



CITY OF **LOMPOC**

ENGINEERING BULLETIN #04-01

TO: ALL INTERESTED PARTIES

FROM: KEVIN P. MCCUNE, CITY ENGINEER

DATE: APRIL 8, 2004

SUBJECT: DETENTION BASIN DESIGN CRITERIA

1. Detention basins in the City of Lompoc shall be designed by a Registered California Civil Engineer and sized to contain the design storm and comply with all criteria listed in this bulletin. The design storm shall be the 100-year storm event that produces the most runoff reaching the detention basin unless the City Engineer approves an alternate design storm. Runoff/detention calculations shall be prepared utilizing the Rational Method Hydrograph procedure.
2. Detention basins shall be designed to retain and control runoff such that the post-development flow rate does not exceed the pre-development flow rate for the 2-year, 5-year, 10-year, 25-year, 50-year and 100-year return year. The City may wave the requirement for smaller storms if there is sufficient capacity in the existing downstream public storm drain system to accommodate the post-development flows.
3. One (1) foot of freeboard shall be provided when the 100-year storm is contained. The one-foot freeboard requirement is both a maximum and a minimum. Freeboard is the elevation differential between the 100-year water surface elevation and the nearest street flowline elevation.
4. The maximum allowable side slope is 4:1.
5. Discharge from a detention basin shall be via gravity flow unless an exemption is obtained from the City Engineer and dual pumps and dual energy (electric line and gas/diesel generator back-up) are provided.
6. A maintenance access road and ramp shall be provided from the nearest street to the detention basin bottom. The road shall be hardened to provide a stable driving surface when the surrounding soil is saturated. The ramp shall be made of concrete with maximum 15% slope and a minimum width of 10 feet.

7. A hardened emergency escape route sufficient to carry the post-development 100-year flow from the basin shall be provided in the event that the normal discharge route is blocked.
8. No factor of safety needs to be applied to the calculations.
9. When detention basin depths exceed 2 feet, the detention basin shall be fenced.
10. Detention Basins over 6 feet deep shall have eight (8) feet wide level terraced benches around the entire perimeter of the basin located at water surface contours where the water is 5, 10, and 15 feet deep.
11. Detention Basins shall have a five (5) feet wide level terraced bench located one foot above the 100-year water surface level around the entire perimeter.
12. The outlet structure shall be designed to reduce areas of standing water. If possible, the outlet structure shall drain nuisance water at or below the basin invert. If a nuisance water drain cannot be provided in the outlet structure, percolation wells designed by a Registered California Geotechnical Engineer shall be provided.
13. The percolation rate of the basin invert shall be considered zero unless a site-specific percolation test is performed by a Registered California Geotechnical Engineer and approved by the City. The maximum allowable percolation rate is two (2) inches per hour. After basin construction, the invert shall be performance tested to confirm the design percolation rate. If the basin fails the performance test, percolation wells designed by a Registered California Geotechnical Engineer shall be provided.
14. All detention basins shall be privately maintained. The owner shall enter into a maintenance agreement with the City to reimburse the City for adequate annual maintenance, should the owner fail to do so. The owner shall provide the City with annual maintenance reports.