

# STORMWATER MANAGEMENT REPORT

Brook Run Park  
City of Dunwoody  
DeKalb County, GA  
January 04, 2019

Prepared For:  
City of Dunwoody  
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## I. Introduction

- A. This report evaluates stormwater management plans and water quality best management practices for the proposed project of Brook Run Park located in the City of Dunwoody, DeKalb County, Georgia. This report and its supporting calculations analyze the proposed park expansion in its full design including all current and future phases.
- B. The project to be constructed consists of multi-purpose fields, roadways, restroom/concession buildings, related trails, and required parking areas.
- C. The site is located adjacent to Peeler Road and North Peachtree Road and encompasses approximately 103-acres of which approximately 19.20-acres will be disturbed for the proposed site development.

## II. Existing Site Conditions

- A. This stormwater management report is an update from the stormwater management report published for Brook Run Park Multi-Use Trail – Phase II and dated September 20, 2013 and revised November 11, 2013.
- B. The existing site is a mostly wooded area that is operated by the City of Dunwoody Parks and Recreation Department as Brook Run Park. The site was previously operated as Brook Run Hospital from 1965 until 2007 and contained several buildings and parking lots with the main hospital campus in the southwest corner of the site. This is the proposed location for the multi-purpose fields.
- C. The topographic features of the site identify two study points along the western property line where separate unnamed tributaries of Nancy Creek Tributary A exit the property. The northernmost point is Study Point 1 and the southernmost point is Study Point 2. The drainage area to Study Point 1 is 66.46-acres and the drainage area to Study Point 2 is 91.18-acres. See the Existing Conditions Drainage Area Map in Appendix 1 for the study point locations and drainage areas to the study points.
- D. The peak flows for the existing conditions were calculated at all study points for the 1 through 100-year storm events using HydroCAD software and can be seen in Appendix 3 for supporting calculations.

## III. Proposed Site Conditions

- A. The proposed project the construction of two multi-purpose fields, roadways, restroom/concession buildings, an entrance road, and associated parking areas and trails. Storm water will be routed through proposed pipe networks and through two proposed detention ponds (one open and above ground and another that is underground). In the proposed conditions, the drainage area to the Study Point 1 is 66.46-acres and the drainage area to Study Point 2 is 91.18-acres. See the Proposed Drainage Area Map in Appendix 2 for more information.

B. The peak flows for the proposed conditions were calculated at all study points for the 1 through 100-year storm events using HydroCAD software and can be seen in Appendix 4 for supporting calculations.

C. Best Management Practices (BMP):

- a. The on-site, above ground detention pond will provide water quality treatment for the first 1.2-inches of rainfall for the area draining to the pond. The impervious area to this detention pond is 1.92-acres and the total impervious area related to the new parking lot and related restroom building is 2.88-acres. Therefore, the above ground detention pond will provide almost twice the required amount of water quality volume treatment. An orifice has been sized in the new outlet structure to treat water quality volume, see Appendix 6 for more information. See the Georgia Stormwater Management (GSWMM) Stormwater Quality Site Development Review Tool in Appendix 9 for more information.
- b. The on-site, underground detention pond will provide water quality treatment for the first 1.2-inches of rainfall for the area draining to the pond. The impervious area to this detention pond is 5.4-acres and the total impervious area related to the new multi-purpose fields, parking area, and related restroom building is 9.4-acres. Therefore, the above ground detention pond will provide almost twice the required amount of water quality volume treatment. An orifice has been sized in the new outlet structure to treat water quality volume, see Appendix 6 for more information. See the Georgia Stormwater Management (GSWMM) Stormwater Quality Site Development Review Tool in Appendix 9 for more information.

#### IV. Methods

The SCS curve TR-20 method along with NOAA rainfall data for Dunwoody, GA were used to determine the peak flows for the project area. HydroCAD was used to determine peak flow quantities for the existing and proposed drainage area.

V. Results

The post development peak flow rates from the site will be reduced from the pre-development peak flow rates at each study point, see table below for the peak flow summary.

Study Point	Return Frequency (years)	Existing Conditions (cfs)	Proposed Conditions (cfs)
#1	1	26.16	25.32
	2	37.08	35.53
	5	57.84	54.84
	10	77.68	73.19
	25	108.77	101.73
	50	135.52	126.76
	100	164.06	153.83

Study Point	Return Frequency (years)	Existing Conditions (cfs)	Proposed Conditions (cfs)
#2	1	40.92	35.81
	2	56.97	51.47
	5	86.70	83.05
	10	114.40	110.71
	25	157.47	152.13
	50	194.30	187.17
	100	233.43	224.15

POST-DEVELOPMENT  
PROPOSED DETENTION POND #1 SUMMARY

Return Frequency (years)	Inflow (cfs)	Outflow (cfs)	Ponding Elevation	Storage (ft <sup>3</sup> )
1	10.53	.96	982.06	8,178
2	12.16	1.11	982.48	10,132
5	14.88	1.27	983.13	12,086
10	17.24	1.37	983.66	14,522
25	20.64	1.50	984.36	19,920
50	23.40	2.02	984.83	19,970
100	26.23	5.06	985.06	22,891

- A. Rainfall values used are the annual maximum time series provided by the NOAA Atlas 14 Point Precipitation Frequency Estimates, see table below.

Return Frequency (years)	Precipitation Value for 24-hr Event (inches)
1	3.28
2	3.69
5	4.38
10	4.98
25	5.85
50	6.56
100	7.29

- B. The pre-development and post-development curve numbers for each drainage area were calculated using the SCS method, see table below.

Drainage Area (PRE/POST)	Area (acres)	Curve Number	Time of Concentration (min)
2P3/17S	54.37/51.98	70/69	30.2
2P2/16S	5.27/5.27	82/82	10
2DA/11S	1.53/1.33	62/57	11.3
3S/2P1	30.01/24.45	62/58	38.6
1P1/2S	66.46/59.6	66/66	38.8
10S	2.4	91	3.1
28S	.4	70	15.1
27S	1.85	78	16.2
40S	3.26	88	5
39S	2.45	94	5
E1	1.37	85	7.1
E2	1.07	84	4.4

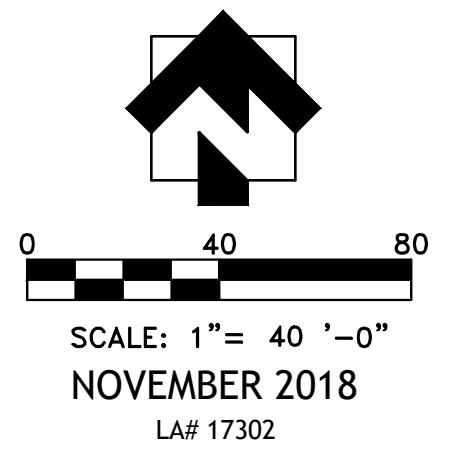
## VI. Conclusions & Recommendations

The post development peak flows have not increased compared to the pre-development peak flows, therefore, no negative impact downstream of the site is anticipated.



**EXISTING CONDITIONS DRAINAGE AREA MAP**

C:\17302\17302\_Brook Run Watershed Map.dwg, 04/20/18, CA 17302, Hydrographer - Revised 04/20/18, 03:31:37 AM



# BROOK RUN PARK

## EXISTING WATERSHED MAP

NOT FOR  
CONSTRUCTION

## **PROPOSED CONDITIONS DRAINAGE AREA MAP**

BROOK RUN PARK  
PROPERTY LINE

STUDY POINT 1

STUDY POINT 2

DRAINAGE BASIN

PROPOSED DA TO POND  
DA= 2.40 AC  
tc= 3.1 min  
c= 91

PROPOSED DA TO C-3  
DA= 0.4 AC  
tc= 15.1 min  
c= 70

PROPOSED DA TO D-18  
DA= 1.85 AC  
tc= 16.2  
c= 78

PROPOSED DA TO G LINE  
DA= 3.25 AC  
tc= 5 min  
c= 88

PROPOSED DA TO F LINE  
DA= 2.45 AC  
tc= 5 min  
c= 94

PROPOSED DA TO EAST E LINE  
DA= 1.07 AC  
tc= 4.4 min  
c= 84

PROPOSED DA TO WEST E LINE  
DA= 1.37 AC  
tc= 7.1 min  
c= 85

EX DA TO OUTFALL  
DA= 7.34 AC  
tc= 12.2  
c= 81

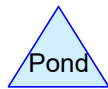
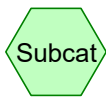
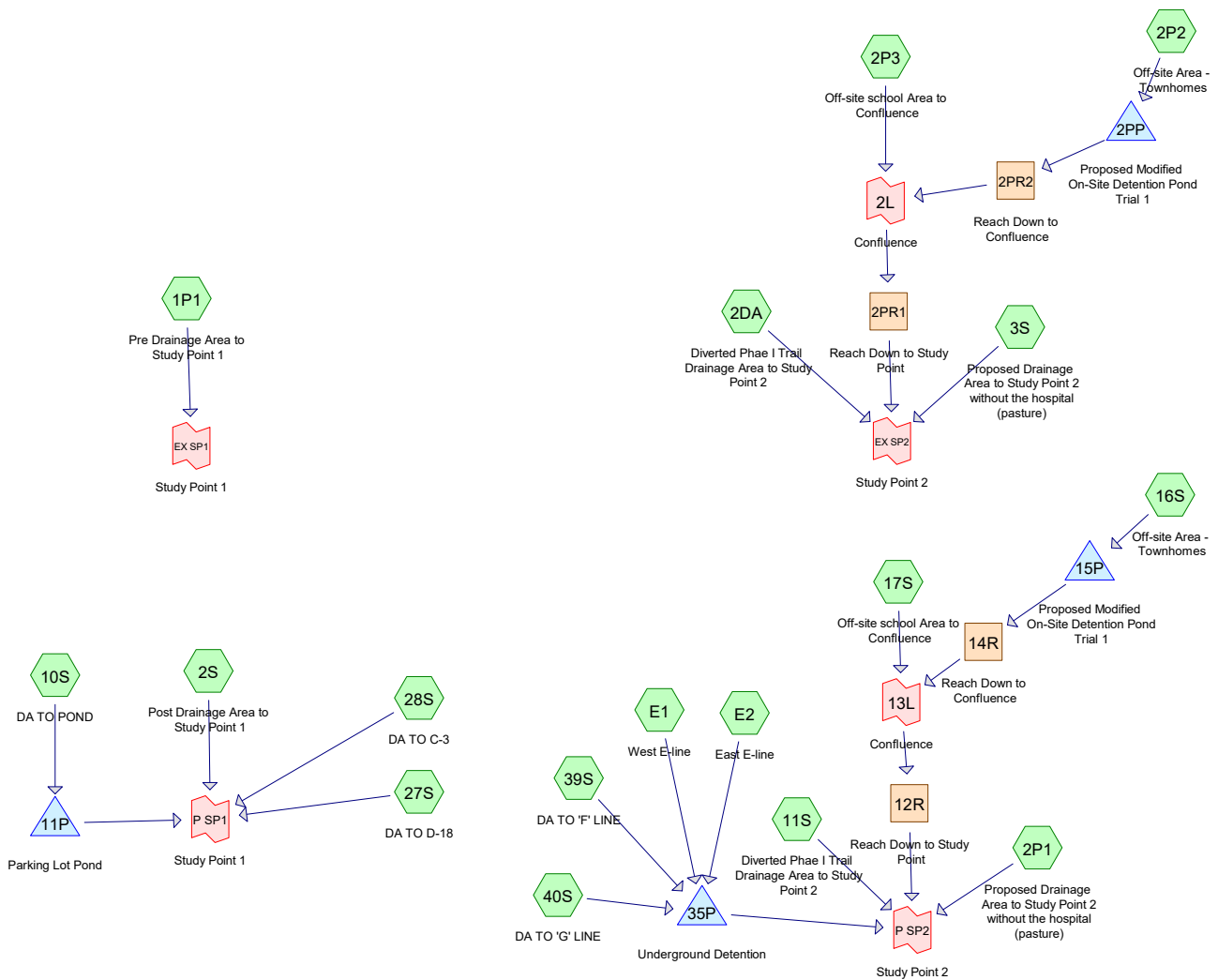
DRAINAGE BASIN

SCALE: 1"= 40'-0"  
NOVEMBER 2018  
LA# 17302

# BROOK RUN PARK

## PROPOSED WATERSHED MAP

## **HYDROCAD STUDY POINTS ANALYSIS AND OUTPUT**



**Routing Diagram for STUDY POINTS.PONDS**  
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**STUDY POINTS.PONDS**

Type II 24-hr 1 yr Rainfall=3.28"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Link 2L: Confluence**

Inflow=36.34 cfs 3.773 af  
Primary=36.34 cfs 3.773 af

**Link 13L: Confluence**

Inflow=32.14 cfs 3.417 af  
Primary=32.14 cfs 3.417 af

**Link EX SP1: Study Point 1**

Inflow=26.16 cfs 3.276 af  
Primary=26.16 cfs 3.276 af

**Link EX SP2: Study Point 2**

Inflow=40.92 cfs 4.861 af  
Primary=40.92 cfs 4.861 af

**Link P SP1: Study Point 1**

Inflow=25.32 cfs 3.575 af  
Primary=25.32 cfs 3.575 af

**Link P SP2: Study Point 2**

Inflow=36.69 cfs 5.360 af  
Primary=36.69 cfs 5.360 af

## STUDY POINTS.PONDS

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Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 0.76" for 1 yr event  
Inflow = 36.34 cfs @ 12.28 hrs, Volume= 3.773 af  
Primary = 36.34 cfs @ 12.28 hrs, Volume= 3.773 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



