4.7 HYDROLOGY AND WATER QUALITY

4.7.1 INTRODUCTION

This section describes existing hydrologic conditions at the campus site and in its vicinity, and analyzes the potential for campus development under the proposed Master Plan to affect water quality, groundwater supplies, groundwater recharge, site drainage, and flooding.

No public or agency comments related to hydrology and water quality were received in response to the Notice of Preparation (NOP) issued for the Master Plan Environmental Impact Report (EIR). Comments received in response to the revised NOP issued for the Pioneer Heights IV and Harder Road Parking Structure projects related to hydrology and water quality are summarized and addressed in **Volume 2**.

4.7.2 ENVIRONMENTAL SETTING

To accommodate development, many creeks in Hayward, such as Ward Creek, were engineered into underground culverts that allow the transport but limit the natural treatment of stormwater. Ward Creek is part of the Alameda Creek Watershed, which is considered one of the largest watersheds (approximately 700 square miles) in the East Bay (Jones and Stokes 2007). Ward Creek is a tributary to Alameda Creek, flowing west from the hills northeast of the Hayward campus and then south through the City of Hayward. The Ward Creek Branch runs under the parking lot located in the northern section of the Hayward campus and historically connected with the main channel of Ward Creek located just to the north of the campus.

Stormwater runoff that does not infiltrate into the ground in undeveloped portions of the Hayward campus is collected by the campus storm drain system and conveyed into creeks on the west side of the campus. Further, downstream, the creeks discharge their flows into the City of the of

Groundwater

The Hayward campus and the surrounding areas do not have any significant groundwater resources, although localized shallow springs in the upper Harder Road area periodically cause problems of roadway deterioration. Field research indicates the groundwater supply to be marginal and barely adequate to support scattered livestock and single-family domestic use. The City of Hayward does not depend on local water supplies to meet domestic and industrial needs. This demand is met by the Hetch Hetchy water system. Additionally, no groundwater was encountered from borings performed by Cooper-Clark and 1 Associates [illegible]

Table 4.7 2
Basin Plan Water Quality Objectives to Protect Beneficial Uses

Parameter	Objective
Dissolved Oxygen	7.0 mg/L minimum in cold water habitat (nontidal)
	5.0 mg/L minimum in warm water habitat (nontidal)
	In the Bay:
	5.0 mg/L minimum downstream of Carquinez Bridge
	7.0 mg/L minimum upstream of Carquinez Bridge
	The median concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.
	In

Parameter	Objective
Toxic Pollutants	All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test. There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community. Attainment of this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, or toxicity tests (including those described in Chapter 4 of the Basin Plan), or other methods selected by the State Water Board. The State Water Board will also consider other relevant information and numeric criteria and guidelines for toxic substances developed by other agencies as appropriate. The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors. Numeral objectives for arsenic, cadmium, chromium III, chromium VI, copper, cyanide, lead, mercury, nickel, selenium, silver, tributyltin, and zinc are provided in the Basin Plan.
Diazinon	Diazinon concentrations in urban creeks shall not exceed 100 nanograms per liter as a 1-hour average (Basin Plan amendment awaiting US EPA approval).

Total Maximum Daily Load (Section 303(d) of the Clean Water Act)

The State of California is required by Section 303(d) of the CWA to provide the US EPA with a list of water bodies considered by the state to be impaired (i.e., not meeting water quality standards and not supporting their beneficial uses). The list also identifies the pollutant or stressor causing impairment, and establishes a schedule for developing a control plan to address the impairment, typically a TMDL. The TMDL specifies the amount of the target pollutant that the waterbody can sustain on a daily or annual basis and is established by amending the Water Quality Control Plan. TMDLs are prepared by the Regional Boards and result in amendments to Water Quality Control Plans that must be approved by the US EPA. The 303(d) list is used by the US EPA to prepare the biennial federal CWA Section 305(b) Report on Water Quality.

Although Ward Creek is not included in the 2006 303(d) list, Alameda Creek is on the list. Because Ward Creek is a tributary to Alameda Creek, TMDL guidelines may apply to Ward Creek. Additionally, the San Francisco Bay Regional Board has found that San Francisco Bay Area urban creeks do not consistently meet the Basin Plan's narrative water quality objectives pertaining to toxicity. In response, the Basin Plan was 1 In 1oxi1th92y.

impervious surface must comply with the hydraulic sizing design criteria of stormwater quality treatment.

