicinity that could occur as a result of the proposed project. Potential effects include those associated with violation of water quality standards or waste discharge requirements, depletion of groundwater supplies or interference with groundwater recharge, alteration of existing drainage patterns of the site or area resulting in erosion or siltation on or off site, increasing the rate or amount of surface runoff resulting in flooding on or off site, creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, exposure of people or structures to a significant risk of loss, injury, or death involving flooding as a result of dam or levee failure, and inundation by seiche. No housing is proposed to be placed within the 100-year floodplain as a result of the proposed project, and the proposed project elements are located outside of the 100-year floodplain. The proposed project would not be subject to risk of inundation by tsunami or mudflow, since the project site is located considerably inland from the Pacific Ocean and is not in the vicinity of an active or dormant volcano. Therefore, these issues are not addressed in this analysis.

Data used to prepare this section were taken from various sources, including the City of Pasadena General Plan, *Pasadena Municipal Code*, and previous environmental documentation prepared for the City of Pasadena such as the Arroyo Seco Master Plan and technical appendices. Baseline conditions have not changed from those outlined in the FEIR.

3.7.2 Environmental Setting

The project site is located within the canyon floor of the Arroyo Seco, which is a deeply cut canyon that links San Gabriel Mountains and the Los Angeles River. The Arroyo Seco is comprised of three sections, the Upper, Central, and Lower, with the approximately 30-acre project site located entirely within the Central Arroyo. Surrounding land uses to the project site include the Brookside Golf Course to the north, and the Brookside Park to the south. Single-family residential units are also situated in close proximity around the stadium. The terrain of the project site is relatively flat as it is situated at the canyon floor. The project site consists of the Rose Bowl stadium, parking lots, and utility buildings.

The Arroyo Seco flows within the project area are conveyed through a trapezoidal concrete channel extending from the Brookside Golf Course to north of Seco Street. The Arroyo Seco is the primary drainage channel for western Pasadena, and storm drains serve the project site and surrounding residential streets connect directly into the flood control channel. The County of Los Angeles is responsible for the maintenance of the flood control channel, while the city owns and operates some of the storm drains that empty into the channel.

The environmental setting with respect to area and site hydrology, drainage, and water quality has not substantively changed since preparation of the FEIR. Pages 3.7-1 through 3.7-6 of the FEIR describe these existing conditions, and the text is incorporated herein by reference as though fully set forth.

3.7.3 Regulatory Framework

The regulatory framework has also not changed with regard to hydrology and water quality since preparation of the FEIR. The framework and consistency of the project are described on pages 3.7-6 through 3.7-10 of the FEIR, including a description of the National Pollutant Discharge Elimination System (NPDES) program. Several federal (*Clean Water Act National Flood Insurance Act and Porter-Cologne Water Quality Control Act*) and state (*NPDES Phase I & II and General Waste Discharge Requirements*) regulations pertain to the project; however, no regional or local policies were identified.

3.7.4 Methodology

By comparing existing land uses to those that are proposed, potential impacts that could result from implementation of the proposed project were evaluated, including the potential to violate any water quality standards or waste discharge requirements; deplete groundwater supplies or interfere with groundwater recharge; alter the existing drainage pattern of the area that would result in substantial erosion or siltation; increase the rate or amount of surface runoff which would result in flooding on or off site; create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or expose people or structures to risk of loss, injury, or death involving flooding from the failure of a dam or seiche.

Impacts to surface and groundwater quality were analyzed by reviewing existing groundwater and surface water quality literature that pertains to the arroyo; identifying existing on-site ground and surface waters, including the depth to groundwater; and evaluating existing and potential sources of water quality pollutants based on the types of land uses and operational activities that occur or could occur on the plan area. Additionally, the applicability of federal and state regulations, ordinances, and/or standards to surface and groundwater quality of the project area and subsequent receiving waters was assessed. Potential impacts from implementation of the proposed project were determined by evaluating the potential of modification to the site and associated infrastructure improvements to exceed the thresholds of significance outlined below.

3.7.5 Thresholds of Significance

The FEIR indicated that a project would have a significant impact on the environment if it would:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)

- 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 that would result in substantial erosion or siltation on or off site
- 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 that would result in flooding on or off site
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Otherwise substantially degrade water quality
- 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
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche

3.7.6 Revised Project Impacts and Mitigation Measures

The proposed project site overlays the Raymond groundwater basin. Natural recharge to the basin is primarily from percolation of flow from the Arroyo Seco, a tributary of the Los Angeles River, and by Eaton Canyon, Santa Anita Canyon and other streams in the watershed of the San Gabriel River. The Arroyo Seco stream contributes approximately one third of the natural replenishment of the aquifer (City of Pasadena 2003). Natural recharge is augmented by spreading of the City of Pasadena's spreading of water through infiltration ponds in portions of the upper Arroyo Seco. The proposed project would not reduce flow to the Arroyo Seco or its recharge basins. Consequently, there will be *no impact* on groundwater recharge or depletion of groundwater supplies.

