



Date 2-19-91 MWS Page \_\_\_\_\_ of \_\_\_\_\_  
Project REFLECTION RIDGE POND No. 2 BLOCK 1  
Item ELEVATION DATA

PLATTED MINIMUM PAD = 1350.5 = 163.1 COW  
OVERFLOW POINT = 160.9 COW = 1348.3  
Freeboard = 2.2'

LOW BANK = SW COR LOT 17 = 158.9  
DESIGN STATIC POOL = 1342.5 = 155.1  
ACTUAL STATIC POOL = 1346± = 158.5±

(E) LAKE RIDGE CT SWS INLET FLOOR = 156.18 = 1343.58  
" " " MH FLOOR = 155.20 = 1342.60  
" " " OUTLET 152.10 = 1339.50  
LAKE RIDGE CIR SWS INLET FLOOR = 157.38 = 1344.78  
MH FLOOR = 155.30 = 1342.7  
OUTLET = 152.10 = 1339.5

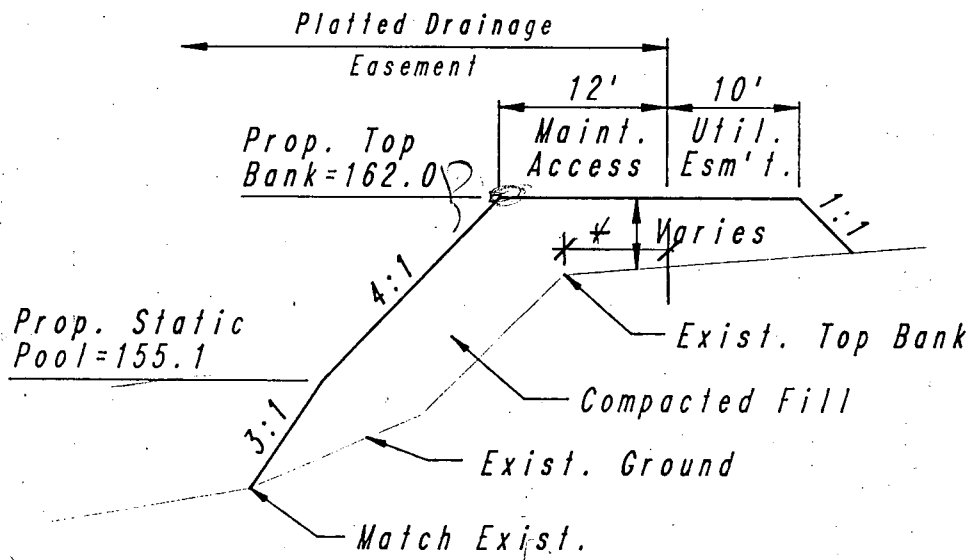


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Project REFL R BLOCK 1 POND #2

Item \_\_\_\_\_

### ASSUMED TYPICAL SECTION



### TYPICAL SECTION

\* 12' Minimum. Where the surveyed top of bank is greater than 12' from the easement line, it is assumed that the bank will be raised to elevation 162<sup>00</sup> in its existing location, and then sloped down 4:1. This provides the minimum volume available & therefore provides a conservative design.



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Project REFL RIDGE BULK POND 2

Item STORAGE VOLUME

AT CONTOUR 155

$$\text{Area} = (16.11 + 6.04 + \overset{65.04}{11.70} + 11.18 + 20.21) \text{ in}^2 \times \frac{(20 \text{ ft})^2}{144 \text{ in}^2} \times \frac{1 \text{ Ac}}{43560 \text{ ft}^2} = 0.60 \text{ Ac}$$

AT CONTOUR 160

$$\text{Area} = (65.04 + 9.21 + \overset{102.86}{7.77} + 6.68 + 7.47 + 6.69) \text{ in}^2 \times \frac{(20 \text{ ft})^2}{144 \text{ in}^2} \times \frac{1 \text{ Ac}}{43560 \text{ ft}^2} = 0.94 \text{ Ac}$$

AT CONTOUR 162

$$\text{Area} = (102.86 + 4.50 + 3.89 + 3.52 + 4.14 + 3.27) \times \frac{20^2}{43560} = 1.12 \text{ Ac}$$

