

**STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION**

STAFF REPORT FOR REGULAR MEETING OF MAY 12-13, 2005

Prepared on April 13, 2005

ITEM NUMBER: 5

SUBJECT: Status Report – University of California, Santa Cruz

SUMMARY

The University of California, Santa Cruz (UCSC) has complex drainage issues and has several ongoing projects. Central Coast Water Board staff recently inspected University projects and drainageways in response to public complaints. Staff also reviewed the University's Storm Water Management Plan and 2005 Long Range Development Plan. The University has been cooperatively working with Central Coast Water Board staff.

DISCUSSION

Background Information

The UCSC main campus consists of approximately 2,000 acres of marine terraces with an elevation range of 350 feet to 1,100 feet.

Most campus development occurs in the middle of campus. Several main drainageways divide the campus in an approximately north-south direction.

The campus's storm water conveyance system is comprised of various engineered storm water detention systems, urban contaminant removal systems, storm water piping, catch basins, surface run-off, and swales that discharge storm water to natural drainage channels.

Recent public complaints about campus drainage prompted Central Coast Water Board

staff to do a site inspection. Additionally, staff recently reviewed the University's 2005 Long Range Development Plan and Storm Water Management Plan. The following sections provide more information about these issues.

UCSC Complaint Investigation

At the February Central Coast Water Board meeting, Don Stevens and Gail Page submitted letters and Mr. Stevens voiced concerns about storm water runoff quality and quantity at the University of California, Santa Cruz (UCSC) campus. In an email dated March 2, 2005, Mr. Stevens identified the following items of concern:

- Ranch View Terrace new development
- Sinkholes filled with concrete,
- Parking lot runoff routed to sinkholes,
- Erosion on City-owned Pogonip property,
- Exposed sewer line in Jordan Gulch,
- Erosion in Moore Creek,
- Arboretum dam and Highview neighborhood flooding,
- Kalkar pond water quality

In January and early March, Central Coast Water Board staff also received complaints about runoff from the UCSC Humanities Building construction site from another member of the public.

On March 8, 2005, Central Coast Water Board staff met with Dan Blunk (UCSC

Environmental Programs Manager), UCSC staff from various departments (grounds services, environmental health and safety, and physical planning and construction), Mr. Stevens, and Ms. Page. (Although Mr. Stevens informed Santa Cruz City and County representatives of the planned tour, they were not in attendance.)

Mr. Stevens and Ms. Page had an opportunity during the two-hour site tour, to select sites of interest and show Central Coast Water Board staff some areas of concern. Overall, UCSC staff were aware of the issues Mr. Stevens and Ms. Page pointed out and are addressing those issues through plans, projects, and negotiations with interested parties. UCSC developed a Stormwater and Drainage Master Plan over the last two years. The Stormwater and Drainage Master Plan identifies drainage problems and projects to address them. There was insufficient time during the site inspection for staff to sit down with UCSC staff and discuss in greater detail the University's activities with respect to each complaint. Central Coast Water Board staff requested more information from UCSC after the inspection. UCSC submitted additional information, but Central Coast Water Board staff has not yet reviewed all the information. Below is a summary of the activities/discussions relating to each concern:

- Ranch View Terrace –Staff spoke with Mr. Stevens before the site tour regarding new development at Ranch View Terrace and told him the project is enrolled in the Construction Storm Water Permit. Construction has not begun on this project. The project will drain to the City's storm drain system, and according to UCSC, they have collaborated extensively with the City about the storm water discharge.
- Sinkholes Filled with Concrete – Ms. Page expressed her concern in a brief introductory meeting before the tour about UCSC's practice of pumping concrete in the karst geology¹ below new building

sites, and the connectivity of karst geology to Kalkar Pond. Mr. John Barnes of UCSC said this is a common practice necessary to create a more stable foundation, and that (in recent years) groundwater studies are required before such projects can commence. He indicated recent projects have involved dye testing to determine where groundwater flows and surfaces. He agreed that the karst's groundwater system is complex and dynamic. There was no site to visit that was currently being pressure grouted. However, in the past, the pond near Ms. Page's property reportedly turned a milky color when UCSC was pumping concrete into a karst layer. According to a UCSC study done in 1994, there was connectivity between Kalkar pond and a monitoring well in the southern part of campus. No other connections to Kalkar pond have been determined through the University's dye studies. For some projects involving pressure grouting, the University hired hydrogeologists to study potential impacts to karst hydrogeology resulting from pressure grouting. Those studies were done as part of the California Environmental Quality Act (CEQA) process for individual projects. For the projects studied, technical reports from hydrogeologists concluded there were no significant impacts to karst hydrogeology as a result of the University's pressure grouting activities.

- Parking Lot Runoff Routed to Sinkholes – Staff saw the runoff pipes and sinkhole at Moore Creek (below the Thimann Labs and parking structure). The University

including limestone and dolomite. Karst formations can contain aquifers that are capable of providing large supplies of water. Caves, sinkholes, and springs are typical of karst regions. Common geological characteristics of karst regions that influence human use of its land and water resources include ground subsidence, sinkhole collapse, groundwater contamination, and unpredictable water supply.

¹ Karst is a special type of geologic formation derived from the dissolution of soluble rocks,

has oil-water separators at the parking lot drains discharging to this area. However, discharge from Thimann Labs, including the loading dock area, does not receive treatment, according to University staff. The University also disperses a portion of the runoff to reduce the pipe discharge and avoid erosion potential at the end of pipe. The area did not appear to have significant erosion issues at the end of pipes. This area of Moore Creek appeared well vegetated, with large trees providing shade, and small plants, leaves, and woody debris providing ground cover. The sinkhole is just downstream of the discharge pipes and likely receives a significant portion of the runoff. The University currently requires protection devices for parking lot and loading dock storm water discharges for new projects.

