EnviroDesign Associates Inc.
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298 Pineapple Grove Way - Delray Beach, FL 33444
Florida Certificate of Authorization #6506

SURFACE WATER MANAGEMENT CALCULATIONS

FOR

FOOD FOR THE POOR COCONUT CREEK, FL

JUNE 25, 2014

EXISTING PERMITTED SITE AREA: 12.20 AC
NEW PARKING TRACT AREA: 0.74 AC
NET SITE AREA: 12.94 AC

Certified by: _____
Joseph A. Pike, P.E.
FL Registration No. 42696
EnviroDesign Associates, Inc.
Certificate of Authorization #6506

JUL 1 2014

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FOOD FOR THE POOR (JOB NO. 14003)

WATER MANAGEMENT SYSTEM SUMMARY AND RESULTS

SURFACE WATER MANAGEMENT ELEMENTS:

4.95 ACRES OF PARKING & WALKS STORING LINEARLY FROM ELEV. 13.95' TO 15.96' NGVD
0.17 ACRES OF DRIVEWAY STORING LINEARLY FROM ELEV. 15.15' TO 18.23' NGVD
1.83 ACRES OF LAKE SURFACE STORING VERTICALLY FROM ELEV. 11' TO 11' NGVD
1.14 ACRES OF LAKE SLOPES STORING LINEARLY FROM ELEV. 11' TO 17.8' NGVD
2.56 ACRES OF GREEN SPACE STORING LINEARLY FROM ELEV. 12.3' TO 18.4' NGVD
0.28 ACRES OF LOADING BAYS STORING LINEARLY FROM ELEV. 11.53' TO 14.44' NGVD
300 LF OF 5' WIDE BY 3' DEEP EXFILTRATION TRENCH STORES FROM ELEV. 9.5' TO 12.5' NGVD

CONTROL STRUCTURE INFORMATION:

C-INLET CONTROL STRUCTURE TO BUBBLE-UP INTO FDOT RIGHT-OF-WAY. TOP OF C-INLET IS SET AT ELEVATION 15.25' TO CONTROL OFF-SITE DISCHARGE. THE SYSTEM HAS NO BLEEDER. DISCHARGE INTO FDOT R.O.W. IS LIMITED TO PRE-DEVELOPMENT DISCHARGE RATES FOR STORM EVENTS UP TO THE 25-YEAR, 3-DAY EVENT.

FLOOD ROUTING RESULTS:

REFER TO ATTACHED SANTA-BARBARA STORM RUNS

STORM EVENT	MAXIMUM STAGE (FT)	MAXIMUM DISCHARGE (CFS)	ZERO DISCHARGE STAGE (FT)	CONTROLS	MINIMUM DESIGN ELEVATIONS (FT)
3-YEAR, 1-DAY	12.92	2.09	N/A	PARKING LOT MIN.	13.00
5-YEAR, 1-DAY	N/A	-0-	N/A		
10-YEAR, 1-DAY	N/A	-0-	N/A		
25-YEAR, 3-DAY	13.17	20.01	N/A	PERIMETER BERM	14.60
100-YEAR, 3-DAY	N/A	-0-	15.47	FINISHED FLOOR ELEV	16.00

COMMENTS:

NOTE: AS A PART OF THE NW BASIN OF COCOMAR, THIS SITE HAS NO CONTROL STRUCTURE AND IS PERMITTED TO DISCHARGE INTO THE ON-SITE LAKE WHICH IS CONTROLLED AT ELEV 11.0' NGVD. PROPOSED WEIRS AS SHOWN IN THE ATTACHED CALCS ARE SIMPLY USED TO EMULATE PEAK DISCHARGE FOR THE DIFFERENT DESIGN STORM EVENTS. COCOMAR DRAINAGE REQUIREMENTS SPECIFY A MINIMUM LAKE SURFACE AREA OF 15% OF THE SITE. HOWEVER, BEING THAT THIS IS TEMPORARY OVERFLOW PARKING, AND PER A PRE-APPLICATION WITH ASHLEY RESPA WITH BROWARD COUNTY , IT WAS AGREED THAT THE ADDITIONAL VOLUME REQUIRED OF THIS PHASE OF DEVELOPMENT COULD BE ACCOMMODATED WITHIN EXFILTRATION TRENCH. (PLEASE SEE ATTACHED CALCULATIONS DATED JUNE 11, 2014.)