## STUDY POINTS.PONDS

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Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 0.72" for 1 yr event  
Inflow = 32.14 cfs @ 12.28 hrs, Volume= 3.417 af  
Primary = 32.14 cfs @ 12.28 hrs, Volume= 3.417 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 0.59" for 1 yr event  
Inflow = 26.16 cfs @ 12.42 hrs, Volume= 3.276 af  
Primary = 26.16 cfs @ 12.42 hrs, Volume= 3.276 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.64" for 1 yr event  
Inflow = 40.92 cfs @ 12.49 hrs, Volume= 4.861 af  
Primary = 40.92 cfs @ 12.49 hrs, Volume= 4.861 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

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Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 0.67" for 1 yr event  
Inflow = 25.32 cfs @ 12.41 hrs, Volume= 3.575 af  
Primary = 25.32 cfs @ 12.41 hrs, Volume= 3.575 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.71" for 1 yr event  
Inflow = 36.69 cfs @ 12.48 hrs, Volume= 5.360 af  
Primary = 36.69 cfs @ 12.48 hrs, Volume= 5.360 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**STUDY POINTS.PONDS**

Type II 24-hr 2 yr Rainfall=3.69"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Link 2L: Confluence**

Inflow=48.86 cfs 4.875 af  
Primary=48.86 cfs 4.875 af

**Link 13L: Confluence**

Inflow=43.74 cfs 4.442 af  
Primary=43.74 cfs 4.442 af

**Link EX SP1: Study Point 1**

Inflow=37.08 cfs 4.383 af  
Primary=37.08 cfs 4.383 af

**Link EX SP2: Study Point 2**

Inflow=56.97 cfs 6.403 af  
Primary=56.97 cfs 6.403 af

**Link P SP1: Study Point 1**

Inflow=35.53 cfs 4.691 af  
Primary=35.53 cfs 4.691 af

**Link P SP2: Study Point 2**

Inflow=52.31 cfs 6.917 af  
Primary=52.31 cfs 6.917 af

## STUDY POINTS.PONDS

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Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 0.98" for 2 yr event  
Inflow = 48.86 cfs @ 12.27 hrs, Volume= 4.875 af  
Primary = 48.86 cfs @ 12.27 hrs, Volume= 4.875 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

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Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 0.93" for 2 yr event  
Inflow = 43.74 cfs @ 12.27 hrs, Volume= 4.442 af  
Primary = 43.74 cfs @ 12.27 hrs, Volume= 4.442 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



## STUDY POINTS.PONDS

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Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 0.79" for 2 yr event  
Inflow = 37.08 cfs @ 12.40 hrs, Volume= 4.383 af  
Primary = 37.08 cfs @ 12.40 hrs, Volume= 4.383 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.84" for 2 yr event  
Inflow = 56.97 cfs @ 12.46 hrs, Volume= 6.403 af  
Primary = 56.97 cfs @ 12.46 hrs, Volume= 6.403 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 0.88" for 2 yr event  
Inflow = 35.53 cfs @ 12.39 hrs, Volume= 4.691 af  
Primary = 35.53 cfs @ 12.39 hrs, Volume= 4.691 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 0.91" for 2 yr event  
Inflow = 52.31 cfs @ 12.45 hrs, Volume= 6.917 af  
Primary = 52.31 cfs @ 12.45 hrs, Volume= 6.917 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**STUDY POINTS.PONDS**

Type II 24-hr 5 yr Rainfall=4.38"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Link 2L: Confluence**

Inflow=71.51 cfs 6.875 af  
Primary=71.51 cfs 6.875 af

**Link 13L: Confluence**

Inflow=64.86 cfs 6.307 af  
Primary=64.86 cfs 6.307 af

**Link EX SP1: Study Point 1**

Inflow=57.84 cfs 6.465 af  
Primary=57.84 cfs 6.465 af

**Link EX SP2: Study Point 2**

Inflow=86.70 cfs 9.254 af  
Primary=86.70 cfs 9.254 af

**Link P SP1: Study Point 1**

Inflow=54.84 cfs 6.772 af  
Primary=54.84 cfs 6.772 af

**Link P SP2: Study Point 2**

Inflow=82.52 cfs 9.779 af  
Primary=82.52 cfs 9.779 af

## STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 1.38" for 5 yr event  
Inflow = 71.51 cfs @ 12.26 hrs, Volume= 6.875 af  
Primary = 71.51 cfs @ 12.26 hrs, Volume= 6.875 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 1.32" for 5 yr event  
Inflow = 64.86 cfs @ 12.27 hrs, Volume= 6.307 af  
Primary = 64.86 cfs @ 12.27 hrs, Volume= 6.307 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 1.17" for 5 yr event  
Inflow = 57.84 cfs @ 12.38 hrs, Volume= 6.465 af  
Primary = 57.84 cfs @ 12.38 hrs, Volume= 6.465 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



## STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.22" for 5 yr event  
Inflow = 86.70 cfs @ 12.44 hrs, Volume= 9.254 af  
Primary = 86.70 cfs @ 12.44 hrs, Volume= 9.254 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 1.26" for 5 yr event  
Inflow = 54.84 cfs @ 12.37 hrs, Volume= 6.772 af  
Primary = 54.84 cfs @ 12.37 hrs, Volume= 6.772 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.29" for 5 yr event  
Inflow = 82.52 cfs @ 12.42 hrs, Volume= 9.779 af  
Primary = 82.52 cfs @ 12.42 hrs, Volume= 9.779 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**STUDY POINTS.PONDS**

Type II 24-hr 10 yr Rainfall=4.98"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Link 2L: Confluence**

Inflow=92.59 cfs 8.736 af  
Primary=92.59 cfs 8.736 af

**Link 13L: Confluence**

Inflow=84.61 cfs 8.050 af  
Primary=84.61 cfs 8.050 af

**Link EX SP1: Study Point 1**

Inflow=77.68 cfs 8.459 af  
Primary=77.68 cfs 8.459 af

**Link EX SP2: Study Point 2**

Inflow=114.40 cfs 11.950 af  
Primary=114.40 cfs 11.950 af

**Link P SP1: Study Point 1**

Inflow=73.19 cfs 8.742 af  
Primary=73.19 cfs 8.742 af

**Link P SP2: Study Point 2**

Inflow=109.60 cfs 12.474 af  
Primary=109.60 cfs 12.474 af

## STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 1.76" for 10 yr event  
Inflow = 92.59 cfs @ 12.26 hrs, Volume= 8.736 af  
Primary = 92.59 cfs @ 12.26 hrs, Volume= 8.736 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 1.69" for 10 yr event  
Inflow = 84.61 cfs @ 12.26 hrs, Volume= 8.050 af  
Primary = 84.61 cfs @ 12.26 hrs, Volume= 8.050 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 1.53" for 10 yr event  
Inflow = 77.68 cfs @ 12.38 hrs, Volume= 8.459 af  
Primary = 77.68 cfs @ 12.38 hrs, Volume= 8.459 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.57" for 10 yr event  
Inflow = 114.40 cfs @ 12.43 hrs, Volume= 11.950 af  
Primary = 114.40 cfs @ 12.43 hrs, Volume= 11.950 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



## STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 1.63" for 10 yr event  
Inflow = 73.19 cfs @ 12.37 hrs, Volume= 8.742 af  
Primary = 73.19 cfs @ 12.37 hrs, Volume= 8.742 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 1.64" for 10 yr event  
Inflow = 109.60 cfs @ 12.42 hrs, Volume= 12.474 af  
Primary = 109.60 cfs @ 12.42 hrs, Volume= 12.474 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**STUDY POINTS.PONDS**

Type II 24-hr 25 yr Rainfall=5.85"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Link 2L: Confluence</b>	Inflow=124.83 cfs 11.595 af
	Primary=124.83 cfs 11.595 af
<b>Link 13L: Confluence</b>	Inflow=114.94 cfs 10.735 af
	Primary=114.94 cfs 10.735 af
<b>Link EX SP1: Study Point 1</b>	Inflow=108.77 cfs 11.589 af
	Primary=108.77 cfs 11.589 af
<b>Link EX SP2: Study Point 2</b>	Inflow=157.47 cfs 16.143 af
	Primary=157.47 cfs 16.143 af
<b>Link P SP1: Study Point 1</b>	Inflow=101.73 cfs 11.804 af
	Primary=101.73 cfs 11.804 af
<b>Link P SP2: Study Point 2</b>	Inflow=152.32 cfs 16.654 af
	Primary=152.32 cfs 16.654 af

## STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 2.33" for 25 yr event  
Inflow = 124.83 cfs @ 12.26 hrs, Volume= 11.595 af  
Primary = 124.83 cfs @ 12.26 hrs, Volume= 11.595 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 2.25" for 25 yr event  
Inflow = 114.94 cfs @ 12.26 hrs, Volume= 10.735 af  
Primary = 114.94 cfs @ 12.26 hrs, Volume= 10.735 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 2.09" for 25 yr event  
Inflow = 108.77 cfs @ 12.37 hrs, Volume= 11.589 af  
Primary = 108.77 cfs @ 12.37 hrs, Volume= 11.589 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.12" for 25 yr event  
Inflow = 157.47 cfs @ 12.42 hrs, Volume= 16.143 af  
Primary = 157.47 cfs @ 12.42 hrs, Volume= 16.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 2.20" for 25 yr event  
Inflow = 101.73 cfs @ 12.36 hrs, Volume= 11.804 af  
Primary = 101.73 cfs @ 12.36 hrs, Volume= 11.804 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



## STUDY POINTS.PONDS

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.19" for 25 yr event  
Inflow = 152.32 cfs @ 12.41 hrs, Volume= 16.654 af  
Primary = 152.32 cfs @ 12.41 hrs, Volume= 16.654 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**STUDY POINTS.PONDS**

Type II 24-hr 50 yr Rainfall=6.56"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Link 2L: Confluence</b>	Inflow=152.22 cfs 14.064 af
	Primary=152.22 cfs 14.064 af
<b>Link 13L: Confluence</b>	Inflow=140.79 cfs 13.060 af
	Primary=140.79 cfs 13.060 af
<b>Link EX SP1: Study Point 1</b>	Inflow=135.52 cfs 14.311 af
	Primary=135.52 cfs 14.311 af
<b>Link EX SP2: Study Point 2</b>	Inflow=194.30 cfs 19.790 af
	Primary=194.30 cfs 19.790 af
<b>Link P SP1: Study Point 1</b>	Inflow=126.76 cfs 14.453 af
	Primary=126.76 cfs 14.453 af
<b>Link P SP2: Study Point 2</b>	Inflow=187.36 cfs 20.283 af
	Primary=187.36 cfs 20.283 af

## STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 2.83" for 50 yr event  
Inflow = 152.22 cfs @ 12.25 hrs, Volume= 14.064 af  
Primary = 152.22 cfs @ 12.25 hrs, Volume= 14.064 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 2.74" for 50 yr event  
Inflow = 140.79 cfs @ 12.25 hrs, Volume= 13.060 af  
Primary = 140.79 cfs @ 12.25 hrs, Volume= 13.060 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 2.58" for 50 yr event  
Inflow = 135.52 cfs @ 12.36 hrs, Volume= 14.311 af  
Primary = 135.52 cfs @ 12.36 hrs, Volume= 14.311 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.60" for 50 yr event  
Inflow = 194.30 cfs @ 12.41 hrs, Volume= 19.790 af  
Primary = 194.30 cfs @ 12.41 hrs, Volume= 19.790 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 2.70" for 50 yr event  
Inflow = 126.76 cfs @ 12.36 hrs, Volume= 14.453 af  
Primary = 126.76 cfs @ 12.36 hrs, Volume= 14.453 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link P SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 2.67" for 50 yr event  
Inflow = 187.36 cfs @ 12.41 hrs, Volume= 20.283 af  
Primary = 187.36 cfs @ 12.41 hrs, Volume= 20.283 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



**STUDY POINTS.PONDS**

Type II 24-hr 100 yr Rainfall=7.29"

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

<b>Link 2L: Confluence</b>	Inflow=181.15 cfs 16.876 af
	Primary=181.15 cfs 16.876 af
<b>Link 13L: Confluence</b>	Inflow=168.15 cfs 15.725 af
	Primary=168.15 cfs 15.725 af
<b>Link EX SP1: Study Point 1</b>	Inflow=164.06 cfs 17.235 af
	Primary=164.06 cfs 17.235 af
<b>Link EX SP2: Study Point 2</b>	Inflow=233.43 cfs 23.883 af
	Primary=233.43 cfs 23.883 af
<b>Link P SP1: Study Point 1</b>	Inflow=153.83 cfs 17.307 af
	Primary=153.83 cfs 17.307 af
<b>Link P SP2: Study Point 2</b>	Inflow=224.30 cfs 24.351 af
	Primary=224.30 cfs 24.351 af

## STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link 2L: Confluence

Inflow Area = 59.640 ac, 18.76% Impervious, Inflow Depth > 3.40" for 100 yr event  
Inflow = 181.15 cfs @ 12.25 hrs, Volume= 16.876 af  
Primary = 181.15 cfs @ 12.25 hrs, Volume= 16.876 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link 13L: Confluence

Inflow Area = 57.250 ac, 15.37% Impervious, Inflow Depth > 3.30" for 100 yr event  
Inflow = 168.15 cfs @ 12.25 hrs, Volume= 15.725 af  
Primary = 168.15 cfs @ 12.25 hrs, Volume= 15.725 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link EX SP1: Study Point 1

Inflow Area = 66.460 ac, 23.04% Impervious, Inflow Depth > 3.11" for 100 yr event  
Inflow = 164.06 cfs @ 12.36 hrs, Volume= 17.235 af  
Primary = 164.06 cfs @ 12.36 hrs, Volume= 17.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link EX SP2: Study Point 2

Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 3.14" for 100 yr event  
Inflow = 233.43 cfs @ 12.41 hrs, Volume= 23.883 af  
Primary = 233.43 cfs @ 12.41 hrs, Volume= 23.883 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link P SP1: Study Point 1

Inflow Area = 64.250 ac, 24.74% Impervious, Inflow Depth > 3.23" for 100 yr event  
Inflow = 153.83 cfs @ 12.35 hrs, Volume= 17.307 af  
Primary = 153.83 cfs @ 12.35 hrs, Volume= 17.307 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

