



# City of Malibu

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## **HYDROLOGY/HYDRAULIC REPORT REQUIREMENTS**

All projects which add impervious surface area or include grading or drainage improvements, are required to conduct a hydrology study of the project and a hydraulic analysis of the drainage facilities, and to submit a Hydrology/Hydraulic Report. The report must conform to the following requirements:

1. Calculate pre-development and post-development flow rates for a 100-year clear storm flow event.
  - ⇒ Calculate the 50-year storm flow using Los Angeles County Modified Rational Method or other approved method, and
  - ⇒ Convert the 50-year flow rate to 100-year flow rate by using the nomograph in the *Caltrans Hydraulic Design and Procedures Manual*.
  
2. If the post-development runoff flow rate exceeds the pre-development flow rate, do one of the following:
  - ⇒ Mitigate any increase in flow rate by using on-site detention. The detention facility must be sized to store a volume of water equal to 1" of rainfall over all impervious surfaces plus ½" of rainfall over all permeable surfaces. Rainfall must be released from the detention facility through orifices, at the following stages:
    - a. 2-year flow rate,
    - b. 10-year flow rate, and
    - c. 100-year flow rate,or
  - ⇒ Demonstrate that all drainage facilities downstream of the project site (from the site all the way to the ocean) are adequate to convey the runoff from a 25-year storm event,  
or
  - ⇒ Construct improvements to off-site drainage facilities so that all drainage facilities downstream of the project site (from the site all the way to the ocean) are adequate  
to convey the runoff from a 25-year storm event,  
or
  - ⇒ Other measures to accomplish the goal of mitigating all downstream impacts.
  
3. Show that all on-site drainage facilities are designed to cumulatively convey the runoff from a 100-year clear flow storm event to the detention facility.

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