- PARKING LOT ELEVATIONS MEET OR EXCEED THE 5-YR, 1-DAY STORM STAGE OF 12.92'
- THE 25-YR, 3-DAY STAGE OF 13.17' IS WELL BELOW THE COCOMAR NW BASIN MAX STAGE OF 14.6' NGVD.
- THE 100-YR, 3-DAY STAGE OF 15.47' IS BELOW THE MAX COCOMAR NW BASIN STAGE OF 15.5' NGVD.

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FOOD FOR THE POOR (JOB NO. 14003)

POST DEVELOPMENT SITE ANALYSIS

LAND USE CATEGORY	IMPERVIOUS AREA	PERVIOUS AREA	TOTAL AREA	%
BUILDINGS	2.01		2.01	15.53
PARKING & WALKS	4.95		4.95	38.25
DRIVEWAY	0.17		0.17	1.31
LAKE SURFACE	1.83		1.83	14.14
LAKE SLOPES	1.14		1.14	8.81
GREEN SPACE		2.56	2.56	19.78
LOADING BAYS	0.28		0.28	2.16
TOTAL ACREAGES:	**10.38**	**2.56**	**12.94**	
PERCENTAGES:	80.22	19.78	100.00	

RAINFALL DATA:

PER D.R.E. 291 - "FREQUENCY ANALYSIS OF ONE AND THREE DAY RAINFALL MAXIMA FOR CENTRAL AND SOUTHERN FLORIDA"

STORM EVENT FREQUENCY (YR)	STORM DURATION (DAYS)	RAINFALL AMOUNT(INCHES)*	CONTROLS	ACTUAL RUNOFF (IN)	
3	1	6.0		4.42	FIG 8
5	1	7.5	ROAD CROWN	5.85	FIG 9
10	1	9.0		7.31	FIG 10
25	3	14.0	PERIMETER BERM	12.23	FIG 14
100	3	17.0	FINISHED FLOOR ELEV	15.20	FIG 15

* RAINFALL DATA FROM SFWMD PUBLICATION D.R.E. 291

DELRAY BEACH MINIMUM RETENTION REQUIREMENT: 5-YEAR, 1-HOUR STORM = 3.2 INCHES

ALLOWABLE DISCHARGE:

S.F.W.M.D. DRAINAGE BASIN:	OTHER BASIN		
ALLOWABLE RUNOFF (CSM):	BASIN=>		RUNOFF:
DESIGN FREQUENCY (YR):	25		
TOTAL SITE AREA (AC):	12.94		
ALLOWABLE DISCHARGE (CFS):			

SOIL STORAGE:

AVERAGE FINISHED GRADE (FT)	17.00	
CONTROL ELEVATION (NGVD)	7.00	
DEPTH TO WATER TABLE (FT)	10.00	
SOIL STORAGE (IN)	8.18	NORMAL SANDY SOILS

WEIGHTED SOIL STORAGE (IN) = COMPACTED STORAGE x PERCENT PERVIOUS = **1.62**

WATER QUALITY CALCULATIONS:

1" OVER ENTIRE SITE METHOD:

1 IN. x TOTAL SITE AREA = (1 x 12.94Ac.) / 12 = 1.08 Acre-Ft

2.5" OVER IMPERVIOUS METHOD:

BUILDING / ROOF AREA (AC): 2.01

WATER QUALITY SITE AREA = 12.94 - 2.01 = 10.93 Ac. (Total Site - water surface + roofs)

WATER QUAL. IMPERVIOUS AREA = 10.93 - 2.56 = 8.37 Ac. (Site Area - Pervious)

WATER QUAL. % IMPERVIOUS = 8.37 / 10.93 = 77% (Impervious / Site Area)

WATER QUAL. VOLUME = 2.5 IN. x 77% = 1.925" x 12.94 / 12 = 2.08 Acre-Ft

(THIS METHOD CONTROLS)

