D. PERCOLATION BASINS

Percolation basins are not generally permitted in the City of Merced for Master Plan "Park Basins".

Percolation basins may be considered for industrial or commercial areas or temporary facilities only upon prior approval by the Department of Public Works when other facilities are not available for storm water disposal.

The required storage volume for percolation basins shall be determined by the use of an inflow-outflow diagram using a 50-year storm inflow. The 50-year intensity-duration curve as shown in Figure A-3 may be linearly extended to the 7-day duration for use in developing the inflow curves for percolation basin sizing. The basin shall be capable of percolating all of the water in seven days given a continuous 50-year storm. One foot of freeboard shall be added to maximum depth of water in the basin. In addition, the minimum dimension of the bottom of the basin shall not be less than 20 feet in any direction.

The inflow curve can be developed using equation E-3 with the outflow being developed from the following equation:

$$VOL_p = \frac{0.6 \; A_p \; R_p \; T}{43560} \qquad (E-4)$$

where:

VOL_p = volume percolated in acre feet

0.6 = a coefficient to account for a varying water surface over time

A_p = the projected vertical area of the perimeter at maximum water depth in square feet, plus 50 percent of the water surface area at maximum water depth

R_p = the rate of percolation in cubic feet per square foot per day

T = the time selected in days

(NOTE: With the percolated volume, Vol_p equaling the inflow volume at seven days, the dependent variable becomes the projected vertical area at the perimeter, A_p.

A trial and error calculation is required to determine the final basin configuration which provides both storage and vertical area as required.)

The value of R_p shall be determined by a documented standard field test conducted by a registered engineer experienced in the practice of soils engineering. The test shall be approved by the Department of Public Works. All field data shall be included in the documentation together with the obtained field percolation rates and the factor of safety recommended.

ENGINEERING DEPARTMENT		CITY OF MERCED, CALIF.
STORM DRAIN DESIGN		**SD-17**
DRAWN: K.E.	APPROVED BY: _____ DATE 8-5-91	
ENG.		
REVISED	CITY ENGINEER	SHEET OF

DIETERICH-POST 88576