

PROJECT:	STENNIS RIVERINE - OFFSITE PONDING		
STORMWATER RUN-OFF CALCULATIONS			
Formulas used:			
[1] RATIONAL METHOD: Q=Aci			
where:	Q=	Peak discharge of watershed in cubic feet per second (cfs) due to maximum storm assumed.	
	A=	Area of watershed in acres.	
	c=	Coefficient of run-off [2].	
	i=	Intensity of rainfall in inches per hour based on concentration time. [3]	
[4] TC= $\frac{(L^{0.8} (\frac{1000}{c} - 9)^{0.7})}{(1140(s^{0.5}))}$			
where:	TC=	Time of concentration= time required for rain falling at most remote point to reach discharge point.	
	c=	Site run-off coefficient based on conditions shown.	
	s=	Percent slope of overland flow.	
OFFSITE WATERSHED SERVICED BY DRAINAGE SWALE - POST DEVELOPMENT			
10 Year Frequency			
Q₁ = Aci			
Watertight Surfaces		0	sqft = 0.000 Acres
	c(1) = 0.9		
Gravel Surface		0	sqft = 0.000 Acres
	c(2) = 0.25		
Green Space		24700	sqft = 0.567 Acres
	c(3) = 0.15		
Summary		24700	sqft = 0.567 Acres
	c = 0.15		
Duration (D) = Time of concentration (TC)			
where	L = 50	run-off length ft	Elev diff = 2
	c = 0.15	run-off coef	
	S = 4.0000	percent slope	
therefore	TC = D = 19.04	minutes	
Expected rainfall intensity	i = 3.15	in/hr	
	Q₁ = 0.268 cfs		
DISCHARGE END AREA REQUIREMENTS			
10 Year Frequency			
Area requirements for pipe servicing the offsite ponding Northeast of property.			
[5] A= $\frac{Q}{(c\sqrt{(2gh)})}$			
where:	A=	Discharge Area required	
	g=	Acceleration of gravity	
	c=	Discharge coefficient	
	h=	Hydraulic head	
	Q=	Flow volume from run-off	
Pipe Servicing Offsite Drainage	Q = 0.268 cfs	H = 3.80 feet	
	c = 0.62 coefficient	A = 0.03 sqft	
	g = 32.16 ft/ft/sec		
REQUIRED CONDUIT =		2.25 inch diameter	