THEREFORE, WATER QUALITY REQUIRED = 2.08 Acre-Ft
WHICH, AS SHOWN ON THE FOLLOWING STAGE-STORAGE TABLE, IS ACHIEVED AT EL. 12' NGVD

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FOOD FOR THE POOR (JOB NO. 14003)

POST-DEVELOPMENT STAGE-STORAGE TABULATION:

STAGE/STORAGE PARAMETERS:
START ELEV. 9.5 END ELEV. 18 INTERVAL 0.5

STORAGE AREA DATA	PARKING & WALKS	DRIVEWAY	LAKE SURFACE	LAKE SLOPES	GREEN SPACE	LOADING BAYS	EXFIL. TRENCH SEE CALCS	
TYPE	LAND	LAND	LAKE	LAND	LAND	LAND	EXFILTRATION	TOTAL STORAGE (AC-FT)
AREA (AC)	4.95	0.17	1.83	1.14	2.56	0.28	300'x5W'x3'D	
LOW ELEV.	13.95	15.15	11.00	11.00	12.30	11.53	9.50	
HIGH ELEV.	15.96	18.23	11.00	17.80	18.40	14.44	12.50	
STAGE	STORAGE (AC-FT)							
9.50								
10.00							0.03	0.03
10.50							0.05	0.05
11.00							0.08	0.08
11.50			0.92	0.02			0.10	1.04
12.00			1.83	0.08		0.01	0.13	2.05
12.50			2.75	0.19	0.01	0.05	0.15	3.14
13.00			3.66	0.34	0.10	0.10	0.15	4.35
13.50			4.58	0.52	0.30	0.19	0.15	5.74
14.00	0.00		5.49	0.75	0.61	0.29	0.15	7.30
14.50	0.37		6.41	1.03	1.02	0.42	0.15	9.39
15.00	1.36		7.32	1.34	1.53	0.56	0.15	12.26
15.50	2.96	0.00	8.24	1.70	2.15	0.70	0.15	15.90
16.00	5.17	0.02	9.15	2.10	2.87	0.84	0.15	20.31
16.50	7.65	0.05	10.07	2.54	3.70	0.98	0.15	25.13
17.00	10.12	0.09	10.98	3.02	4.64	1.12	0.15	30.12
17.50	12.60	0.15	11.90	3.54	5.67	1.26	0.15	35.27
18.00	15.07	0.22	12.81	4.10	6.82	1.40	0.15	40.58

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DRAINAGE CALCULATIONS
FOOD FOR THE POOR
OVERFLOW PARKING EXPANSION

June 11, 2014

REQUIREMENT: COCOMAR DRAINAGE DISTRICT REQUIRES THAT 15% OF THE SITE BE OCCUPIED BY LAKE SURFACE. HOWEVER, PER A MEETING WITH ASHLEY RESPA AT BROWARD COUNTY, IT WAS AGREED THAT THE ADDITIONAL STORAGE VOLUME REQUIRED FOR THIS PHASE OF OVERFLOW PARKING COULD BE ACCOMMODATED VIA EXFILTRATION VOLUME RATHER THAN EXPANDING THE LAKE.

EXISTING SITE AREA:		12.20 AC
NEW PARKING BAY AREA		0.74 AC
NEW LAKE AREA REQ'D (0.74 x 15%)		0.13 AC
TOTAL NEW EFFECTIVESITE AREA:		13.07 AC
TOTAL LAKE AREA REQ'D: (13.07 x 0.15)		1.96 AC
TOTAL EXISTING LAKE AREA:		1.83 AC
ADDITIONAL LAKE AREA REQUIRED:		0.13 AC
REQUIRED LAKE AREA EQUIVALENT VOLUME:		
= 0.13 AC x 4.5 FT (From Stage 11.0 to 15.5')		0.59 AC-FT
EXCESS VOLUME IN EXIST EXFIL TRENCH:		
= (0.88 Ac-Ft Provided - 0.43 Ac-Ft Required)		0.45 AC-FT
NET NEW VOLUME REQ'D IN EXFIL TRENCH:		
= (0.59 Ac-Ft Req'd – 0.45 excess)		0.14 AC-FT
[Round up to 0.15 Ac-Ft x 12 to convert to Ac-In]	=>	**1.80 AC-IN**