## STUDY POINTS.PONDS

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link P SP2: Study Point 2

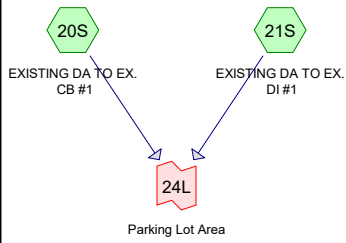
Inflow Area = 91.180 ac, 16.22% Impervious, Inflow Depth > 3.20" for 100 yr event  
Inflow = 224.30 cfs @ 12.41 hrs, Volume= 24.351 af  
Primary = 224.30 cfs @ 12.41 hrs, Volume= 24.351 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

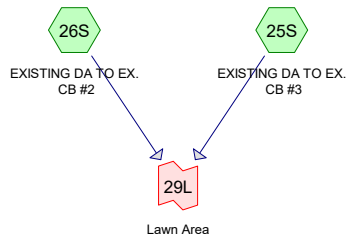
**HYDROCAD ANALYSIS AND OUTPUT FOR DISTURBED  
AREAS**



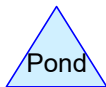
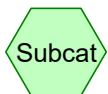
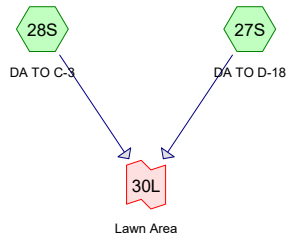
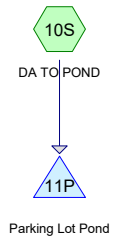
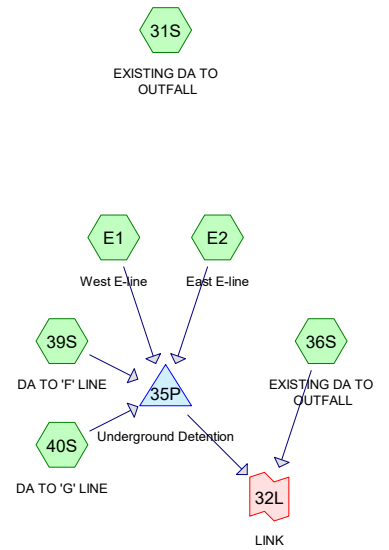
**PARKING LOT AREA**



**LAWN AREA**



**MULTI-PURPOSE FIELD AREA**



**Routing Diagram for 17302\_Hydrology\_Combined\_Detention**  
 Prepared by {enter your company name here}, Printed 11/28/2018  
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**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 1 yr Rainfall=3.28"

Prepared by {enter your company name here}

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=1.02 cfs 0.066 af  
Primary=1.02 cfs 0.066 af

**Link 29L: Lawn Area**

Inflow=3.68 cfs 0.210 af  
Primary=3.68 cfs 0.210 af

**Link 30L: Lawn Area**

Inflow=3.45 cfs 0.235 af  
Primary=3.45 cfs 0.235 af

**Link 32L: LINK**

Inflow=33.75 cfs 2.386 af  
Primary=33.75 cfs 2.386 af

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 0.83" for 1 yr event  
Inflow = 1.02 cfs @ 12.06 hrs, Volume= 0.066 af  
Primary = 1.02 cfs @ 12.06 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 1.21" for 1 yr event  
Inflow = 3.68 cfs @ 12.01 hrs, Volume= 0.210 af  
Primary = 3.68 cfs @ 12.01 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 1.25" for 1 yr event  
Inflow = 3.45 cfs @ 12.09 hrs, Volume= 0.235 af  
Primary = 3.45 cfs @ 12.09 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 1 yr Rainfall=3.28"

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### Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 1.85" for 1 yr event  
Inflow = 33.75 cfs @ 12.04 hrs, Volume= 2.386 af  
Primary = 33.75 cfs @ 12.04 hrs, Volume= 2.386 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 2 yr Rainfall=3.69"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=1.37 cfs 0.086 af  
Primary=1.37 cfs 0.086 af

**Link 29L: Lawn Area**

Inflow=4.62 cfs 0.262 af  
Primary=4.62 cfs 0.262 af

**Link 30L: Lawn Area**

Inflow=4.32 cfs 0.291 af  
Primary=4.32 cfs 0.291 af

**Link 32L: LINK**

Inflow=38.75 cfs 2.841 af  
Primary=38.75 cfs 2.841 af

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.07" for 2 yr event  
Inflow = 1.37 cfs @ 12.05 hrs, Volume= 0.086 af  
Primary = 1.37 cfs @ 12.05 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 1.51" for 2 yr event  
Inflow = 4.62 cfs @ 12.01 hrs, Volume= 0.262 af  
Primary = 4.62 cfs @ 12.01 hrs, Volume= 0.262 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 2 yr Rainfall=3.69"

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### Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 1.55" for 2 yr event  
Inflow = 4.32 cfs @ 12.09 hrs, Volume= 0.291 af  
Primary = 4.32 cfs @ 12.09 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 2 yr Rainfall=3.69"

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**Summary for Link 32L: LINK**

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 2.20" for 2 yr event  
Inflow = 38.75 cfs @ 12.04 hrs, Volume= 2.841 af  
Primary = 38.75 cfs @ 12.04 hrs, Volume= 2.841 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 5 yr Rainfall=4.38"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=2.00 cfs 0.122 af  
Primary=2.00 cfs 0.122 af

**Link 29L: Lawn Area**

Inflow=6.27 cfs 0.354 af  
Primary=6.27 cfs 0.354 af

**Link 30L: Lawn Area**

Inflow=5.87 cfs 0.391 af  
Primary=5.87 cfs 0.391 af

**Link 32L: LINK**

Inflow=47.12 cfs 3.630 af  
Primary=47.12 cfs 3.630 af

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 5 yr Rainfall=4.38"

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**Summary for Link 24L: Parking Lot Area**

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.52" for 5 yr event  
Inflow = 2.00 cfs @ 12.05 hrs, Volume= 0.122 af  
Primary = 2.00 cfs @ 12.05 hrs, Volume= 0.122 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 2.04" for 5 yr event  
Inflow = 6.27 cfs @ 12.01 hrs, Volume= 0.354 af  
Primary = 6.27 cfs @ 12.01 hrs, Volume= 0.354 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 2.09" for 5 yr event  
Inflow = 5.87 cfs @ 12.08 hrs, Volume= 0.391 af  
Primary = 5.87 cfs @ 12.08 hrs, Volume= 0.391 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 5 yr Rainfall=4.38"

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### Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 2.81" for 5 yr event  
Inflow = 47.12 cfs @ 12.04 hrs, Volume= 3.630 af  
Primary = 47.12 cfs @ 12.04 hrs, Volume= 3.630 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 10 yr Rainfall=4.98"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=2.59 cfs 0.155 af  
Primary=2.59 cfs 0.155 af

**Link 29L: Lawn Area**

Inflow=7.76 cfs 0.438 af  
Primary=7.76 cfs 0.438 af

**Link 30L: Lawn Area**

Inflow=7.26 cfs 0.483 af  
Primary=7.26 cfs 0.483 af

**Link 32L: LINK**

Inflow=54.38 cfs 4.333 af  
Primary=54.38 cfs 4.333 af

**17302\_Hydrology\_Combined\_Detention**

*Type II 24-hr 10 yr Rainfall=4.98"*

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**Summary for Link 24L: Parking Lot Area**

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.94" for 10 yr event  
Inflow = 2.59 cfs @ 12.05 hrs, Volume= 0.155 af  
Primary = 2.59 cfs @ 12.05 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 10 yr Rainfall=4.98"

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**Summary for Link 29L: Lawn Area**

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 2.52" for 10 yr event  
Inflow = 7.76 cfs @ 12.01 hrs, Volume= 0.438 af  
Primary = 7.76 cfs @ 12.01 hrs, Volume= 0.438 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link 30L: Lawn Area

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 2.58" for 10 yr event  
Inflow = 7.26 cfs @ 12.08 hrs, Volume= 0.483 af  
Primary = 7.26 cfs @ 12.08 hrs, Volume= 0.483 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 10 yr Rainfall=4.98"

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### Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 3.36" for 10 yr event  
Inflow = 54.38 cfs @ 12.04 hrs, Volume= 4.333 af  
Primary = 54.38 cfs @ 12.04 hrs, Volume= 4.333 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 25 yr Rainfall=5.85"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=3.49 cfs 0.208 af  
Primary=3.49 cfs 0.208 af

**Link 29L: Lawn Area**

Inflow=9.98 cfs 0.564 af  
Primary=9.98 cfs 0.564 af

**Link 30L: Lawn Area**

Inflow=9.33 cfs 0.621 af  
Primary=9.33 cfs 0.621 af

**Link 32L: LINK**

Inflow=64.90 cfs 5.371 af  
Primary=64.90 cfs 5.371 af

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 2.60" for 25 yr event  
Inflow = 3.49 cfs @ 12.04 hrs, Volume= 0.208 af  
Primary = 3.49 cfs @ 12.04 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 3.26" for 25 yr event  
Inflow = 9.98 cfs @ 12.01 hrs, Volume= 0.564 af  
Primary = 9.98 cfs @ 12.01 hrs, Volume= 0.564 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs



**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 25 yr Rainfall=5.85"

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**Summary for Link 30L: Lawn Area**

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 3.31" for 25 yr event  
Inflow = 9.33 cfs @ 12.08 hrs, Volume= 0.621 af  
Primary = 9.33 cfs @ 12.08 hrs, Volume= 0.621 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 25 yr Rainfall=5.85"

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### Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 4.16" for 25 yr event  
Inflow = 64.90 cfs @ 12.04 hrs, Volume= 5.371 af  
Primary = 64.90 cfs @ 12.04 hrs, Volume= 5.371 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 50 yr Rainfall=6.56"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=4.26 cfs 0.253 af  
Primary=4.26 cfs 0.253 af

**Link 29L: Lawn Area**

Inflow=11.82 cfs 0.671 af  
Primary=11.82 cfs 0.671 af

**Link 30L: Lawn Area**

Inflow=11.06 cfs 0.737 af  
Primary=11.06 cfs 0.737 af

**Link 32L: LINK**

Inflow=73.55 cfs 6.231 af  
Primary=73.55 cfs 6.231 af

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 3.16" for 50 yr event  
Inflow = 4.26 cfs @ 12.04 hrs, Volume= 0.253 af  
Primary = 4.26 cfs @ 12.04 hrs, Volume= 0.253 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link 29L: Lawn Area

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 3.87" for 50 yr event  
Inflow = 11.82 cfs @ 12.00 hrs, Volume= 0.671 af  
Primary = 11.82 cfs @ 12.00 hrs, Volume= 0.671 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**Summary for Link 30L: Lawn Area**

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 3.93" for 50 yr event  
Inflow = 11.06 cfs @ 12.08 hrs, Volume= 0.737 af  
Primary = 11.06 cfs @ 12.08 hrs, Volume= 0.737 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 50 yr Rainfall=6.56"

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### Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 4.83" for 50 yr event  
Inflow = 73.55 cfs @ 12.04 hrs, Volume= 6.231 af  
Primary = 73.55 cfs @ 12.04 hrs, Volume= 6.231 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 100 yr Rainfall=7.29"

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Time span=0.00-72.00 hrs, dt=0.01 hrs, 7201 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind method - Pond routing by Stor-Ind method

**Link 24L: Parking Lot Area**

Inflow=5.06 cfs 0.300 af  
Primary=5.06 cfs 0.300 af

**Link 29L: Lawn Area**

Inflow=13.74 cfs 0.784 af  
Primary=13.74 cfs 0.784 af

**Link 30L: Lawn Area**

Inflow=12.85 cfs 0.859 af  
Primary=12.85 cfs 0.859 af

**Link 32L: LINK**

Inflow=82.87 cfs 7.123 af  
Primary=82.87 cfs 7.123 af



## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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### Summary for Link 24L: Parking Lot Area

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 3.75" for 100 yr event  
Inflow = 5.06 cfs @ 12.04 hrs, Volume= 0.300 af  
Primary = 5.06 cfs @ 12.04 hrs, Volume= 0.300 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 100 yr Rainfall=7.29"

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**Summary for Link 29L: Lawn Area**

Inflow Area = 2.080 ac, 25.48% Impervious, Inflow Depth = 4.52" for 100 yr event  
Inflow = 13.74 cfs @ 12.00 hrs, Volume= 0.784 af  
Primary = 13.74 cfs @ 12.00 hrs, Volume= 0.784 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**17302\_Hydrology\_Combined\_Detention**

Type II 24-hr 100 yr Rainfall=7.29"

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**Summary for Link 30L: Lawn Area**

Inflow Area = 2.250 ac, 42.67% Impervious, Inflow Depth = 4.58" for 100 yr event  
Inflow = 12.85 cfs @ 12.08 hrs, Volume= 0.859 af  
Primary = 12.85 cfs @ 12.08 hrs, Volume= 0.859 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

## 17302\_Hydrology\_Combined\_Detention

Type II 24-hr 100 yr Rainfall=7.29"