Threshold	Would the revised project violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality?
-----------	---

Impact 3.7-1 **The revised project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade water quality. This is a *less-than-significant* impact.**

As was stated in the FEIR, the proposed project is located in close proximity to the Arroyo Seco drainage. All runoff that is not absorbed into the groundwater flows into the Arroyo Seco drainage basin, which eventually reaches the Pacific Ocean. Under the proposed project, approximately 816,000 square feet of additional space will be developed surrounding the project. Additionally, there is the option of either four support towers connected to the proposed concourse and/or the widening of existing exit tunnels from the stadium and construction of an internal concourse. While the construction of four support towers is not expected to have new or additional impacts on the hydrology and water quality in the area, the widening of the tunnels and construction of the internal concourse, which would require

excavation of soil from the site, could pose a risk to local water quality due to the possible storage and removal of soil. However, by implementing the BMPs set forth by the Standard Urban Stormwater Management Plan, as discussed under Impact 3.7-1 in the FEIR, the hydrologic and water quality impacts of the revised project would, similarly, remain *less than significant*.

Threshold	<p>Would the revised project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?</p> <p>Would the revised project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?</p>
-----------	--

Impact 3.7-2 **The revised project ~~would not could~~ create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems, ~~nor would it~~ but would not provide substantial additional sources of polluted runoff. Implementation of mitigation measure MM 3.13-2 would reduce this impact to less than significant. The revised project would require the construction of new stormwater drainage facilities, the construction of which would not cause significant environmental effects. This is a *less-than-significant* impact.**

As mentioned in Section 3.7 of the FEIR, many of corrugated metal pipes within the storm drain system around the Rose Bowl have collapsed, and City engineers have been unable to confirm the location of many older lines. While flooding is not experienced on the field during the occasional rainstorms in the area, the surrounding deficiencies in the storm drain system could pose flooding problems in the project area. Implementation of MM 3.13-24 contained in Section 3.13 of the FEIR (and 3.13 of this Draft SEIR) would address storm drain deficiencies for the proposed project, and would ensure adequate stormwater capacity. Specifically, it requires the project Applicant to either pay in-lieu fees or provide on-site improvements in order to ensure that storm drain lines and connections are adequate and capacity is available to accommodate the anticipated increase in stormwater flows. As these improvements would be primarily within the urbanized portions of the project site or other built locations (i.e., streets) construction would not be expected to cause additional significant environmental impacts. Thus, impacts related to capacity of existing stormwater drainage systems would be reduced to a *less-than-significant* level.

Threshold	Would the revised project 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 that would result in substantial erosion or siltation or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?
-----------	--

Impact 3.7-3 **The revised project would not substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. This is a *less-than-significant* impact.**

The revised project would not change any of the conclusions as outlined in the FEIR. All applicable codes and regulations would serve to reduce erosion, siltation, and surface runoff both during and after construction. The General Construction Permit requires preparation of a Stormwater Pollution Prevention Plan with construction BMPs to prevent erosion and off-site sediment transport. ~~This, along with the incorporation of MM 3.7.1 and MM 3.7.2, would result in *less-than-significant* impacts. These, along with preparation of a SUSMP, would be required conditions of approval prior to issuance of grading permits. Therefore, the revised project would not result in substantial erosion or siltation or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site. This is a *less-than-significant* impact.~~

~~MM 3.7.1 *Prior to the issuance of a grading permit, the project Applicants shall file a Notice of Intent (NOI) with the State and comply with the requirements of the NPDES General Construction Permit, including the preparation of a SWPPP and a SUSMP incorporating BMPs for construction and post construction control of runoff. A Civil Engineer shall prepare the SWPPP and SUSMP for City review and approval. The plans shall reduce the discharge of pollutants, including sediment, to the maximum extent practical using management practices, control techniques and systems, design and engineering methods, and such other provisions that are appropriate. The plans shall include applicable post construction measures such as the following:*~~

- ~~■ *Control of impervious area runoff, including installation of detention basins, retention areas, filtering devices, energy dissipaters, pervious drainage systems, porous pavement alternatives*~~
- ~~■ *Implement regular sweeping of impervious surfaces such as streets and driveways*~~
- ~~■ *Use of efficient irrigation practices*~~
- ~~■ *Provision of infiltration trenches and basins*~~
- ~~■ *Linings for urban runoff conveyance channels*~~
- ~~■ *Vegetated swales and strips*~~
- ~~■ *Protection of slopes and channels*~~
- ~~■ *Landscape design such as xeriscape or other design minimizing use of fertilizers*~~

~~MM 3.7-2 Prior to the issuance of a grading permit, the Applicant shall submit and obtain approval of construction drainage and erosion control plans for in connection with site grading activities. The control measures contained in the plan shall be approved by the City of Pasadena prior to starting construction. The plans shall serve as the basis for the construction portion of the SWPPP and shall include the applicable measures such as the following:~~