➔ **PROVIDE 300 LF 3' X 5' EXFIL TRENCH PER ATTACHED CALCULATIONS**

NOTE THAT AS A PART OF THIS ANALYSIS, WE CONSIDERED WHETHER THE VOLUME STORED IN EXFILTRATION EXCEEDS 3.28" OVER THE ENTIRE SITE – IT DOES NOT. IN FACT, THE TOTAL VOLUME STORED IN EXFILTRATION EVEN AFTER ADDING THE 1.8 AC-INCHES OF ADDITIONAL VOLUME, EQUATES TO LESS THAN 2.5 INCHES OVER THE ENTIRE SITE. THEREFORE, THE DOUBLING EFFECT OF THE NEW SFWMD DO NOT GET TRIGGERED IN THIS CASE.

298 Pineapple Grove Way • Delray Beach, Florida 33444
Phone (561) 274-6500 Fax (561) 274-8558

PROPOSED ADDITIONAL EXFILTRATION REQUIRED

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EXFILTRATION TRENCH CALCULATIONS

FOOD FOR THE POOR - COCONUT CREEK - Job #14003

L =	LENGTH OF TRENCH REQ'D (FT)		
V wq =	WTR QUALITY VOLUME TO BE TREATED (AC-IN)	=	1.80
V add =	ADD'L VOLUME TO BE TREATED (AC-IN)		0.00
W =	TRENCH WIDTH (FT)	=	5
H =	DEPTH TO WATER TABLE (FT)	=	1.5
Du =	NON-SATURATED TRENCH DEPTH (FT)	=	1.5
Ds =	SATURATED TRENCH DEPTH (FT)	=	1.5
FS=	SAFETY FACTOR NOT LESS THAN 2	=	2
%WQ=	PERCENT REDUCTION IN WATER QUALITY		50
K =	HYDRAULIC CONDUCTIVITY (CFS/FT^2-FT HEAD)	=	3.58 X 10^{-4}
OR K =		=	0.00036

STANDARD FORMULA:

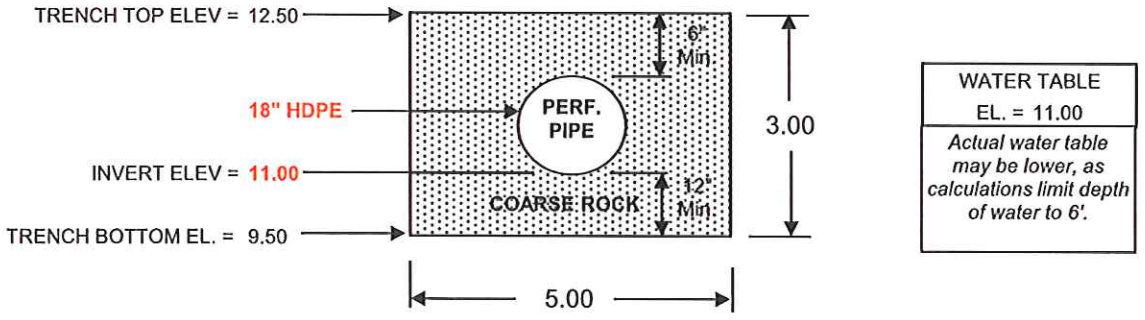
$$L = \frac{FS[(\%WQ)(V\ wq) + V\ add]}{K(HW+2HDu-Du^2 + 2HDs) + (1.39 \times 10^{-4})\ wDu} = 292.97\ \text{FEET}$$

[L wq = 292.97 FT + Ladd= 0.00 FT]