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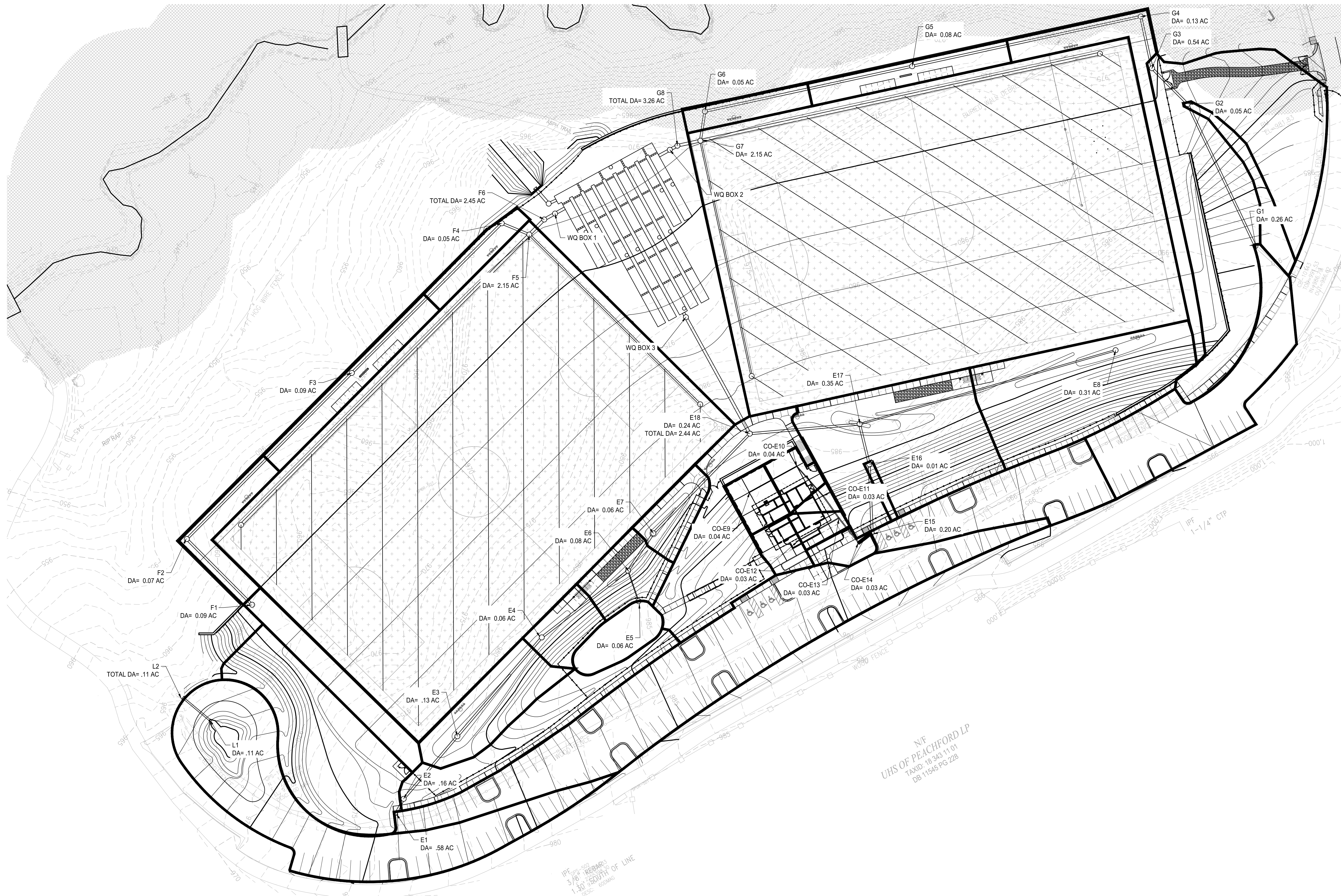
Page 36

### Summary for Link 32L: LINK

Inflow Area = 15.490 ac, 60.75% Impervious, Inflow Depth = 5.52" for 100 yr event  
Inflow = 82.87 cfs @ 12.04 hrs, Volume= 7.123 af  
Primary = 82.87 cfs @ 12.04 hrs, Volume= 7.123 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-72.00 hrs, dt= 0.01 hrs

**PROPOSED STORM INLETS DRAINAGE AREA MAP**

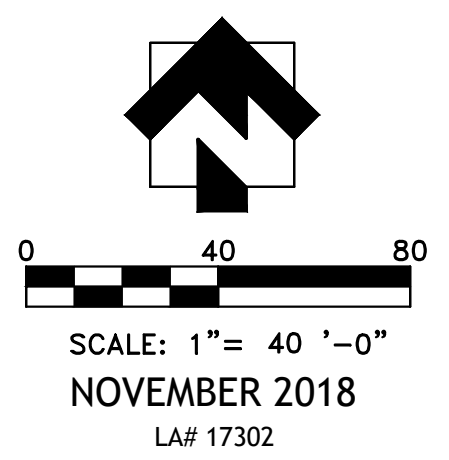


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 UHS OF PEACHFORD LP  
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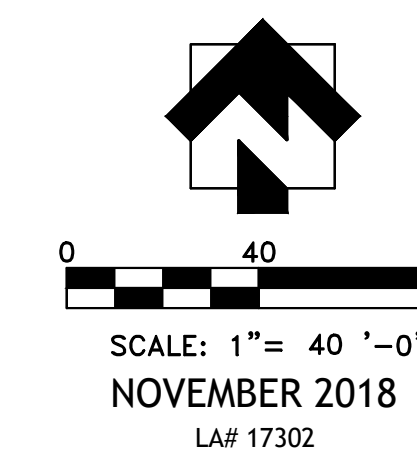
IPF 3/8" REBAR  
 1.50' SOUTH OF LINE  
 08.22 08.22

# BROOK RUN PARK

## INLET WATERSHED MAP



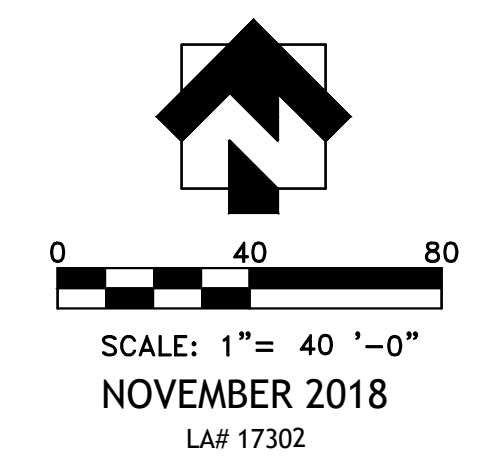
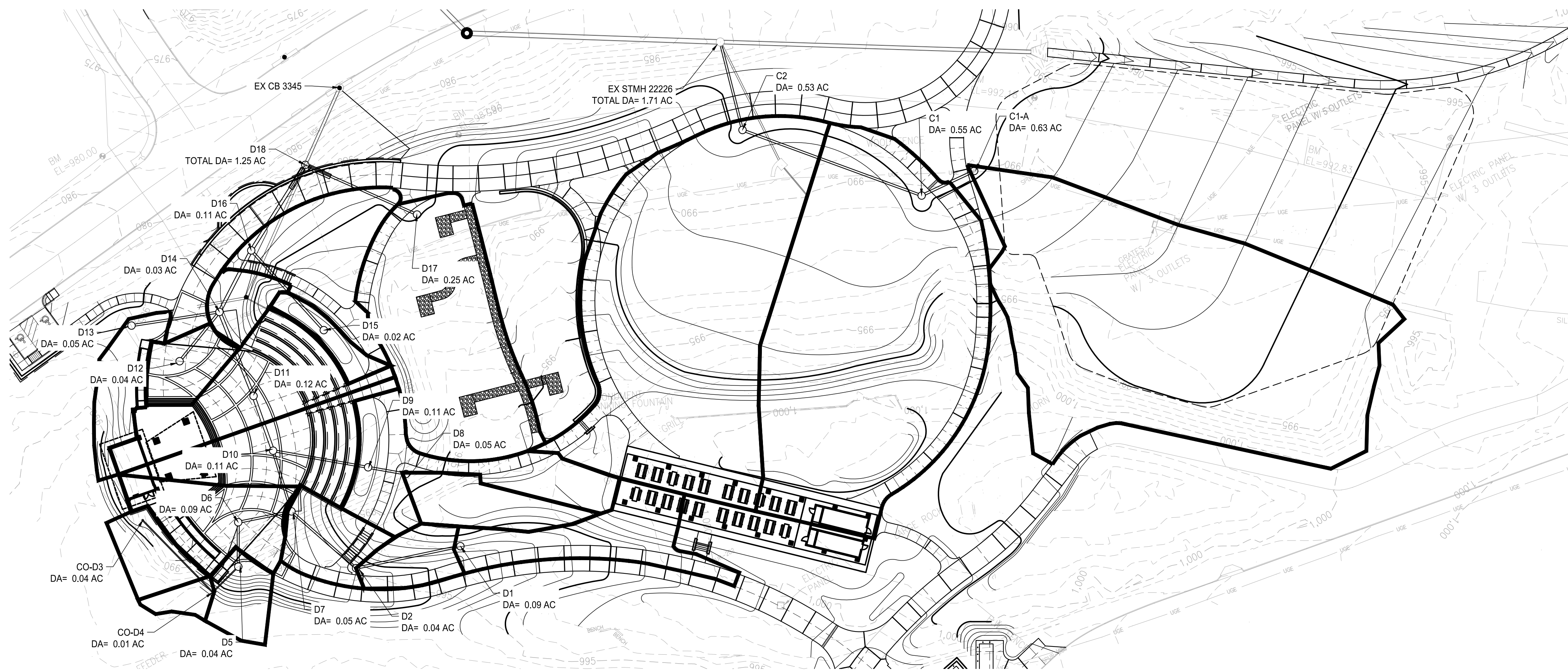
NOT FOR CONSTRUCTION



# BROOK RUN PARK

## INLET WATERSHED MAP

NOT FOR  
 CONSTRUCTION



# BROOK RUN PARK

## INLET WATERSHED MAP

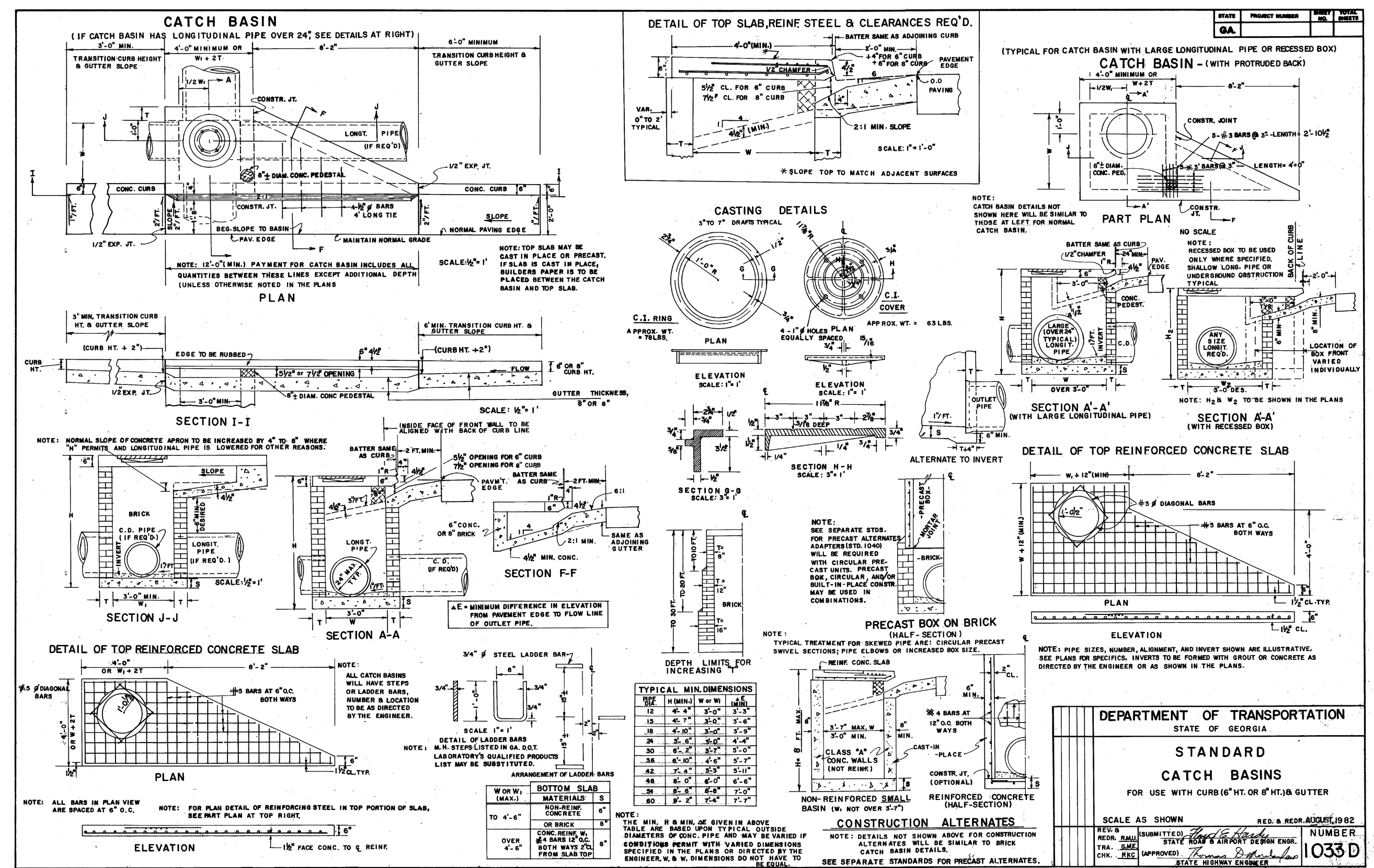
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CONSTRUCTION



