



# California Regional Water Quality Control Board Los Angeles Region



Matthew Rodriquez  
Secretary for  
Environmental Protection

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Edmund G. Brown Jr.  
Governor

September 10, 2011

Mr. Rudy Lee  
Los Angeles County Department of Public Works  
P.O. Box 1460  
Alhambra, CA 91802-1460

**FEASIBILITY STUDY WORK PLAN COMMENTS FOR THE MAINTENANCE  
CLEARING OF ENGINEERED EARTH-BOTTOM FLOOD CONTROL CHANNELS  
PROJECT, VARIOUS WATERSHEDS WITHIN LOS ANGELES COUNTY  
(FILE NO. 99-011 2010 RENEWAL)**

Dear Mr. Lee:

The Los Angeles Regional Water Quality Control Board (Regional Board) has reviewed the Study Work Plan submitted on July 1, 2010. The requirement to provide this Feasibility Study was included in the Waste Discharge Requirements (WDR) issued to the Los Angeles County Flood Control District (LACFCD) on February 4, 2010. The objective of this study requirement was to determine the opportunity for vegetation to remain within reaches which periodically undergo maintenance (vegetation clearing). This study is an important step toward achieving water quality goals in our region and ensuring that they can provide for beneficial uses designated in the Basin Plan. Allowing any vegetation to remain in the channels and/or restoring areas within the channels will improve water quality and provide beneficial habitat.

In addition to our internal review, we took into consideration comments received from Heal the Bay in a letter dated May 31, 2010.

The Study Work Plan is hereby approved with the additional conditions, as outlined below.

**Hydraulic Analysis:**

1. Because the plan is to use the design flow for the hydraulic analysis of each project reach, prior to performing the hydraulic analysis, the adequacy of design flow should be evaluated. Modeling should include the evaluation of the design flow based on the historical data (at least the past 10 years of data).
2. The sediment carried by the annual storm events should be considered in the hydraulic analysis. The channel cross section and channel roughness will be included in the evaluation of

the adequacy of the flood capacity. For channel cross section, the sediment carried by the annual flood significantly affects the flow conveyance capacity. In other words, the deposition and scouring caused by sedimentation will affect flow conveyance capacity and the sedimentation will affect the vegetation growth rate and consequently channel roughness as well.

3. The Regional Board recommends that the unsteady flow module and sediment transport module should be considered in the HEC-RAS model. One design storm event may be insufficient to evaluate the sediment transport and vegetation effect on channel roughness. In addition, annual based storm events should be simulated in the hydraulic analysis instead of using one design flow event.

4. The calibration of the model used for hydraulic analysis should be performed using historical data prior to the evaluation of flood control capacity. A sensitivity study of channel roughness should be performed if the reach is heavy populated with native plants.


5. The output of the hydraulic analysis should include the annual variation of water depth, flow rate and sediment depth at each computational cross section along the channel with calibrated channel roughness for selected simulation time period.

6. These evaluations shall consider whether the vegetation in the channels is native or an exotic and/or invasive species. This will be useful when determining the value or priority of leaving the vegetation in the channel. In addition to the description of the 'type, density and size of vegetation' per Section 4.1.3 (Hydraulic Analysis – Office and Field Investigations) the full spatial extent (total acreage or square footage) of the vegetation will be documented on the plans of the channel reaches. The documentation shall also distinguish between sections of invasive/exotic species.

7. The Work Plan, per Section 4.1.4K, indicates, "Identification and location of these potential areas shall be discussed." The areas of "potential" for vegetation to remain shall be documented and provided to the Regional Board and stakeholders for comment.

Should you have questions, please contact Valerie Carrillo, Section 401 Program, at (213) 576-6759.

Sincerely,

  
Samuel Unger, P.E.  
Executive Officer