- City-owned Pogonip Property – Unfortunately, there was not sufficient time to see this site. It may be better to visit this site when a City representative is also able to attend. The University, the City, and the County have reportedly agreed to jointly fund repairs and remediation for erosion and washouts of City-owned Spring Road in Pogonip City Park. The City is in the construction drawing phase for priority drainages and is preparing a CEQA document for the project.
- Jordan Gulch – An aboveground sanitary sewer pipeline runs along Jordan Gulch. It appears there is potential for rock/mud slides and erosion of the gulch walls. To address concerns that falling trees and rock might damage the pipeline, the University installed a chain-link fence along the maintenance road, reinforced the pipeline with concrete, and added a steel structure around some sections of pipeline. The normal high water mark is below the road and pipeline. Water flowing through Jordan Gulch discharges into a large sinkhole near “The Village” student housing. The University performs regular maintenance of trees in Jordan Gulch, uses campus funds to stabilize stream banks, and plans to repair sections
- of eroding bank that threaten the sewer line and its cradle foundation.
- Moore Creek – In the section of Moore Creek near the arboretum, upstream of the dams, there was evidence of significant erosion. Erosion is caused by upstream runoff, which the University plans to control/reduce through projects that would detain runoff, meter discharge, infiltrate flow, and/or divert flow to detention/metering structures.
- Arboretum Dams – Sediment accumulates on the upstream side of these dams, reducing dam capacity and increasing potential for downstream flooding. Red-legged frogs are found in the Arboretum area. The University plans to meet with regulatory agencies (Army Corps of Engineers, Regional Water Quality Control Board, Department of Fish and Game, and Fish and Wildlife Service) and apply for permits to address erosion problems in and around the dams.
- Highview Neighborhood – Moore Creek at Highview Drive aggrades with sediment, culverts become clogged, and flooding sometimes occurs. The University and Highview neighbors have been negotiating means of reducing flooding potential at this site.
- Kalkar Pond – Mr. Stevens and Ms. Page voiced concerns over algae and sediment in the pond, but Central Coast Water Board staff could not confirm this because there was not sufficient time to see the pond from close up. Staff understands that the Kalkar pond is at a former quarry site. It seemed the pond was rather large with little vegetative cover (perhaps a contributor to algae growth). Staff later asked UCSC how the pond is fed, and UCSC indicated major water sources include spring water, surface flow from a campus meadow area (where grazing occurs), campus faculty housing, a county street and possibly private homes along the pond. Grazing area runoff (cow manure) and urban runoff (fertilizers) are possible sources of nutrients, particularly

nitrogen, that might contribute to algae growth in Kalkar pond.

- Humanities Building Project – The site is approximately two acres and parts of the site were left undisturbed, with natural vegetation and ground cover. Overall, it appeared the site had implemented an effective combination of erosion and sediment controls. However, there were violations with respect to the site's Storm Water Pollution Prevention Plan, which was not signed, did not contain an updated list of contacts, and did not correspond with site practices. The owner contact, Sara Kane, signed the SWPPP during the inspection. Central Coast Water Board staff pointed out SWPPP violations and minor site deficiencies, and will follow up with a Notice of Violation letter.

Overall, it seemed UCSC staff were already aware of Mr. Stevens's and Ms. Page's concerns, except regarding the algae in Kalkar pond. The University's "Stormwater Drainage and Master Plan," September 2004, identifies many problem areas on campus (including most of those identified by Mr. Stevens and Ms. Page), and in most cases includes projects and recommendations to address them. Projects identified in the "Stormwater Drainage and Master Plan" have been grouped together as an Infrastructure Project. The attached "Table 8: Planned UCSC Campus Drainage Projects" includes projects that will be completed through the Infrastructure Project (in phases) or through maintenance. The University intends to work with Central Coast Water Board staff and staff from other regulatory agencies early in the permitting and environmental review process to ensure the Infrastructure Project meets agencies' requirements and addresses their concerns. Funding for the Infrastructure Project has been approved and the University plans to get the project's Environmental Impact Report certified in July 2006.

UCSC Notice of Termination Inspections

On March 8, 2005, Central Coast Water Board staff also conducted inspections to determine if Notice of Termination approval is appropriate for some permitted UCSC construction projects. There was evidence of minor, localized erosion in various areas of the otherwise completed projects. Staff pointed out the problem areas and discussed common erosion control practices for such situations. The sites inspected were not ready for permit termination. A subsequent inspection may be necessary.

UCSC 2005 Long Range Development Plan

In a letter dated February 25, 2005 (attached), Central Coast Water Board staff commented on the Notice of Preparation of a Draft Environmental Impact Report for UCSC's 2005 Long Range Development Plan.

UCSC Storm Water Management Plan

Central Coast Water Board staff reviewed the UCSC draft Storm Water Management Plan (SWMP) and met with the UCSC Environmental Programs Manager, Mr. Dan Blunk, on March 24 and 25, 2005 to discuss the draft SWMP. Staff will send a comment letter regarding staff's review of the draft SWMP and will request that the University submit a revised draft SWMP. Among other recommendations, Central Coast Water Board staff suggested the SWMP address storm water issues associated with karst geology by specifying appropriate best management practices, studies, and/or monitoring. Central Coast Water Board and State Water Board staff will notify all interested parties when the University's SWMP becomes available for a sixty-day public review period.

ATTACHMENTS

1. Table 8: Planned UCSC Campus Drainage Projects
2. February 25, 2005 Long Range Development Plan Comment Letter