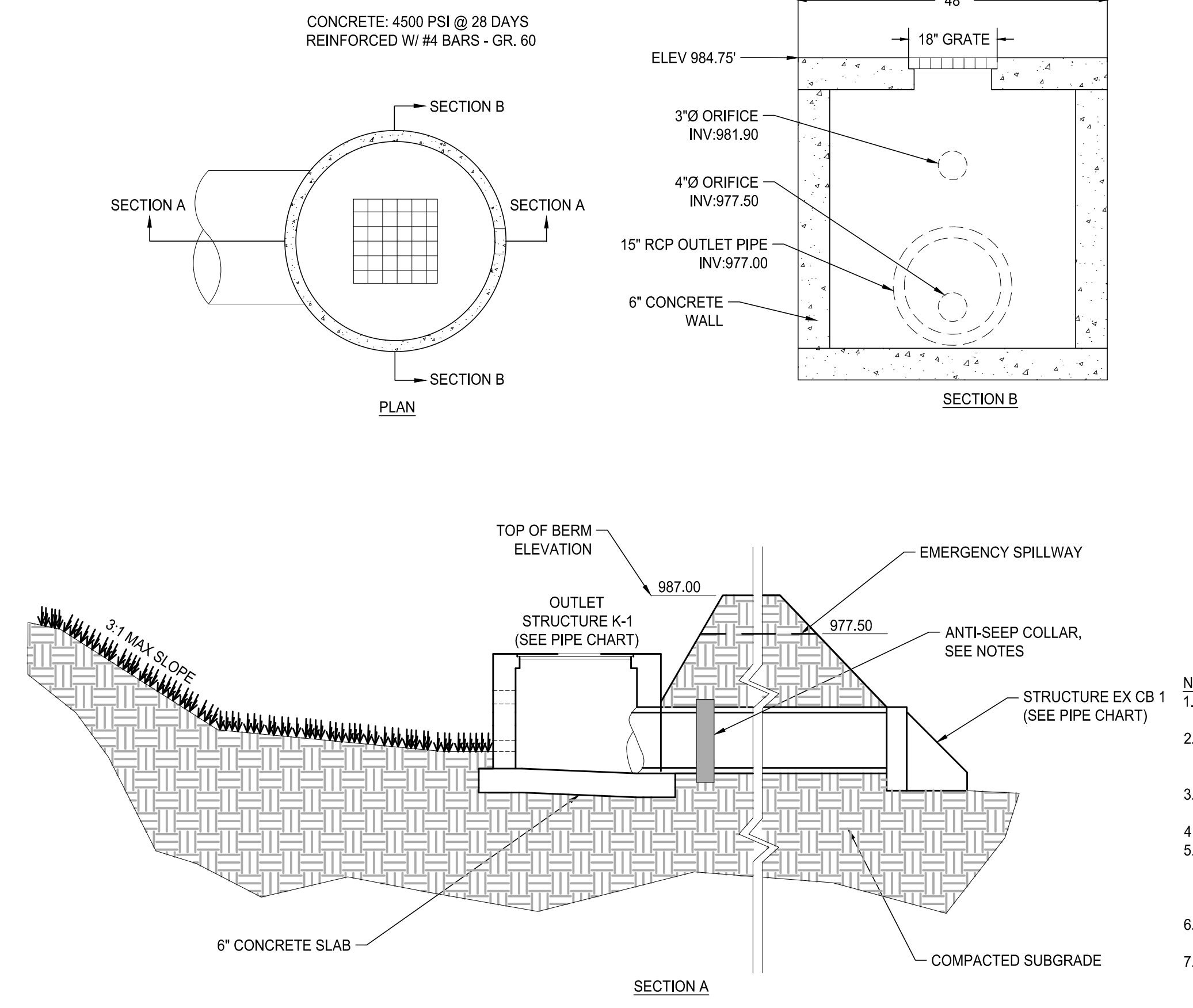
## **STORM DRAINAGE PIPE CHART**



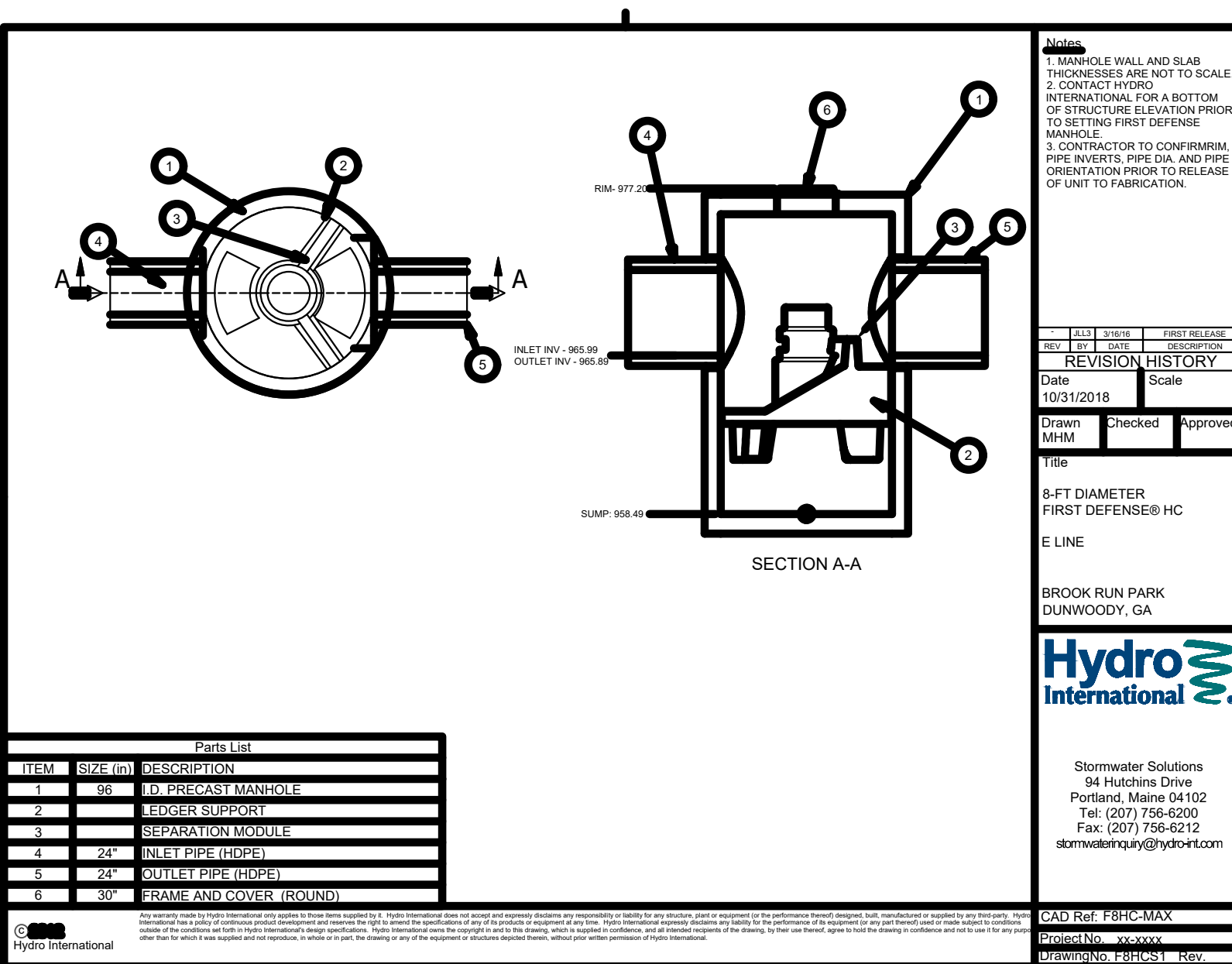
**DETENTION POND OUTLET STRUCTURE AND WATER  
QUALITY POND DETAILS**