CONSERVATIVE FORMULA: (NOT APPLICABLE - STANDARD FORMULA APPLIES)

$$L = \frac{V}{K(2HDu-Du^2 + 2HDs) + (1.39 \times 10^{-4})\ wDu} = N/A$$

STANDARD TRENCH DETAIL - REFER TO ENGINEERING PLANS FOR ACTUAL SPECIFICATIONS



THEREFORE, MIN. TRENCH LENGTH REQUIRED	=	293 FEET
ACTUAL TRENCH LENGTH PROVIDED	=	300 FEET
ACTUAL TREATMENT VOLUME PROVIDED=1.84 AC-IN OR 0.15 AC-FT		
TRENCH DIMENSIONS: 5.00 FT. WIDE BY 3.00 FT. DEEP		

*PERCENTAGE OF EXFILTRATION VOLUME CREDITED TOWARD STAGE-STORAGE: 100 %

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EXISTING EXFILTRATION SYSTEM AS INSTALLED

EnviroDesign
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EXFILTRATION TRENCH CALCULATIONS

FOOD FOR THE POOR EXISTING - Job #14003

L =	LENGTH OF TRENCH REQ'D (FT)		
V =	VOLUME TO BE TREATED (AC-IN)	=	5.16
W =	TRENCH WIDTH (FT)	=	5
H =	DEPTH TO WATER TABLE (FT)	=	1.5
Du =	NON-SATURATED TRENCH DEPTH (FT)	=	1.5
Ds =	SATURATED TRENCH DEPTH (FT)	=	1
K =	HYDRAULIC CONDUCTIVITY (CFS/FT^2-FT HEAD)	=	3.58 X 10^{-4}
OR K =		=	0.00036

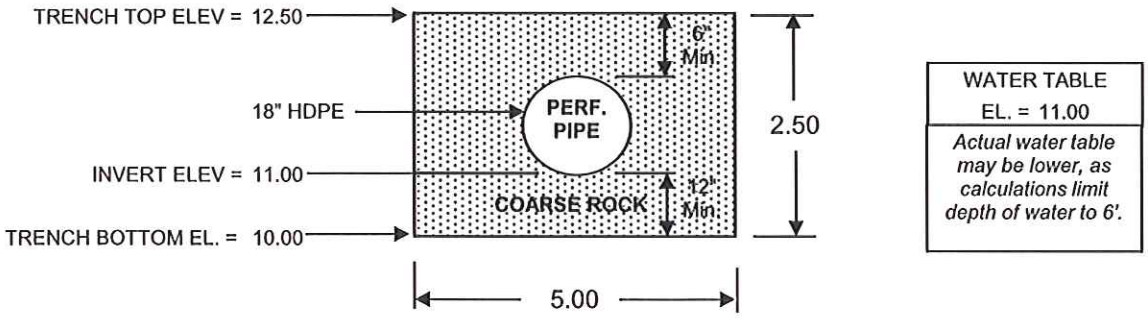
STANDARD FORMULA:

$$L = \frac{V}{K(HW+2HDu-Du^2+2HDs)+(1.39\times10^{-4})wDu} = 920.28 \text{ FEET}$$

CONSERVATIVE FORMULA: **(NOT APPLICABLE - STANDARD FORMULA APPLIES)**

$$L = \frac{V}{K(2HDu-Du^2+2HDs)+(1.39\times10^{-4})wDu} = N/A$$

STANDARD TRENCH DETAIL - REFER TO ENGINEERING PLANS FOR ACTUAL SPECIFICATIONS



THEREFORE, MIN. TRENCH LENGTH REQUIRED	=	**921 FEET**
ACTUAL TRENCH LENGTH PROVIDED	=	**1880 FEET**
ACTUAL TREATMENT VOLUME PROVIDED:		**10.54 AC-IN**
TRENCH DIMENSIONS: 5.00 FT. WIDE BY 2.50 FT. DEEP		

O:\2014\14003-Food for the Poor Parking-Guttuso\[EXFIL-EXISTING.xls]Sheet1

Certified by: _____

Project Name: FFP POST 100YR-3DAY (ZERO)
Reviewer: ENVIRODESIGN ASSOCIATES, INC.
Project Number: 13047
Period Begin: Jun 20, 2014;0000 hr End: Jul 05, 2014;0000 hr Duration: 360 hr
Time Step: 0.2 hr, Iterations: 10