The SF Regional Board required ACCWP to prepare a HMP to reduce erosive flows that result from increasing impervious surfaces in watersheds and creeks. The HMP was due to the SF Regional Board on May 15, 2005, and is currently under review based on the latest ACCWP C.3 Technical Guidance Handbook dated August 2006. The details of the HMP are subject to change in the process of gaining approval by the SF Regional Board. The HMP includes a simple map-based approach for the HMP1su bjectÏ HO 9

4.7.4 IMPACTS AND MITIGATION MEASURES

4.7.4.1 Standards of Significance

In accordance with Appendix G of the *2008 California Environmental Quality Act (CEQA) Statutes and Guidelines* and the CSU CEQA Handbook, the impact of thethe impact

SWPPP has been developed and initiated before allowing construction to begin. CSUEB or its contractor would perform inspections of the construction area to verify that the BMPs specified in the SWPPP are properly implemented and maintained. Additionally, CSUEB or its contractor would implement a monitoring program to verify BMP effectiveness. The monitoring program would begin at the outset of construction and terminate upon completion of the project.

As part of compliance with the NPDES General Construction Permit, CSUEB or its contractor would develop and implement a spill prevention and control program to minimize the potential for, and effects from, spills of hazardous, toxic, or petroleum substances during construction activities. The plan would be completed before any construction activities begin, and would include provisions for preventing, containing, and reporting spills of hazardous materials.

In addition to NPDES requirements, construction would comply with CSUEB standard stormwater management practices and engineering controls, which require the control and minimization of stormwater pollutants originating from construction sites as a standard part of contract

As noted earlier, runoff from the campus is collected by the campus storm drain system and is discharged into creeks on the west side of the campus.

Although the proposed project would generate an increase in stormwater runoff at certain locations

MP Impact HYDRO 5: Implementation of the proposed Master Plan would not place housing or structures that would impede or redirect flood flows within a 100 year flood hazard area or levee or dam inundation zone.

Level of Significance: No impact

The Hayward campus is not within a FEMA-designated 100-year flood zone. Therefore, the housing included in the proposed Master Plan would not be located within a flood zone. According to the City of Hayward Tsunami and Dam Failure Inundation Hazard Map (City of Hayward 2002), dam failure at the Don Castro Reservoir would flood areas near San Lorenzo Creek. That dam failure, should it occur, would not affect the Hayward campus. Therefore, no impact would occur.

Mitigation Measure: No mitigation is required.

MP Impact HYDRO 6: Development on the Hayward campus under the proposed Master Plan would not be affected by inundation associated with a tsunami or seiche event due to elevation and location relative to the Pacific Ocean and enclosed water bodies.

Level of Significance: No impact

Due to the relatively [illegible]

Campus development under the proposed Master Plan would in the long run decrease stormwater flows from the campus. Furthermore, in the short term each campus project would include controls that would avoid any increases in peak flows. As a result, campus development would not contribute to downstream flooding (**MP Impact HYDRO 3**). Development within the City of Hayward would also similarly be required to control peak flows and avoid flooding. The cumulative impact would therefore be less than significant.

Campus development under the proposed Master Plan would not require the use of groundwater (**MP Impact HYDRO 4**). Similarly, development in Hayward is not expected to substantially deplete groundwater because there is no potable use of the local groundwater except for emergency backup. Implementation of projects in the City of Hayward, in addition to the Campus Master Plan, could increase the total area of impervious surfaces within the City, which could interfere with groundwater recharge to some extent. However, this would not be expected to result in substantial interference with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table, and would be regarded as a less than significant environmental impact (City of Hayward 2002). The cumulative impact would be less than significant.

The proposed project would result in no impacts related to building facilities within a 100-year flood plain or exposure to tsunamis and seiches (**MP Impacts HYDRO 5** and **HYDRO 6**). There would be no cumulative impacts.

4.7.5 REFERENCES

Alameda Countywide Clean Water Program (ACCWP). 2006. C.3 Stormwater Technical Guidance, National Pollutant Discharge Elimination System, Municipal. August 31. Version 1.0.

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