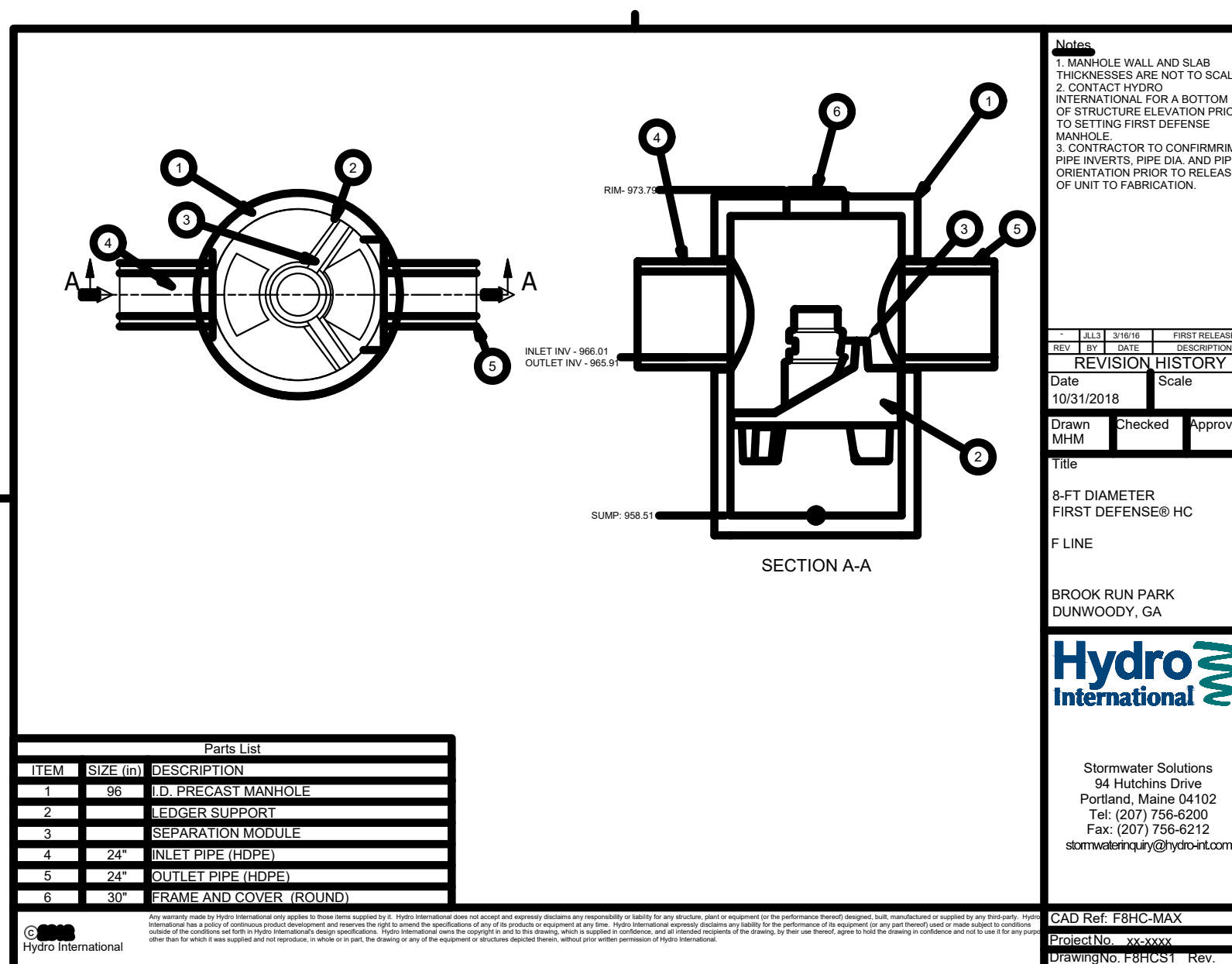
**1 CATCH BASIN**  
SCALE: NTS



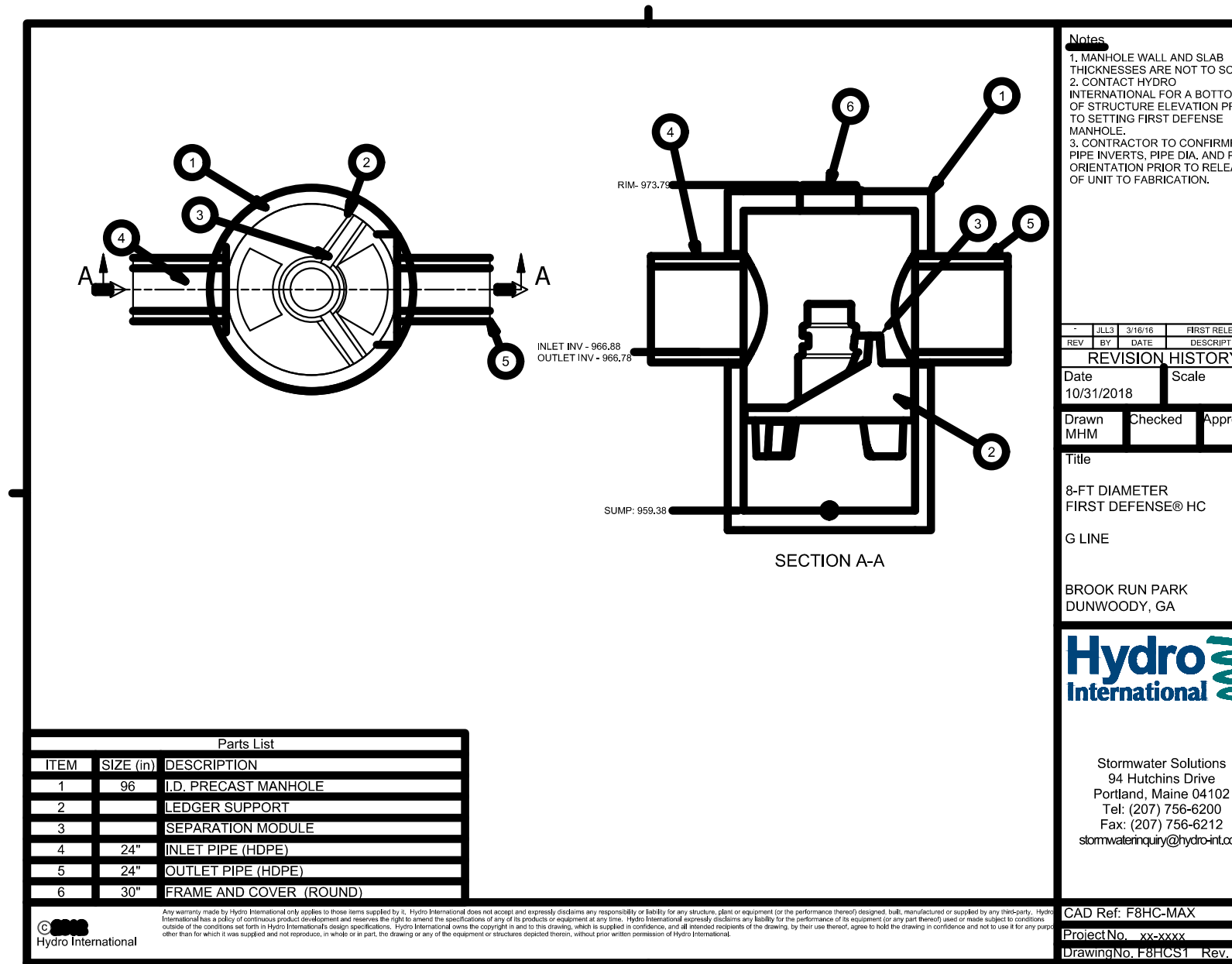
**2 DETENTION POND #1**  
SCALE: NTS



**3 WATER QUALITY BOX (E LINE)**  
SCALE: NTS



**4 WATER QUALITY BOX (F LINE)**  
SCALE: NTS



**5 WATER QUALITY BOX (G LINE)**  
SCALE: NTS

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BROOK RUN PARK  
 IMPROVEMENTS  
 CITY OF DUNWOODY

DUNWOODY

SUBMITTALS / REVISIONS

NO.	DATE	DESCRIPTION

SHEET TITLE  
 DRAINAGE AND ESPC  
 DETAILS

PROJECT NO. 17302  
 DATE 10/23/2018  
 DRAWN BY LC/TF  
 SCALE NTS  
 CHECKED BY MB  
 SHEET NO. C2.96

95% DESIGN DEVELOPMENT DRAWINGS

**WATER QUALITY VOLUME AND ORIFICE SIZE  
CALCULATIONS**

POND: #1 NAME/CASE: Brook Run Park

## Water Quality Design

TSS AREAS	TSS Impervious Area =	1.92	Acres
	Disturbed Pervious =	0.48	Acres
	Undisturbed Pervious =		Acres
	Stream Buffer Areas =		Acres
	<b>Total On-Site Pond Drainage Area =</b>	<b>2.40</b>	Acres
<b>Total On-Site Percent Impervious =</b>		<b>80.0%</b>	
<b>Required WQ Volume =</b>		<b>8,050</b>	Cu. Ft.

Pond Stage/Storage interpolation of WQ 'H'. Vol.= (Cu.Ft.) Elev.= (Ft.)			
<b>Invert Elev. of WQ Orifice =</b>		977.5	Feet
S/S vol.below req'd.WQ	7,000	at Elev.	977.0
S/S vol.above req'd.WQ	9,000	at Elev.	978.0

Entered 'H' Value Used	
<b>Interpolated or Direct 'H' value =</b>	<b>Invert# 0.1</b> Feet
<b>WQ Orifice Dia. In.=</b>	<b>3.98 in.</b> Use Lower Value Below:
<b>Orifice =.5, .75, 1.0, 1.25, 1.5, 1.75, 2, 2.5, 3, 3.5, 4, &gt; = Inch</b>	

**HYDRAFLOW CALCULATIONS FOR STORM LINES  
TO/FROM UNDERGROUND DETENTION**

Line No.	Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	Flow Rate (cfs)	Capac Full (cfs)	Gutter Spread (ft)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim EI Dn (ft)	Gnd/Rim EI Up (ft)	Cover Dn (ft)	Cover Up (ft)
1	WQ 3-UD	4.192	24	0.72	9.66	20.74	....	965.86	965.89	966.82	967.00	0.00	977.20	n/a	9.31
2	E18-WQ3	112.736	24	0.50	9.81	17.27	3.81	965.99	966.55	967.07	967.67	977.20	978.80	9.21	10.25
3	E17-E18	93.508	18	5.29	4.34	26.17	3.60	967.05	972.00	967.67	972.80	978.80	977.00	10.25	3.50
4	E16-E17	35.000	18	8.29	2.50	32.75	0.82	972.10	975.00	972.80	975.60 j	977.00	980.72	3.40	4.22
5	E15-E16	58.068	18	14.55	2.51	43.40	5.13	975.10	983.55	975.60	984.15	980.72	991.19	4.12	6.14
6	COE14-E15	14.312	10	1.05	1.37	2.43	1.49	983.65	983.80	984.15	984.32	991.19	990.95	6.71	6.32
7	COE13-COE14	26.523	8	1.02	1.17	1.32	1.67	983.90	984.17	984.39	984.68	990.95	989.40	6.38	4.56
8	E11-E13	23.608	8	1.02	0.80	1.32	1.66	984.27	984.51	984.68	984.93	989.40	989.15	4.46	3.97
9	E10-E11	33.528	6	0.98	0.59	0.60	1.95	984.61	984.94	985.01	985.34	989.15	989.06	4.04	3.62
10	COE9-COE10	46.141	6	1.00	0.30	0.61	3.72	985.04	985.50	985.62	985.78 j	989.06	989.71	3.52	3.71
11	ADS E12-E13	40.897	6	1.32	0.17	0.70	1.63	984.27	984.81	984.68	985.01 j	989.40	989.30	4.63	3.99
12	E7-E18	117.635	18	1.00	5.09	11.39	1.64	967.05	968.23	967.75	969.10	978.80	978.00	10.25	8.27
13	E6-E7	38.333	18	1.02	4.93	11.48	1.75	968.23	968.62	969.10	969.47 j	978.00	978.00	8.27	7.88
14	CO5-A6	27.269	6	19.25	0.09	2.67	1.22	969.62	974.87	969.68	975.02	978.00	984.09	7.88	8.72
15	E8-E17	226.093	12	1.00	0.66	3.86	1.97	972.50	974.76	972.80	975.10	977.00	978.00	3.50	2.24
16	E4-E5	92.535	18	1.01	4.65	11.40	1.45	968.62	969.55	969.47	970.38 j	978.00	978.64	7.88	7.59
17	E3-E4	110.303	18	1.00	4.61	11.36	1.65	969.55	970.65	970.38	971.47 j	978.64	978.00	7.59	5.85
18	E2-E3	69.953	18	1.00	4.48	11.38	2.28	970.65	971.35	971.47	972.16 j	978.00	976.75	5.85	3.90
19	E1-E2	14.104	18	1.06	4.07	11.73	8.63	971.35	971.50	972.16	972.27 j	976.75	976.00	3.90	3.00
20	WQ 1-UD	9.430	24	0.53	13.30	17.84	....	965.86	965.91	967.27	967.22	0.00	973.79	n/a	5.88
21	F6-WQ 1	10.435	24	0.48	13.29	16.96	....	966.01	966.06	967.34	967.39	973.79	973.79	5.78	5.73
22	F5-F6	18.000	24	1.00	13.29	24.51	16.30	966.16	966.34	967.58	967.65 j	973.79	974.17	5.63	5.83
23	F4-F5	25.218	18	5.39	0.39	26.42	1.12	966.84	968.20	967.65	968.43 j	974.17	973.13	5.83	3.43

Project File: E, F, G, H lines.stm	Number of lines: 38	Date: 11/28/2018
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NOTES: \*\* Critical depth



Line No.	Line ID	Line Length (ft)	Line Size (in)	Line Slope (%)	Flow Rate (cfs)	Capac Full (cfs)	Gutter Spread (ft)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim EI Dn (ft)	Gnd/Rim EI Up (ft)	Cover Dn (ft)	Cover Up (ft)
24	F3-F4	179.768	18	0.50	0.34	8.05	1.99	968.30	969.20	968.51	969.42	973.13	973.16	3.33	2.46
25	F2-F3	198.647	18	0.50	0.24	8.03	1.88	969.30	970.29	969.48	970.47	973.16	973.15	2.36	1.36
26	F1-F2	78.608	18	1.00	0.14	11.40	1.72	970.39	971.18	970.51	971.32	973.15	975.11	1.26	2.43
27	WQ 2-UD	10.534	24	0.57	16.18	18.50	....	966.72	966.78	968.17	968.23	0.00	973.79	n/a	5.01
28	G8-WQ2	7.298	24	0.55	16.19	18.13	....	966.88	966.92	968.35	968.39	973.79	973.79	4.91	4.87
29	G7-G8	20.000	24	1.00	16.23	24.50	16.30	967.02	967.22	968.61	968.67 j	973.79	973.98	4.77	4.76
30	G6-G7	25.164	18	1.03	3.03	11.56	1.12	967.72	967.98	968.67	968.64 j	973.98	973.16	4.76	3.68
31	G5-G6	180.000	18	0.50	3.08	8.04	1.52	968.08	968.98	968.72	969.65	973.16	973.18	3.58	2.70
32	G4-G5	198.500	18	0.50	3.10	8.03	1.82	969.08	970.07	969.73	970.74	973.18	973.18	2.60	1.61
33	G3-G4	45.000	18	0.51	2.95	8.13	4.24	970.17	970.40	970.79	971.05	973.18	974.84	1.51	2.94
34	G2-G3	42.793	18	4.44	1.66	23.97	1.09	970.50	972.40	971.05	972.88 j	974.84	975.75	2.84	1.85
35	G1-G2	133.480	18	3.33	1.64	20.77	8.03	972.50	976.95	972.88	977.43	975.75	989.33	1.75	10.88
36	EX10143-G1	42.642	18	22.44	0.07	53.89	1.17	977.05	986.62	977.43	986.71 j	989.33	991.53	10.78	3.41
37	H1-H2	16.074	24	1.49	25.70	29.94	....	964.49	964.73	972.95	973.13	965.29	973.45	-1.20	6.72
38	UD-H1	7.100	24	1.55	25.71	30.50	....	964.83	964.94	974.14	974.21	973.45	973.45	6.62	6.51

Project File: E, F, G, H lines.stm	Number of lines: 38	Date: 11/28/2018
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NOTES: \*\* Critical depth

**GSWMM STORMWATER DEVELOPMENT REVIEW TOOL**

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool

### Version 2.2

#### General Information

Name of Developer:	City of Dunwoody	Date Submitted:	
Development Name:	Brook Run Park	Permit Number:	
Site Location / Address:	4770 N. Peachtree Road	Developer Contact:	
	Dunwoody, GA 30338	Phone Number:	
		Name of Engineer(s):	Lose Design
Development Type:	Parks, Recreation & Conservation Areas	Maintenance Responsibility:	City of Dunwoody

#### Site Summary

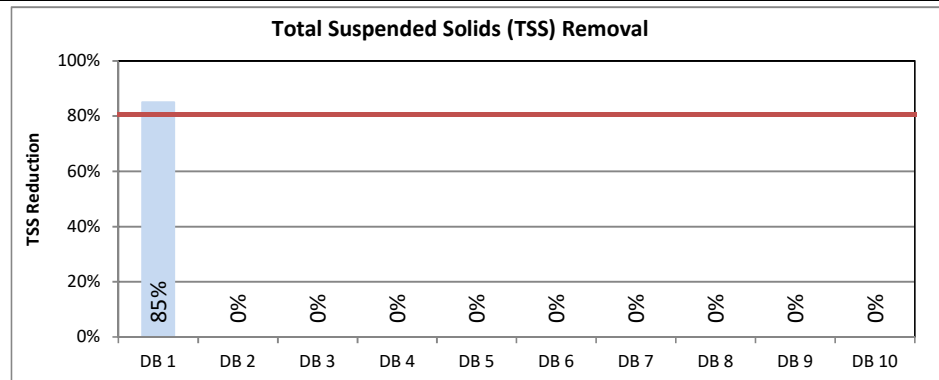
**Total Pre-Development Area (ac): 15.49**  
**Total Post-Development Area (ac): 15.49**  
**Total Treated Area (ac): 13.86**  
**Total Untreated Area (ac): 1.63**

		I (ac)	P (ac)	CA (ac)
Multi-Purpose Fields	DB 1	10.82	4.67	0.00
Drainage Basin 2	DB 2	0.00	0.00	0.00
Drainage Basin 3	DB 3	0.00	0.00	0.00
Drainage Basin 4	DB 4	0.00	0.00	0.00
Drainage Basin 5	DB 5	0.00	0.00	0.00
Drainage Basin 6	DB 6	0.00	0.00	0.00
Drainage Basin 7	DB 7	0.00	0.00	0.00
Drainage Basin 8	DB 8	0.00	0.00	0.00
Drainage Basin 9	DB 9	0.00	0.00	0.00
Drainage Basin 10	DB 10	0.00	0.00	0.00
<b>TOTAL</b>		<b>10.82</b>	<b>4.67</b>	<b>0.00</b>

I = Impervious Area, P = Pervious Area, CA = Conservation Area

**Target Runoff Reduction Volume Achieved? No**  
**Target TSS Removal Achieved? Yes**

Total Target Runoff Reduction Volume (cf) 45,792  
 Runoff Reduction Volume Achieved (cf) 0  
 Total Target Water Quality Volume (cf) 45,792  
 % TSS Removal Achieved 85%



#### Official Use Only

Tracking #: \_\_\_\_\_  
 Reviewed By: \_\_\_\_\_  
 Date Approved: \_\_\_\_\_

Conditions of Approval: \_\_\_\_\_

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**  
 Drainage Basin Name: **Multi-Purpose Fields**

data input cells  
 calculation cells  
 constant values

### Site Data

#### Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - Fair Condition		36	5.81	60		73		79	5.81	38%
Open space - Fair condition (grass cover 50% to 75%)		49	5.81	69		79		84	5.81	38%
Impervious		98	3.87	98		98		98	3.87	25%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
<b>Total</b>	0.00		15.49		0.00		0.00		15.49	100%

\*HSG = hydrologic soil group

Impervious (ac)      3.87  
 Weighted CN      73  
 Potential Max Soil Retention, S<sub>pre</sub> (in)      3.72

#### Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Woods - grass combination (orchard or tree farm) - Fair Condition		43		65		76		82	0.00	0%
Open space - Fair condition (grass cover 50% to 75%)		49	3.34	69		79		84	3.34	22%
Impervious		98	4.00	98	1.11	98		98	5.11	33%
Open space - Good condition (grass cover > 75%)		39		61	1.33	74		80	1.33	9%
Impervious	5.71	98		98		98		98	5.71	37%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
<b>Total</b>	5.71		7.34		2.44		0.00		15.49	100%