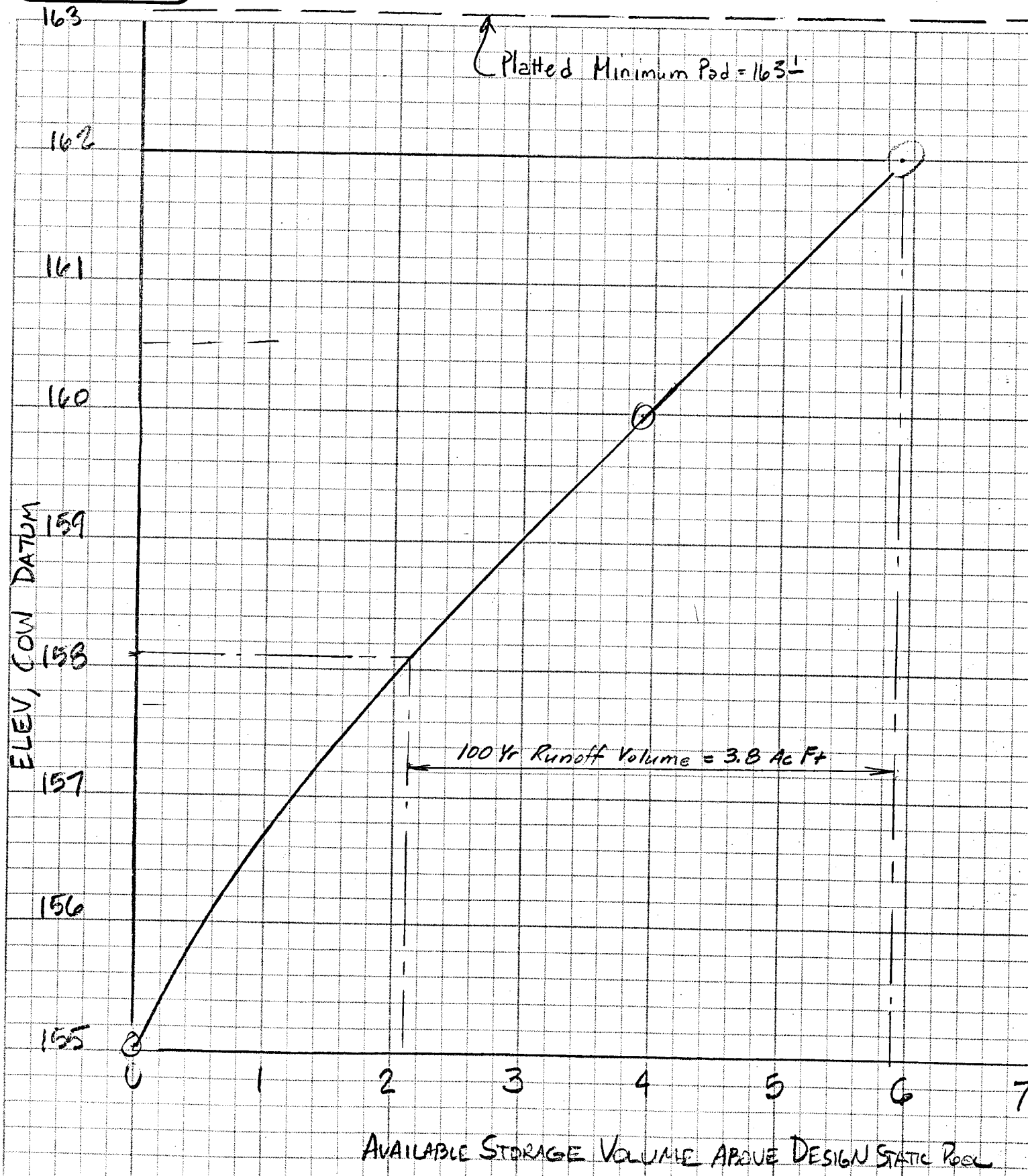
Elev	Area	Δh	Avg Area	ΔVol	Total Vol above 155
155	0.60	5	0.77	3.85 AC-FT	0
160	0.94	2	1.03	2.06 AC-FT	3.9
162	1.12				5.9



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Project REFL RIDGE BLOCK 1 POND 2

Item STORAGE VOLUME





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Project REFL RIDGE POND #2 ~~POND~~ Block #1  
Item HYDROLOGY - SCS HYDROGRAPH

