

Existing Basin Volume/Lt depth

63,050 ft^3 in 5 ft depth

$$= 12,610 \text{ ft}^3/\text{ft}$$

$$= .3 \text{ ac-ft}/\text{ft}$$

$$WQ_v = WQ_s \times A \times R_v$$

$$WQ_s = 1.37''$$

$$R_v = \frac{(.98 \times 5.6) + (.23 \times 11.4)}{17} = .48$$

$$A = 17$$

$$WQ_v = 1.37 \times 17 \times .48 = 11.2 \text{ ac-in}$$

$$= 0.93 \text{ ac-ft}$$

Perforated Rise Calc.

Top of Plate = 1.75' above bottom row (2'wg)

$$A_0 = .93 / 0.013(1.75)^2 + 0.22(1.75) - 0.1$$

$$= .93 / .32$$

$$= 2.86 \text{ sq. in. Req.}$$

Plate has 3 - 1" ϕ holes

$$= \frac{3.14(1^2)}{4} \times 3 = 2.36''$$

This is slightly less than area necessary to drain the WQ in 40 hrs if the full depth (head) were available at the start of the 40 hours.

It will not be. Therefore we can expect the drainage time to exceed 40 hours.

Putting multiple rows of holes allows the discharge rate to be slightly higher (at full WQ depth) but reduces the potential that the plate tops will be exceeded.

