6·11·15

Bauman Farms – Hotel

Parking Expansion

Water Quality Vol Calcs

From Pond Table pg 7

596.70 1409 CF

596.80 1556 CF

596.72 = 1437 CF

Site Acreage = 0.55 Ac

$$WQv = (.8)(.75)\left(\frac{0.55}{12}\right)(1.2)(43560)$$

$$= 1437 \text{ FT}^3$$

Head = 596.72 − 595.35 = 1.37'

Avg Head = 1.37/2 = 0.69'

$$Q_{avg} = \frac{1437 \text{ FT}^3}{48 \text{ hr}} \frac{1 \text{ hr}}{3600 \text{ s}} = .083 \text{ CFS}$$

$$Q = Ca\sqrt{2gh} \quad a = \frac{.083}{.62\sqrt{2(32.2)(.69)}} = .02 \text{ FT}^2$$

$$a = \pi r^2 \quad r = \sqrt{\frac{a}{\pi}} = \sqrt{\frac{.02}{\pi}} = .08 \text{ FT} = 1'' \text{ RAD} = 2'' \text{ DIAM}$$

Q(Reqd.) = CIA
Q(Prov.) = AV

$V = \frac{1.49}{n} R^{2/3} S^{1/2}$

STORM SEWER COMPUTATIONS
BAUMANN PROPERTY

LOCATION			AREA					TIME			Intensity	Q	DESIGN PROFILE							T/G
Inlet	Drainage Area	Outlet	Incre. Acres	Total Acres	"C"	Incre. C x A	Sum C x A	To Inlet Ti min	In Pipe Tp min	Total Tc min	"I" in/hr	Req. CFS	Pipe Size Inches	"n" Value	Slope in %	V ft/sec	Q CFS	Pipe Length	Invert Up end	Invert Lo end	
100	100	Ex. 404	0.34	0.34	0.85	0.29	0.29	10.0	0.00	10.0	5.15	**1.49**								600.70
													12	0.013	1.23	5.04	**3.96**	77	597.45	596.50	
101	101	103	0.19	0.53	0.95	0.18	0.47	10.0	0.00	10.0	5.15	**2.42**								599.53
													15	0.013	0.32	2.99	**3.67**	118	596.28	595.90	
102	102	103	0.13	0.66	0.85	0.11	0.58	10.0	0.00	10.0	5.15	**2.99**								600.52
													12	0.013	1.47	5.51	**4.33**	75	597.25	596.15	
103	103	104	0.10	0.76	0.95	0.10	0.68	10.0	0.00	10.0	5.15	**3.50**								599.52
													15	0.013	0.34	3.08	**3.78**	29	595.85	595.75	
300	det. Map	301	see detention calcs									**1.04**								597.68
													12	0.013	0.51	3.25	**2.55**	49	595.35	595.10	
301	det. Map	ex. Cb	see detention calcs									**1.04**								598.54
													12	0.013	0.39	2.84	**2.23**	67	595.10	594.84	
Ex. Cb																				598.09
500	500	501	0.02	0.02	0.70	0.01	0.01	10.0	0.00	10.0	5.15	**0.05**								602.90
													4	0.013	2.95	3.76	**0.33**	22	600.90	600.25	
501	501	YD-406	0.06	0.08	0.70	0.04	0.05	10.0	0.00	10.0	5.15	**0.26**								602.80
		from Kleingers plans																		

DESIGNED: PGM
REVIEWED:RVP
REVISED:
File: 14058 - Local Storm design 4-27-15