B SOIL

1/2 AC LOTS - SINGLE FAMILY RESIDENTIAL

CN = 70

P = 7.8 IN (100 YR 24 HR)

$$S = \frac{1000}{CN} - 10 = 4.29''$$

$$Q = \frac{(P - 0.2S)^2}{P + 0.8S} = \frac{(7.8 - 0.2(4.29))^2}{7.8 + 0.8(4.29)} = 4.29 \text{ IN}$$

RESIDENTIAL AREA = 8.9 AC

LAKE AREA = ~~3.5 AC~~ 1.0 AC @ Elev 1347'

$$\text{TOTAL VOLUME} = \left\{ \begin{array}{l} \text{Residential} \\ \text{Runoff} \end{array} \right\} + \left\{ \begin{array}{l} \text{Total Direct} \\ \text{Rainfall on Pond} \end{array} \right\}$$

$$= 4.29'' \times 8.9 \text{ AC} + 7.8'' \times 1.0 \text{ AC}$$

$$= 46 \text{ AC-IN}$$

$$= 3.8 \text{ AC-FT}$$



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Project REFL RIDGE POND #2 BLOCK 1  
Item SWS HYDROLOGY

SYSTEM 250

B SOIL

$$C_2 = 0.39 \quad C_{100} = 0.57 \quad T_c = 15 \text{ min}$$

$$\Sigma A = 4.57 \text{ AC}$$

$$i_2 = 3.87 \quad i_{100} = 7.37$$

$$\Sigma Q_2 = 6.8 \text{ CFS}$$

$$\Sigma Q_{100} = 19.2 \text{ CFS}$$

SYSTEM 290

B SOIL

$$C_2 = 0.39 \quad C_{100} = 0.57 \quad T_c = 15 \text{ min.}$$

$$i_2 = 3.87 \quad i_{100} = 7.37$$

$$\Sigma A = 4.29 \text{ AC}$$

$$\Sigma Q_2 = 6.4 \text{ CFS}$$

$$\Sigma Q_{100} = 18.0 \text{ CFS}$$

REFLECTION RIDGE ADD'N BLOCK 1  
POND NO. 2

2/23/91 MMB  
32 88119

AGRICULTURAL CONDITIONS PEAK Q

1000 lin ft sheet flow  
From TR-55 2nd ed,

$$S_0 = 0.02 \text{ ft/ft}$$

$$n = 0.060$$

$$P_{2,24} = 3.5''$$

$$L = 300$$

$$T_t = \frac{0.007 (nL)^{0.8}}{\sqrt{P_2} S^{0.4}}$$

$$= \frac{0.007 ((0.060)(300))^{0.8}}{\sqrt{3.5} (0.02)^{0.4}} = 0.18 \text{ hr} = 10.8 \text{ min}$$

Shallow Conc. Flow FIG 3-1  $V = 2.2 \text{ ft/s}$

$$T_t = \frac{700'}{2.2 \text{ ft/s}} \times \frac{1 \text{ min}}{60 \text{ sec}} = 4.7 \text{ min}$$

$$T_c = 10.8 + 4.7 = 15.5 \text{ MINUTES}$$

USE 15 MIN

$$I_{100} = 7.37 \quad C = 0.37 \text{ (Manual Att. D)}$$

$$Q_{100} = 0.37 \times 7.37 \times 20 = 55 \text{ CFS}$$

55 CFS = MAX ALLOWABLE PEAK DISCHARGE



REFL R. ADD'N BL. 1  
PON D #2

MB 2/25/91  
32-88119

FIND ALTERNATE OUTLET CHANNELS

1) OPEN CHANNEL NE'LY

$$S_0 = \frac{42.5 - 40}{1000} = 0.25\%$$

Use Retardance Class D

$$b = 4', z = 6:1 \quad \text{use } S = 0.003 \text{ ft/ft}$$

Chart 32 p. 42 MDS #3

$$S_0 = 0.0125$$

$$Q = 55 \text{ CFS}$$

$$d = 1.9 \text{ ft}$$

$$V = 1.95 \text{ ft/s}$$

2) OPEN CHANNEL EAST

ASSUME  $S = 0.30\%$  where cutting thru rise  
at NE cor. SW 1/4 Sec 4.

$$b = 4'; z = 4:1 \quad (\text{Ret. Class D})$$

$$d = 2.1 \text{ ft}; V = 2.2 \text{ ft/s}$$

Ditch drop req'd at east end!