



- NOTES:
- 1) DRAIN PIPE & FITTINGS WITHIN PROPERTY LINE SHALL BE POLYVINYL CHLORIDE PLASTIC PIPE, MEETING CLASS 100 C-900 PVC.
 - 2) ELEVATIONS SHOWN ARE W.S.L. AND DRAINAGE SYSTEM.
 - 3) FLOW DIRECTION TO BE SHOWN ON WORK.
 - 4) DOWN SPOUTS SHALL FLOW INTO SUB-SURFACE DRAINAGE.

- LEGEND
- PROPERTY LINE
 - BUILDING SETBACK MINIMUM
 - TEMPORARY SILT FENCING
 - NEW 6" CURB, SEE DETAIL
 - NEW ELEVATIONS
 - NEW DROP INLET W/TEMP. SILT FENCING
 - DRAINAGE FLOW ARROWS
 - T.O. GRATE ELEVATION
 - INVERT ELEVATION

PROJECT:		Rainforest Carwash	
Formula used:		STORMWATER RUNOFF CALCULATIONS	
[1] RATIONAL METHOD - Q=Ad			
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 runoff [2]			
I= Intensity of rainfall in inches per hour based on concentration time [3]			
[4] TC= $(L^{0.5} (1000 - 9) ^{0.7}) / (11.81 c^{0.5})$			
TC= Time of concentration= time required for rain falling at most remote point to reach outlet.			
c= Site runoff coefficient based on conditions shown.			
s= Percent slope of watershed flow.			
PRIOR DEVELOPMENT			
25 Year Frequency			
Q= Aci	Watersight Surfaces	1779	sqft = 0.027 Acres
	General Surface c(1) = 0.9		
	Green Space c(2) = 0.25	69970	sqft = 1.393 Acres
	Summary c(3) = 0.15	61948	sqft = 1.420 Acres
	c = 0.16		
Duration (D) = Time of concentration (TC)			
where:	L = 245	run-off length ft	Elev diff = 5
	c = 0.16	run-off coef	
	S = 2.0408	percent slope	
	TC = D = 43.49	minutes	
wherefore	Expected rainfall intensity	1 = 7.66	In/hr
POST DEVELOPMENT			
25 Year Frequency			
Q= Aci	Watersight Surfaces	31948	sqft = 0.733 Acres
	General Surface c(1) = 0.9		
	Green Space c(2) = 0.25	29001	sqft = 0.686 Acres
	Summary c(3) = 0.15	61948	sqft = 1.420 Acres
	c = 0.24		
Duration (D) = Time of concentration (TC)			
where:	L = 160	run-off length ft	Elev diff = 3
	c = 0.24	run-off coef	
	S = 2.0000	percent slope	
	TC = D = 13.24	minutes	
wherefore	Expected rainfall intensity	1 = 7.66	In/hr
DETENTION REQUIREMENTS			
Detention required - Q _{2-Q}	4.05 cfs		
ONE HOUR DETENTION	14608.9	cu ft	195
DETENTION DIMENSIONS		DEPTH	0.87
DISCHARGE END AREA REQUIREMENTS			
10 Year Frequency			
where:	$Q = \frac{1.486 A^2 S^{0.484}}{K U^2}$		
where:	A= Discharge Area required		
	g= Acceleration of gravity		
	c= Discharge coefficient		
	h= Hydraulic head		
Q= Flow volume from run-off			
Pipe Sizing Site Drainage	0.179	ft ³	
	c = 0.62	coefficient	
	g = 32.16	ft/sec ²	
REQUIRED CONDUIT = 2.00 inch inside diameter			
References: The Civil Engineering Handbook, 1995, Ed. # 31, pp. 1036			
1. Chen, W. F. The Civil Engineering Handbook, 1995, Ed. # 31, pp. 1802			
2. Chow, V. T. Open Channel Hydraulics, 1959, pp. 158-160			
3. Sewell, Edwin E. Data Book for Civil Engineers, Vol. 1, 1960, pp. B, pp. 18-21			
4. Chen, W. F. The Civil Engineering Handbook, 1995, Vol. 31, 2 Region Equation (4-0103)			
5. Chen, W. F. The Civil Engineering Handbook, 1995, Ed. # 28, 32, pp. 959			

RAINFOREST CARWASH #2

6485 U.S. HWY. 49

HATTIESBURG, MISSISSIPPI

JOB No: 2212 DATE: 08-08-2014

DRAWN BY: CKD CHECKED BY: CKD



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SITE DRAINAGE PLAN

SHEET No: 00 OF 00

C4