- ~~■ Diversion of off-site runoff away from the construction site~~
- ~~■ Prompt revegetation of proposed landscaped areas~~
- ~~■ Perimeter sandbagging and silt fences and/or temporary basins to trap sediment~~
- ~~■ Regular sprinkling of exposed soils to control dust during construction~~
- ~~■ Installation of a minor retention basin(s) to alleviate discharge of increase flows~~
- ~~■ Specifications for construction waste handling and disposal, including wheel washing activities~~
- ~~■ Erosion control measures maintained throughout the construction period~~
- ~~■ Construction stabilized construction entrances to avoid trucks from imprinting debris on City roadways~~
- ~~■ Construction timing to minimize soil exposure to storm events~~
- ~~■ Training of subcontractors on general site housekeeping~~

~~The SWPPP is a “live” document and shall be kept current by the person responsible for its implementation.~~

As stated in the FEIR, no development would occur that would alter the Arroyo Seco channel, and the proposed drainage patterns associated with the project, including the replacement of permeable surfaces with impermeable surfaces, would not substantially increase runoff volume as implementation of the proposed project is estimated to slightly increase impermeable surfaces due to removal of some landscaping and replacement with building structures. This incremental increase in flows is not considered substantial and would not, by itself, result in flooding or substantially alter site drainage patterns, particularly because, as described above, new flows would be directed to the upgraded storm drainage system that would be designed to meet the city’s and county’s standards. This impact would be **less than significant** and no mitigation is required.

Threshold	Would the revised project 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?
-----------	--

Impact 3.7-4 Implementation of the revised project would not expose people or structures to a significant risk involving flooding due to the failure of Devil’s Gate Reservoir. This is a less-than-significant impact.

Devil’s Gate Dam is located north of the proposed project site. The dam, completed in 1920 for water storage and groundwater recharge but damaged in the 1971 Sylmar earthquake, no longer retains a reservoir on the Arroyo Seco (Swanson 1991). The County of Los Angeles rehabilitated the dam in 1997,

restoring the ability of the dam to retain floods, but the basin remains dry most of the year. The dam is subject to periodic inspection by California authorities and the LADWP. The LADWP Reservoir Surveillance Section performs daily surveillance and periodic security inspections of all LADWP reservoirs and dam structures to ensure the safety of the structures and the water they contain. No unauthorized personnel are allowed at the reservoirs, access has been limited, and surveillance includes several helicopter flights per day over the LADWP reservoir structures. According to LADWP, tampering with the structures and water has not occurred, and such an event is considered remote. The revised project would not alter any hydrological conditions that would increase the risk of dam failure/site inundation over that which currently exists within the project site and project modifications do not change any of the conclusions set forth in the FEIR regarding this threshold. The impact remains *less than significant*. No mitigation is required.

Threshold	Would the revised project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche?
-----------	---

Impact 3.7-5 Implementation of the proposed project would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche. This is a *less-than-significant* impact.

A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank. The closest enclosed basin to the project site is the Devil's Gate Reservoir; however, according to the LADWP, no seiche at a LADWP facility has ever been recorded, even during the Northridge Earthquake, and the LADWP does not consider seiches to be a potentially significant hazard. As such, significant inundation by seiches on the proposed project site would not be expected to occur, and, as the proposed project would not alter any conditions that would increase the risk of significant inundation by seiches over that which currently exists within the project site, this impact would be *less than significant*. No mitigation is required.

3.7.7 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant or significant and unavoidable impact. A cumulative impact analysis is not provided for those thresholds where there are no project-related impacts.

The geographic context for the cumulative impact analysis is the Hahamongna Watershed and all development in process or readily foreseeable in this region. The analysis is also based on the related projects list contained in Table 2-2 of Chapter 2 (Description of the Revised Project). The City of Pasadena is almost entirely developed and a limited amount of impervious surfaces would be added as a result of cumulative development. Cumulative development within the City would generate similar hydrology, drainage, and water quality impacts as those of the proposed project. Each of these related projects would be subject to the federal, state, and local regulations governing these types of impacts. Specifically, all construction activities that involve grading or excavation of sites larger than one acre are required to obtain NPDES permits. These permits require the implementation of BMPs to minimize water quality impacts associated with construction. In addition, all projects within the City must be

developed in accordance with Section 8.70 (Stormwater Management and Discharge Control) of the *Pasadena Municipal Code*. Implementation of good housekeeping requirements such as the collection, storage, and minimization of runoff would occur under this ordinance. All new development would also submit an Urban Runoff Mitigation Plan that requires projected stormwater runoff be infiltrated or treated for the new development by an amount equal to or greater than the volume of runoff produced from a 3/4-inch storm event. This would reduce water quality impacts associated with operational activities. Further, since project implementation would not contribute stormwater runoff that would exceed the capacity of existing stormwater drainage systems, nor affect existing groundwater recharge activities, the proposed project would not contribute to cumulative impacts and there would be a less-than-significant cumulative impact.

3.7.8 Conclusion

The changes in the project design would not result in new or significant impacts that have not been analyzed in the FEIR or a substantial increase in the severity of previously identified significant impacts. The existing mitigation measures identified above will continue to be implemented, and no new or different mitigation measures are required.