Basin 1: WHOLE SITE

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 3day
Design Frequency: 100 year
3 Day Rainfall: 17 inches
Area: 12.94 acres
Ground Storage: 2.34 inches
Time of Concentration: 0.167 hours
Initial Stage: 11 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
9.50	0.00
10.00	0.03
10.50	0.05
11.00	0.08
11.50	1.04
12.00	2.05
12.50	3.14
13.00	4.35
13.50	5.74
14.00	7.30
15.00	12.26
15.50	15.90
16.00	20.31
16.50	25.13
17.00	30.12
17.50	35.27
18.00	40.58

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	11.00
360.00	11.00

Structure: 1

From Basin: WHOLE SITE
To Basin: Offsite1
Structure Type: Gravity
Weir: None
Bleeder: None
Pipe: None

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	11.00	11.00
10.00	0.76	0.20	0.00	0.00	11.02	11.00
20.00	1.52	0.52	0.00	0.00	11.18	11.00
30.00	2.49	1.03	0.00	0.00	11.52	11.00
40.00	3.60	1.18	0.00	0.00	11.97	11.00
50.00	4.74	1.43	0.00	0.00	12.45	11.00
60.00	12.70	101.07	0.00	0.00	14.46	11.00
70.00	16.70	1.93	0.00	0.00	15.42	11.00
80.00	17.00	0.00	0.00	0.00	15.47	11.00
90.00	17.00	0.00	0.00	0.00	15.47	11.00
100.00	17.00	0.00	0.00	0.00	15.47	11.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
110.00	17.00	0.00	0.00	0.00	15.47	11.00
120.00	17.00	0.00	0.00	0.00	15.47	11.00
130.00	17.00	0.00	0.00	0.00	15.47	11.00
140.00	17.00	0.00	0.00	0.00	15.47	11.00
150.00	17.00	0.00	0.00	0.00	15.47	11.00
160.00	17.00	0.00	0.00	0.00	15.47	11.00
170.00	17.00	0.00	0.00	0.00	15.47	11.00
180.00	17.00	0.00	0.00	0.00	15.47	11.00
190.00	17.00	0.00	0.00	0.00	15.47	11.00
200.00	17.00	0.00	0.00	0.00	15.47	11.00
210.00	17.00	0.00	0.00	0.00	15.47	11.00
220.00	17.00	0.00	0.00	0.00	15.47	11.00
230.00	17.00	0.00	0.00	0.00	15.47	11.00
240.00	17.00	0.00	0.00	0.00	15.47	11.00
250.00	17.00	0.00	0.00	0.00	15.47	11.00
260.00	17.00	0.00	0.00	0.00	15.47	11.00
270.00	17.00	0.00	0.00	0.00	15.47	11.00
280.00	17.00	0.00	0.00	0.00	15.47	11.00
290.00	17.00	0.00	0.00	0.00	15.47	11.00
300.00	17.00	0.00	0.00	0.00	15.47	11.00
310.00	17.00	0.00	0.00	0.00	15.47	11.00
320.00	17.00	0.00	0.00	0.00	15.47	11.00
330.00	17.00	0.00	0.00	0.00	15.47	11.00
340.00	17.00	0.00	0.00	0.00	15.47	11.00
350.00	17.00	0.00	0.00	0.00	15.47	11.00
360.00	17.00	0.00	0.00	0.00	15.47	11.00

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	0.00	0.00	0.00	0.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
WHOLE SITE	15.47	73.80	11.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
WHOLE SITE	15.61	0.00	0.00	0.08	15.69	0.00

Project Name: FFP POST 25YR-3DAY
Reviewer: ENVIRODESIGN ASSOCIATES, INC.
Project Number: 13047
Period Begin: Jun 20, 2014;0000 hr End: Jul 05, 2014;0000 hr Duration: 360 hr
Time Step: 0.2 hr, Iterations: 10