Impervious (ac)      10.82  
 Rv      0.68  
 Weighted CN      90  
 Potential Max Soil Retention, S<sub>post</sub> (in)      1.15

### Conservation Area Credits

#### Scenario 1: Natural Conservation Area *\*See the GSMM Volume 2, Section 2.3.3.3 for more information.*

Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

#### Scenario 3: Soil Restoration *\*See the GSMM Volume 2, Section 4.23 for more information.*

Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

#### Scenario 2: Site Reforestation/Revegetation *\*See the GSMM Volume 2, Section 4.22 for more information.*

Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

#### Scenario 4: Site Reforestation/Revegetation & Soil Restoration *\*See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

**Total Conservation Area Credit (acres)**      0.00

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**  
 Drainage Basin Name: **Multi-Purpose Fields**

data input cells  
 calculation cells  
 constant values

### Water Quality Goals

Target Runoff Reduction Storm (in) **1.20**

Total Site Area for Water Quality Volume (acres)	15.49
Target Runoff Reduction Volume (cf)	45,792
Target Water Quality Volume (cf)	45,792

### Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ <sub>v</sub> from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Infiltration Trench	0.30	2.15				BMP 2	8,962	0	8,962	100%	0	8,962	8,962	100%
BMP 2	Proprietary System	0.30	2.15		75		BMP 6	8,962	8,962	17,925	0%	0	17,925	8,962	90%
BMP 3	Infiltration Trench	1.11	2.15				BMP 4	9,139	0	9,139	100%	0	9,139	9,139	100%
BMP 4	Proprietary System	1.11	2.15		75		BMP 6	9,139	9,139	18,278	0%	0	18,278	9,139	90%
BMP 5	Proprietary System	1.33	1.11		75		BMP 6	4,883	0	4,883	0%	0	4,883	4,883	90%
BMP 6	Underground Detention					41,086		0	41,086	41,086	0%	0	41,086	0	0%
BMP 7	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP...							0	0	0	N/A	0	0	0	N/A
<b>TOTAL</b>		<b>4.15</b>	<b>9.71</b>	<b>0.00</b>				<b>41,086</b>				<b>0</b>		<b>41,086</b>	
<b>UNTREATED AREA (acres)</b>		<b>0.52</b>	<b>1.11</b>												

Target Runoff Reduction Volume (cf)	45,792
Target Achieved?	No
Remaining Runoff Reduction Volume (cf)	45,792

Target Water Quality Volume (cf)	45,792
% TSS Removal Achieved	85%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**  
 Drainage Basin Name: **Multi-Purpose Fields**

data input cells  
 calculation cells  
 constant values

### Channel and Flood Protection Calculations

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)	3.28	3.69	5.85	7.29

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	1.03	1.30	2.95	4.17
Post Development Runoff Volume (in) with no BMPs	2.21	2.60	4.67	6.07
Post-Development Runoff Volume (in) with BMPs	2.21	2.60	4.67	6.07
Adjusted CN	90	90	90	90

\*See Stormwater Management Standards to Determine Detention Requirements.

### Comments

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool

### Version 2.2

#### General Information

Name of Developer:	City of Dunwoody	Date Submitted:	
Development Name:	Brook Run Park	Permit Number:	
Site Location / Address:	4770 N. Peachtree Road	Developer Contact:	
	Dunwoody, GA 30338	Phone Number:	
		Name of Engineer(s):	Lose Design
Development Type:	Parks, Recreation & Conservation Areas	Maintenance Responsibility:	City of Dunwoody

#### Site Summary

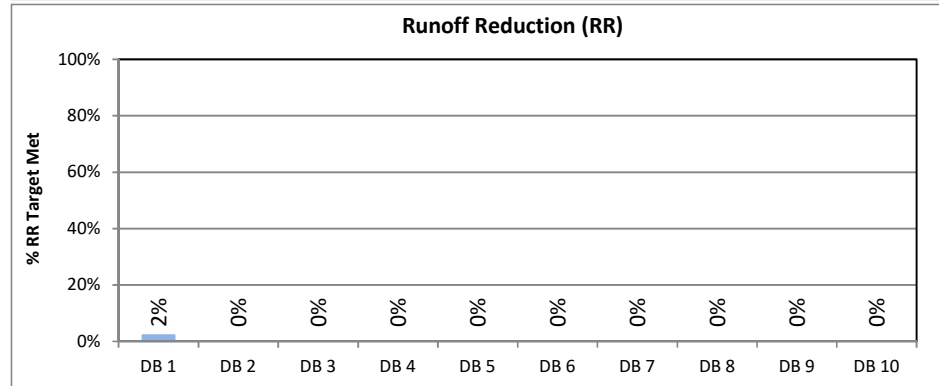
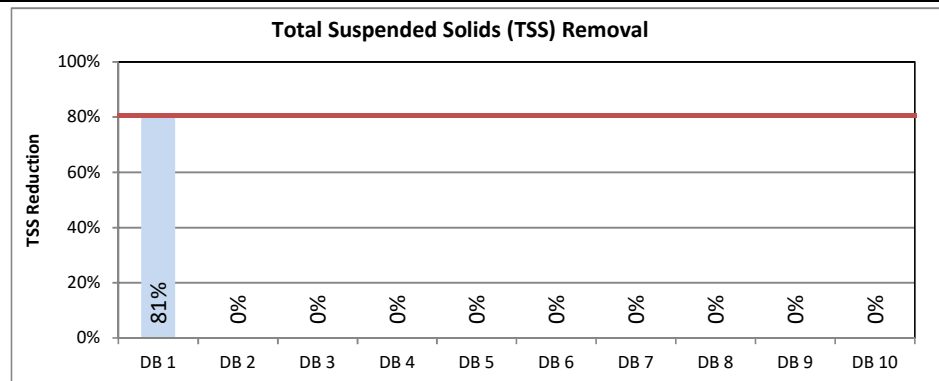
Total Pre-Development Area (ac): **0.96**  
 Total Post-Development Area (ac): **2.40**  
 Total Treated Area (ac): **2.40**  
 Total Untreated Area (ac): **0.00**

		I (ac)	P (ac)	CA (ac)
Parking Area	DB 1	1.92	0.48	0.00
Drainage Basin 2	DB 2	0.00	0.00	0.00
Drainage Basin 3	DB 3	0.00	0.00	0.00
Drainage Basin 4	DB 4	0.00	0.00	0.00
Drainage Basin 5	DB 5	0.00	0.00	0.00
Drainage Basin 6	DB 6	0.00	0.00	0.00
Drainage Basin 7	DB 7	0.00	0.00	0.00
Drainage Basin 8	DB 8	0.00	0.00	0.00
Drainage Basin 9	DB 9	0.00	0.00	0.00
Drainage Basin 10	DB 10	0.00	0.00	0.00
<b>TOTAL</b>		<b>1.92</b>	<b>0.48</b>	<b>0.00</b>

I = Impervious Area, P = Pervious Area, CA = Conservation Area

Target Runoff Reduction Volume Achieved? **No**  
 Target TSS Removal Achieved? **Yes**

Total Target Runoff Reduction Volume (cf)	8,050
Runoff Reduction Volume Achieved (cf)	183
Total Target Water Quality Volume (cf)	8,050
% TSS Removal Achieved	81%



#### Official Use Only

Tracking #: \_\_\_\_\_  
 Reviewed By: \_\_\_\_\_  
 Date Approved: \_\_\_\_\_

Conditions of Approval: \_\_\_\_\_

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**  
 Drainage Basin Name: **Parking Area**

data input cells  
 calculation cells  
 constant values

### Site Data

#### Indicate Pre-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG* A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Open space - Fair condition (grass cover 50% to 75%)		49	0.95	69		79		84	0.95	99%
Impervious		98	0.01	98		98		98	0.01	1%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
<b>Total</b>	0.00		0.96		0.00		0.00		0.96	100%

\*HSG = hydrologic soil group

Impervious (ac) 0.01  
 Weighted CN 69  
 Potential Max Soil Retention, S<sub>pre</sub> (in) 4.43

#### Indicate Post-Development Land Cover and Runoff Curve Numbers in the Site's Disturbed Area

Cover Type	HSG A (acres)	CN	HSG B (acres)	CN	HSG C (acres)	CN	HSG D (acres)	CN	Total	% Cover
Open space - Good condition (grass cover > 75%)		39	0.48	61		74		80	0.48	20%
Impervious		98	1.92	98		98		98	1.92	80%
Impervious		98		98		98		98	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Select a land cover type...		0		0		0		0	0.00	0%
Local Jurisdiction Input									0.00	0%
Other									0.00	0%
<b>Total</b>	0.00		2.40		0.00		0.00		2.40	100%

Impervious (ac) 1.92  
 Rv 0.77  
 Weighted CN 91  
 Potential Max Soil Retention, S<sub>post</sub> (in) 1.04

### Conservation Area Credits

#### Scenario 1: Natural Conservation Area *\*See the GSMM Volume 2, Section 2.3.3.3 for more information.*

Check the box if a portion of the post-developed area is protected by a conservation easement or equivalent form of protection.

Area (ac) of development protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 1 box above is checked

#### Scenario 3: Soil Restoration *\*See the GSMM Volume 2, Section 4.23 for more information.*

Check the box if a portion of the post-developed area employs soil restoration and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development with restored soils and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 3 box above is checked

#### Scenario 2: Site Reforestation/Revegetation *\*See the GSMM Volume 2, Section 4.22 for more information.*

Check the box if a portion of the post-developed area employs site reforestation/revegetation and is protected by a conservation easement or equivalent form of protection.

Area (ac) of development reforested/revegetated and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 2 box above is checked

#### Scenario 4: Site Reforestation/Revegetation & Soil Restoration *\*See the GSMM Volume 2, Section 4.22 and 4.23 for more information.*

Check the box if the same portion of the post-developed area employs site reforestation/revegetation and soil restoration, and is protected by a conservation easement or equivalent form of protection.

Area (ac) with restored soils in a reforested & revegetated area and protected by a conservation easement or equivalent form of protection.

Note: The green cell will unlock if the Scenario 4 box above is checked

**Total Conservation Area Credit (acres) 0.00**



# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**  
 Drainage Basin Name: **Parking Area**

data input cells  
 calculation cells  
 constant values

### Water Quality Goals

Target Runoff Reduction Storm (in) **1.20**

Total Site Area for Water Quality Volume (acres)	2.40
Target Runoff Reduction Volume (cf)	8,050
Target Water Quality Volume (cf)	8,050

### Select BMPs for Runoff Reduction and Water Quality

		Area Draining to Each BMP			Storage Volume Provided by BMP (cf)	RR Conveyance Volume Provided by BMP (cf)	Down-stream BMP	Runoff Reduction Calculations						WQ Calculations	
		On-site Pervious Area (acres)	On-site Impervious Area (acres)	Offsite Area (acres)				RR Volume from Direct Drainage (cf)	RR Volume from Upstream Practices (cf)	Total RR Volume Received by BMP (cf)	Runoff Reduction %	RR Achieved (cf)	Remaining RR Volume (cf)	WQ <sub>v</sub> from Direct Drainage (cf)	Effective TSS Removal %
BMP 1	Vegetated Filter Strip (C & D hydrologic soils)	0.13	0.17			732	BMP 2	732	0	732	25%	183	549	732	60%
BMP 2	Stormwater Pond	0.35	1.75		29,951			7,318	549	7,867	0%	0	7,867	7,318	80%
BMP 3	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 4	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 5	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 6	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 7	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 8	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 9	Select a BMP...							0	0	0	N/A	0	0	0	N/A
BMP 10	Select a BMP...							0	0	0	N/A	0	0	0	N/A
<b>TOTAL</b>		<b>0.48</b>	<b>1.92</b>	<b>0.00</b>				<b>8,050</b>				<b>183</b>		<b>8,050</b>	
<b>UNTREATED AREA (acres)</b>		<b>0.00</b>	<b>0.00</b>												

Target Runoff Reduction Volume (cf)	8,050
Target Achieved?	No
Remaining Runoff Reduction Volume (cf)	7,867

Target Water Quality Volume (cf)	8,050
% TSS Removal Achieved	81%
Target Achieved?	Yes!
Remaining TSS Removal %	0%

# Georgia Stormwater Management Manual

## Stormwater Quality Site Development Review Tool, v2.2

Development Name: **Brook Run Park**  
 Drainage Basin Name: **Parking Area**

data input cells  
 calculation cells  
 constant values

### Channel and Flood Protection Calculations

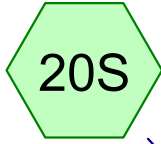
	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Target Rainfall Event (in)	3.28	3.69	5.85	7.29

	1-yr, 24-hr storm	2-yr, 24-hr storm	25-yr, 24-hr storm	100-yr, 24-hr storm
Pre-Development Runoff Volume (in)	0.84	1.09	2.62	3.79
Post Development Runoff Volume (in) with no BMPs	2.30	2.68	4.77	6.18
Post-Development Runoff Volume (in) with BMPs	2.28	2.66	4.75	6.16
Adjusted CN	90	90	90	90

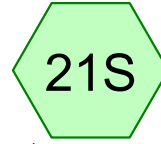
\*See Stormwater Management Standards to Determine Detention Requirements.