Basin 1: WHOLE SITE

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 3day
Design Frequency: 25 year
3 Day Rainfall: 14 inches
Area: 12.94 acres
Ground Storage: 2.34 inches
Time of Concentration: 0.167 hours
Initial Stage: 11 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
9.50	0.00
10.00	0.03
10.50	0.05
11.00	0.08
11.50	1.04
12.00	2.05
12.50	3.14
13.00	4.35
13.50	5.74
14.00	7.30
15.00	12.26
15.50	15.90
16.00	20.31
16.50	25.13
17.00	30.12
17.50	35.27
18.00	40.58

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	11.00
360.00	11.00

Structure: 1

From Basin: WHOLE SITE
To Basin: Offsite1
Structure Type: Gravity
Weir: Sharp Crested, Crest Elev = 11 ft NGVD, Length = 2 ft
Bleeder: None
Pipe: Diameter = 60 ft, Manning's n = 0.012, Length = 1 ft
US Invert Elev = 10.5 ft NGVD, DS Invert Elev = 10.5 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	11.00	11.00
10.00	0.63	0.09	0.00	0.00	11.00	11.00
20.00	1.25	0.36	0.15	0.05	11.08	11.00
30.00	2.05	0.76	0.53	0.31	11.19	11.00
40.00	2.97	0.91	0.82	0.89	11.26	11.00
50.00	3.90	1.12	0.99	1.63	11.29	11.00
60.00	10.46	82.17	15.28	3.77	12.81	11.00
70.00	13.75	1.58	2.86	11.03	11.59	11.00
80.00	14.00	0.00	0.42	12.12	11.17	11.00
90.00	14.00	0.00	0.11	12.31	11.07	11.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
100.00	14.00	0.00	0.05	12.37	11.04	11.00
110.00	14.00	0.00	0.02	12.39	11.02	11.00
120.00	14.00	0.00	0.01	12.41	11.02	11.00
130.00	14.00	0.00	0.01	12.42	11.01	11.00
140.00	14.00	0.00	0.01	12.42	11.01	11.00
150.00	14.00	0.00	0.00	12.42	11.01	11.00
160.00	14.00	0.00	0.00	12.43	11.01	11.00
170.00	14.00	0.00	0.00	12.43	11.00	11.00
180.00	14.00	0.00	0.00	12.43	11.00	11.00
190.00	14.00	0.00	0.00	12.43	11.00	11.00
200.00	14.00	0.00	0.00	12.43	11.00	11.00
210.00	14.00	0.00	0.00	12.43	11.00	11.00
220.00	14.00	0.00	0.00	12.43	11.00	11.00
230.00	14.00	0.00	0.00	12.43	11.00	11.00
240.00	14.00	0.00	0.00	12.44	11.00	11.00
250.00	14.00	0.00	0.00	12.44	11.00	11.00
260.00	14.00	0.00	0.00	12.44	11.00	11.00
270.00	14.00	0.00	0.00	12.44	11.00	11.00
280.00	14.00	0.00	0.00	12.44	11.00	11.00
290.00	14.00	0.00	0.00	12.44	11.00	11.00
300.00	14.00	0.00	0.00	12.44	11.00	11.00
310.00	14.00	0.00	0.00	12.44	11.00	11.00
320.00	14.00	0.00	0.00	12.44	11.00	11.00
330.00	14.00	0.00	0.00	12.44	11.00	11.00
340.00	14.00	0.00	0.00	12.44	11.00	11.00
350.00	14.00	0.00	0.00	12.44	11.00	11.00
360.00	14.00	0.00	0.00	12.44	11.00	11.00

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	20.01	60.60	0.00	0.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
WHOLE SITE	13.17	60.60	11.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
WHOLE SITE	12.44	0.00	12.44	0.08	0.08	0.00

Project Name: FFP POST 5YR-1DAY
Reviewer: ENVIRODESIGN ASSOCIATES, INC.
Project Number: 13047
Period Begin: Jun 20, 2014;0000 hr End: Jul 05, 2014;0000 hr Duration: 360 hr
Time Step: 0.2 hr, Iterations: 10