### Comments

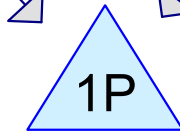
## **SEDIMENT BASIN HYDROCAD ANALYSIS**



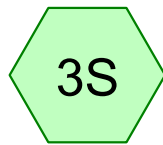
EXISTING DA TO EX.  
CB #1



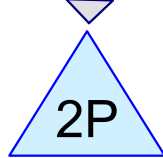
EXISTING DA TO EX.  
DI #1



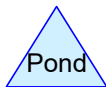
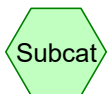
SEDIMENT BASIN 1



EXISTING DA TO  
OUTFALL



SEDIMENT BASIN 2



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Type II 24-hr 2 yr Rainfall=3.60"

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Time span=5.00-100.00 hrs, dt=0.10 hrs, 951 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 3S: EXISTING DA TO** Runoff Area=15.490 ac 24.98% Impervious Runoff Depth=1.25"  
Flow Length=1,832' Tc=12.2 min CN=73 Runoff=24.68 cfs 1.610 af

**Subcatchment 20S: EXISTING DA TO EX.** Runoff Area=0.340 ac 0.00% Impervious Runoff Depth=1.01"  
Flow Length=185' Slope=0.0400 '/' Tc=10.8 min CN=69 Runoff=0.45 cfs 0.029 af

**Subcatchment 21S: EXISTING DA TO EX. DI** Runoff Area=0.620 ac 1.61% Impervious Runoff Depth=1.01"  
Flow Length=438' Tc=13.3 min CN=69 Runoff=0.76 cfs 0.052 af

**Pond 1P: SEDIMENT BASIN 1** Peak Elev=981.09' Storage=298 cf Inflow=1.18 cfs 0.081 af  
Primary=1.01 cfs 0.081 af Secondary=0.00 cfs 0.000 af Outflow=1.01 cfs 0.081 af

**Pond 2P: SEDIMENT BASIN 2** Peak Elev=968.70' Storage=22,433 cf Inflow=24.68 cfs 1.610 af  
Primary=5.34 cfs 1.610 af Secondary=0.00 cfs 0.000 af Outflow=5.34 cfs 1.610 af

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Type II 24-hr 2 yr Rainfall=3.60"

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**Summary for Subcatchment 3S: EXISTING DA TO OUTFALL**

Runoff = 24.68 cfs @ 12.05 hrs, Volume= 1.610 af, Depth= 1.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
Type II 24-hr 2 yr Rainfall=3.60"

Area (ac)	CN	Description
5.810	69	50-75% Grass cover, Fair, HSG B
3.870	98	Paved parking, HSG B
5.810	60	Woods, Fair, HSG B
15.490	73	Weighted Average
11.620		75.02% Pervious Area
3.870		24.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	200	0.0750	0.37		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 4.08"
1.3	354	0.0500	4.54		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.0	1,278	0.0100	10.88	565.72	<b>Channel Flow,</b> Area= 52.0 sf Perim= 21.0' r= 2.48' n= 0.025 Earth, clean & winding
12.2	1,832	Total			

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Type II 24-hr 2 yr Rainfall=3.60"

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**Summary for Subcatchment 20S: EXISTING DA TO EX. CB #1**

Runoff = 0.45 cfs @ 12.03 hrs, Volume= 0.029 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
Type II 24-hr 2 yr Rainfall=3.60"

Area (ac)	CN	Description
0.340	69	50-75% Grass cover, Fair, HSG B
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	185	0.0400	0.29		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 4.08"

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Type II 24-hr 2 yr Rainfall=3.60"

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**Summary for Subcatchment 21S: EXISTING DA TO EX. DI #1**

Runoff = 0.76 cfs @ 12.08 hrs, Volume= 0.052 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
Type II 24-hr 2 yr Rainfall=3.60"

Area (ac)	CN	Description
0.610	69	50-75% Grass cover, Fair, HSG B
0.010	98	Paved parking, HSG B
0.620	69	Weighted Average
0.610		98.39% Pervious Area
0.010		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	300	0.0800	0.42		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 4.08"
1.3	138	0.0600	1.71		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
13.3	438	Total			



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Type II 24-hr 2 yr Rainfall=3.60"

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**Summary for Pond 1P: SEDIMENT BASIN 1**

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 1.01" for 2 yr event  
 Inflow = 1.18 cfs @ 12.06 hrs, Volume= 0.081 af  
 Outflow = 1.01 cfs @ 12.13 hrs, Volume= 0.081 af, Atten= 15%, Lag= 4.4 min  
 Primary = 1.01 cfs @ 12.13 hrs, Volume= 0.081 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
 Peak Elev= 981.09' @ 12.13 hrs Surf.Area= 900 sf Storage= 298 cf

Plug-Flow detention time= 4.4 min calculated for 0.081 af (100% of inflow)  
 Center-of-Mass det. time= 4.4 min ( 877.7 - 873.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	980.50'	10,841 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
980.50	0	0	0
981.00	860	215	215
982.00	1,283	1,072	1,287
983.00	1,775	1,529	2,816
984.00	2,337	2,056	4,872
985.00	2,967	2,652	7,524
986.00	3,667	3,317	10,841

Device	Routing	Invert	Outlet Devices
#1	Primary	980.50'	<b>12.0" Round Culvert</b> L= 54.0' Ke= 0.900 Inlet / Outlet Invert= 980.50' / 975.27' S= 0.0969 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	982.50'	<b>8.0' long Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=0.96 cfs @ 12.13 hrs HW=981.08' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 0.96 cfs @ 2.04 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=980.50' (Free Discharge)  
 ↑2=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

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Type II 24-hr 2 yr Rainfall=3.60"

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**Summary for Pond 2P: SEDIMENT BASIN 2**

Inflow Area = 15.490 ac, 24.98% Impervious, Inflow Depth = 1.25" for 2 yr event  
 Inflow = 24.68 cfs @ 12.05 hrs, Volume= 1.610 af  
 Outflow = 5.34 cfs @ 12.41 hrs, Volume= 1.610 af, Atten= 78%, Lag= 21.7 min  
 Primary = 5.34 cfs @ 12.41 hrs, Volume= 1.610 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
 Peak Elev= 968.70' @ 12.41 hrs Surf.Area= 8,699 sf Storage= 22,433 cf

Plug-Flow detention time= 40.3 min calculated for 1.610 af (100% of inflow)  
 Center-of-Mass det. time= 40.1 min ( 900.5 - 860.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	965.00'	71,374 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
965.00	0	0	0
966.00	5,847	2,924	2,924
967.00	6,842	6,345	9,268
968.00	7,908	7,375	16,643
969.00	9,042	8,475	25,118
970.00	10,243	9,643	34,761
971.00	11,513	10,878	45,639
972.00	12,851	12,182	57,821
973.00	14,256	13,554	71,374

Device	Routing	Invert	Outlet Devices
#1	Primary	965.00'	<b>12.0" Round Culvert</b> L= 80.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 965.00' / 964.60' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	972.50'	<b>10.0' long Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=5.34 cfs @ 12.41 hrs HW=968.69' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 5.34 cfs @ 6.79 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=965.00' (Free Discharge)  
 ↑2=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

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Type II 24-hr 25 yr Rainfall=6.24"

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Time span=5.00-100.00 hrs, dt=0.10 hrs, 951 points  
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment 3S: EXISTING DA TO** Runoff Area=15.490 ac 24.98% Impervious Runoff Depth=3.29"  
Flow Length=1,832' Tc=12.2 min CN=73 Runoff=67.35 cfs 4.245 af

**Subcatchment 20S: EXISTING DA TO EX.** Runoff Area=0.340 ac 0.00% Impervious Runoff Depth=2.90"  
Flow Length=185' Slope=0.0400 '/' Tc=10.8 min CN=69 Runoff=1.38 cfs 0.082 af

**Subcatchment 21S: EXISTING DA TO EX. DI** Runoff Area=0.620 ac 1.61% Impervious Runoff Depth=2.90"  
Flow Length=438' Tc=13.3 min CN=69 Runoff=2.29 cfs 0.150 af

**Pond 1P: SEDIMENT BASIN 1** Peak Elev=981.85' Storage=1,097 cf Inflow=3.62 cfs 0.232 af  
Primary=2.76 cfs 0.232 af Secondary=0.00 cfs 0.000 af Outflow=2.76 cfs 0.232 af

**Pond 2P: SEDIMENT BASIN 2** Peak Elev=972.99' Storage=71,169 cf Inflow=67.35 cfs 4.245 af  
Primary=8.17 cfs 3.987 af Secondary=9.92 cfs 0.258 af Outflow=18.09 cfs 4.245 af

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Type II 24-hr 25 yr Rainfall=6.24"

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**Summary for Subcatchment 3S: EXISTING DA TO OUTFALL**

Runoff = 67.35 cfs @ 12.04 hrs, Volume= 4.245 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
Type II 24-hr 25 yr Rainfall=6.24"

Area (ac)	CN	Description
5.810	69	50-75% Grass cover, Fair, HSG B
3.870	98	Paved parking, HSG B
5.810	60	Woods, Fair, HSG B
15.490	73	Weighted Average
11.620		75.02% Pervious Area
3.870		24.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	200	0.0750	0.37		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 4.08"
1.3	354	0.0500	4.54		<b>Shallow Concentrated Flow,</b> Paved Kv= 20.3 fps
2.0	1,278	0.0100	10.88	565.72	<b>Channel Flow,</b> Area= 52.0 sf Perim= 21.0' r= 2.48' n= 0.025 Earth, clean & winding
12.2	1,832	Total			

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Type II 24-hr 25 yr Rainfall=6.24"

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**Summary for Subcatchment 20S: EXISTING DA TO EX. CB #1**

Runoff = 1.38 cfs @ 12.02 hrs, Volume= 0.082 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
Type II 24-hr 25 yr Rainfall=6.24"

Area (ac)	CN	Description
0.340	69	50-75% Grass cover, Fair, HSG B
0.340		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.8	185	0.0400	0.29		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 4.08"

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Type II 24-hr 25 yr Rainfall=6.24"

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**Summary for Subcatchment 21S: EXISTING DA TO EX. DI #1**

Runoff = 2.29 cfs @ 12.06 hrs, Volume= 0.150 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
 Type II 24-hr 25 yr Rainfall=6.24"

Area (ac)	CN	Description
0.610	69	50-75% Grass cover, Fair, HSG B
0.010	98	Paved parking, HSG B
0.620	69	Weighted Average
0.610		98.39% Pervious Area
0.010		1.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0	300	0.0800	0.42		<b>Sheet Flow,</b> Grass: Short n= 0.150 P2= 4.08"
1.3	138	0.0600	1.71		<b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
13.3	438	Total			

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Type II 24-hr 25 yr Rainfall=6.24"

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**Summary for Pond 1P: SEDIMENT BASIN 1**

Inflow Area = 0.960 ac, 1.04% Impervious, Inflow Depth = 2.90" for 25 yr event  
 Inflow = 3.62 cfs @ 12.04 hrs, Volume= 0.232 af  
 Outflow = 2.76 cfs @ 12.14 hrs, Volume= 0.232 af, Atten= 24%, Lag= 5.9 min  
 Primary = 2.76 cfs @ 12.14 hrs, Volume= 0.232 af  
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
 Peak Elev= 981.85' @ 12.14 hrs Surf.Area= 1,219 sf Storage= 1,097 cf

Plug-Flow detention time= 5.0 min calculated for 0.232 af (100% of inflow)  
 Center-of-Mass det. time= 5.0 min ( 846.3 - 841.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	980.50'	10,841 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
980.50	0	0	0
981.00	860	215	215
982.00	1,283	1,072	1,287
983.00	1,775	1,529	2,816
984.00	2,337	2,056	4,872
985.00	2,967	2,652	7,524
986.00	3,667	3,317	10,841

Device	Routing	Invert	Outlet Devices
#1	Primary	980.50'	<b>12.0" Round Culvert</b> L= 54.0' Ke= 0.900 Inlet / Outlet Invert= 980.50' / 975.27' S= 0.0969 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	982.50'	<b>8.0' long Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=2.68 cfs @ 12.14 hrs HW=981.81' (Free Discharge)

↑1=Culvert (Inlet Controls 2.68 cfs @ 3.42 fps)

**Secondary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=980.50' (Free Discharge)

↑2=Broad-Crested Rectangular Weir ( Controls 0.00 cfs)

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Type II 24-hr 25 yr Rainfall=6.24"

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**Summary for Pond 2P: SEDIMENT BASIN 2**

Inflow Area = 15.490 ac, 24.98% Impervious, Inflow Depth = 3.29" for 25 yr event  
 Inflow = 67.35 cfs @ 12.04 hrs, Volume= 4.245 af  
 Outflow = 18.09 cfs @ 12.33 hrs, Volume= 4.245 af, Atten= 73%, Lag= 17.9 min  
 Primary = 8.17 cfs @ 12.34 hrs, Volume= 3.987 af  
 Secondary = 9.92 cfs @ 12.33 hrs, Volume= 0.258 af

Routing by Stor-Ind method, Time Span= 5.00-100.00 hrs, dt= 0.10 hrs  
 Peak Elev= 972.99' @ 12.34 hrs Surf.Area= 14,236 sf Storage= 71,169 cf

Plug-Flow detention time= 76.9 min calculated for 4.241 af (100% of inflow)  
 Center-of-Mass det. time= 76.9 min ( 908.8 - 832.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	965.00'	71,374 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
965.00	0	0	0
966.00	5,847	2,924	2,924
967.00	6,842	6,345	9,268
968.00	7,908	7,375	16,643
969.00	9,042	8,475	25,118
970.00	10,243	9,643	34,761
971.00	11,513	10,878	45,639
972.00	12,851	12,182	57,821
973.00	14,256	13,554	71,374

Device	Routing	Invert	Outlet Devices
#1	Primary	965.00'	<b>12.0" Round Culvert</b> L= 80.1' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 965.00' / 964.60' S= 0.0050 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf
#2	Secondary	972.50'	<b>10.0' long Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

**Primary OutFlow** Max=8.15 cfs @ 12.34 hrs HW=972.95' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 8.15 cfs @ 10.37 fps)

**Secondary OutFlow** Max=8.92 cfs @ 12.33 hrs HW=972.95' (Free Discharge)  
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 8.92 cfs @ 1.98 fps)



## **SEDIMENT BASIN DETAILS**