Basin 1: WHOLE SITE

Method: Santa Barbara Unit Hydrograph
Rainfall Distribution: SFWMD - 24 hr
Design Frequency: 5 year
1 Day Rainfall: 7.5 inches
Area: 12.94 acres
Ground Storage: 2.34 inches
Time of Concentration: 0.167 hours
Initial Stage: 11 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
9.50	0.00
10.00	0.03
10.50	0.05
11.00	0.08
11.50	1.04
12.00	2.05
12.50	3.14
13.00	4.35
13.50	5.74
14.00	7.30
15.00	12.26
15.50	15.90
16.00	20.31
16.50	25.13
17.00	30.12
17.50	35.27
18.00	40.58

Offsite Receiving Body: Offsite1

Time (hr)	Stage (ft NGVD)
0.00	11.00
360.00	11.00

Structure: 1

From Basin: WHOLE SITE
To Basin: Offsite1
Structure Type: Gravity
Weir: Sharp Crested, Crest Elev = 11 ft NGVD, Length = 0.25 ft
Bleeder: None
Pipe: Diameter = 60 ft, Manning's n = 0.012, Length = 1 ft
US Invert Elev = 10.5 ft NGVD, DS Invert Elev = 10.5 ft NGVD, flap gate

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
0.00	0.00	0.00	0.00	0.00	11.00	11.00
10.00	1.60	2.26	0.06	0.01	11.19	11.00
20.00	7.14	1.64	2.00	1.36	12.87	11.00
30.00	7.50	0.00	1.35	2.77	12.44	11.00
40.00	7.50	0.00	0.83	3.64	12.04	11.00
50.00	7.50	0.00	0.53	4.19	11.77	11.00
60.00	7.50	0.00	0.36	4.55	11.59	11.00
70.00	7.50	0.00	0.25	4.79	11.47	11.00
80.00	7.50	0.00	0.18	4.97	11.38	11.00
90.00	7.50	0.00	0.13	5.10	11.31	11.00

Time (hr)	Cumulative Rainfall (in)	Instant Runoff (cfs)	Current Discharge (cfs)	Cumulative Discharge (acre-ft)	Head Water Stage (ft NGVD)	Tail Water Stage (ft NGVD)
100.00	7.50	0.00	0.10	5.19	11.26	11.00
110.00	7.50	0.00	0.08	5.27	11.22	11.00
120.00	7.50	0.00	0.06	5.33	11.19	11.00
130.00	7.50	0.00	0.05	5.38	11.16	11.00
140.00	7.50	0.00	0.04	5.41	11.14	11.00
150.00	7.50	0.00	0.04	5.45	11.13	11.00
160.00	7.50	0.00	0.03	5.47	11.11	11.00
170.00	7.50	0.00	0.03	5.49	11.10	11.00
180.00	7.50	0.00	0.02	5.51	11.09	11.00
190.00	7.50	0.00	0.02	5.53	11.08	11.00
200.00	7.50	0.00	0.02	5.54	11.07	11.00
210.00	7.50	0.00	0.01	5.56	11.07	11.00
220.00	7.50	0.00	0.01	5.57	11.06	11.00
230.00	7.50	0.00	0.01	5.58	11.06	11.00
240.00	7.50	0.00	0.01	5.59	11.05	11.00
250.00	7.50	0.00	0.01	5.59	11.05	11.00
260.00	7.50	0.00	0.01	5.60	11.05	11.00
270.00	7.50	0.00	0.01	5.61	11.04	11.00
280.00	7.50	0.00	0.01	5.61	11.04	11.00
290.00	7.50	0.00	0.01	5.62	11.04	11.00
300.00	7.50	0.00	0.01	5.62	11.04	11.00
310.00	7.50	0.00	0.00	5.63	11.03	11.00
320.00	7.50	0.00	0.00	5.63	11.03	11.00
330.00	7.50	0.00	0.00	5.63	11.03	11.00
340.00	7.50	0.00	0.00	5.64	11.03	11.00
350.00	7.50	0.00	0.00	5.64	11.03	11.00
360.00	7.50	0.00	0.00	5.64	11.02	11.00

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)
1	2.09	16.20	0.00	0.00

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
WHOLE SITE	12.92	16.20	11.00	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
WHOLE SITE	5.69	0.00	5.64	0.08	0.13	0.00