

**CONCEPTUAL  
STORMWATER MANAGEMENT  
STUDY**

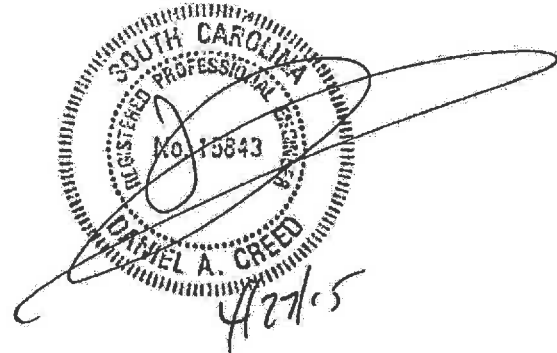
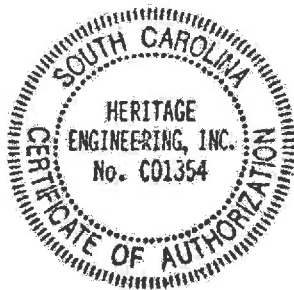
OF

**TMS 13907-01-09**

**ON SUNNYSIDE AND BELMONT DRIVES  
IN THE CITY OF FOREST ACRES, RICHLAND COUNTY, SOUTH CAROLINA**

FOR

**H & M REAL ESTATE HOLDINGS, LLC  
P.O. BOX 7141  
COLUMBIA, SOUTH CAROLINA 29202**



**December 22, 2014  
Revised April 27, 2015**



**P. O. BOX 923  
10719 WILSON BLVD.  
BLYTHEWOOD, SOUTH CAROLINA 29016  
803-714-9632 Office 803-714-0060 Fax**

# CONCEPTUAL STORMWATER MANAGEMENT STUDY H & M REAL ESTATE HOLDINGS, LLC

December 22, 2014

Revised April 27, 2015

It is proposed to construct a mixed use development on a 28.8 acre parcel mapped as TMS 13907-01-09 which has been subdivided from the Carolina Children's Home facility on Sunnyside Drive in the City of Forest Acres. Approximately 5 acres fronting on Sunnyside Drive is proposed to be developed as office/institutional use with the remainder developed as attached residential, detached residential, open space, and natural areas. The purpose of this study is to identify stormwater management strategies and improvements which will be appropriate and necessary to comply with SCDHEC NPDES General Permit requirements and the stormwater design standards of Richland County, the entity responsible for stormwater permitting of projects within the municipal boundary of Forest Acres. Both the quantity and quality of stormwater discharged from the development must be satisfactorily addressed to secure permit coverage.

### Stormwater Quantity (Peak Discharge Rate)

The project site is located at the confluence of three watercourses having a total watershed area of approximately 1200 acres. A portion of the site lies within the Special Flood Hazard Area established by FEMA as shown on the Flood Insurance Rate Map in the Appendix. Though only open space and natural areas are proposed for that portion of the property within the regulatory floodway, the development will be subject to FEMA and the City of Forest Acres floodplain management requirements.

The off-site and on-site watersheds are defined in the watershed map in the Appendix. The watershed of Orphanage Branch (WS 101) is 266 acres in area, the Pen Branch watershed (WS 102) is 735 acres, and the watershed area of an unnamed tributary to Pen Branch (WS 103) is 213 acres. The 28.8 acre on-site watershed discharges southeast of the confluence of Orphanage Branch and Pen Branch at the junction of Pen Branch and the aforementioned unnamed tributary. The off-site watersheds are essentially fully developed, while the on-site watershed is primarily open space and wooded. Watershed soils are predominantly Hydrologic Soils group "B" with lesser areas of HSG "D" soils and minor extents of HSG "C" soils.

As the project is located at the discharge of a much larger watershed and the development of the site will result in a shorter time of concentration for the on-site watershed, the post-developed on-site hydrograph peak occurs significantly earlier than the peaks of the off-site hydrographs. For this reason, the peak discharge rate of Pen Branch including runoff from the project in a built out condition is predicted to be equal to or slightly less than the pre-developed rate for the design storm events. The calculations found in the Appendix are summarized in the table below.

<u>Event</u>	<u>Pre-Developed Peak Runoff</u>	<u>Post-Developed Peak Runoff</u>	<u>Increase/ (Decrease)</u>
2 - Year	599 cfs	598 cfs	(-1 cfs)
5 - Year	953 cfs	950 cfs	(-3 cfs)
10 - Year	1301 cfs	1295 cfs	(-6 cfs)
25 - Year	1814 cfs	1805 cfs	(-9 cfs)
100 - Year	2714 cfs	2698 cfs	(-16 cfs)

## Water Quality

Given the mixed use nature of the development and the various site constraints, it is expected that the final design will incorporate a combination of Low Impact Development measures and Best Management Practices to satisfy water quality requirements. The following methods appear to be available as options, whether suited for the entire development or certain locations within it.

Streamside Buffers: The project Development Plan retains streamside buffers along Orphanage Branch and Pen Branch.

Water Quality Pond: One or more dry water quality ponds to detain and treat the "first flush" of runoff are planned for the institutional portion of the development as well as the denser residential area. Very shallow basins within open space areas in the residential development may also be employed.

Enhanced Dry Swale: Enhanced dry swales are an option to provide water quality enhancement within the residential development as outfall features in open space areas and/or as internal drainage conveyances.

Vegetated Filters: Similar to enhanced dry swales, vegetated filters provide an opportunity to enhance water quality as a means of conveyance throughout the development.

Structure Control Devices: Catch basins and inlets can be designed or specified with proprietary or non-proprietary measures to trap pollutants and improve water quality.

Bioretention Areas: Bioretention areas appear suited for use in common residential open spaces areas or in a smaller "rain garden" type applications within the institutional development.

The Conceptual Stormwater Quality Exhibit in the Appendix illustrates how a combination of these measures might be implemented to enhance water quality.

### Appendix

Vicinity Map

Development Plan

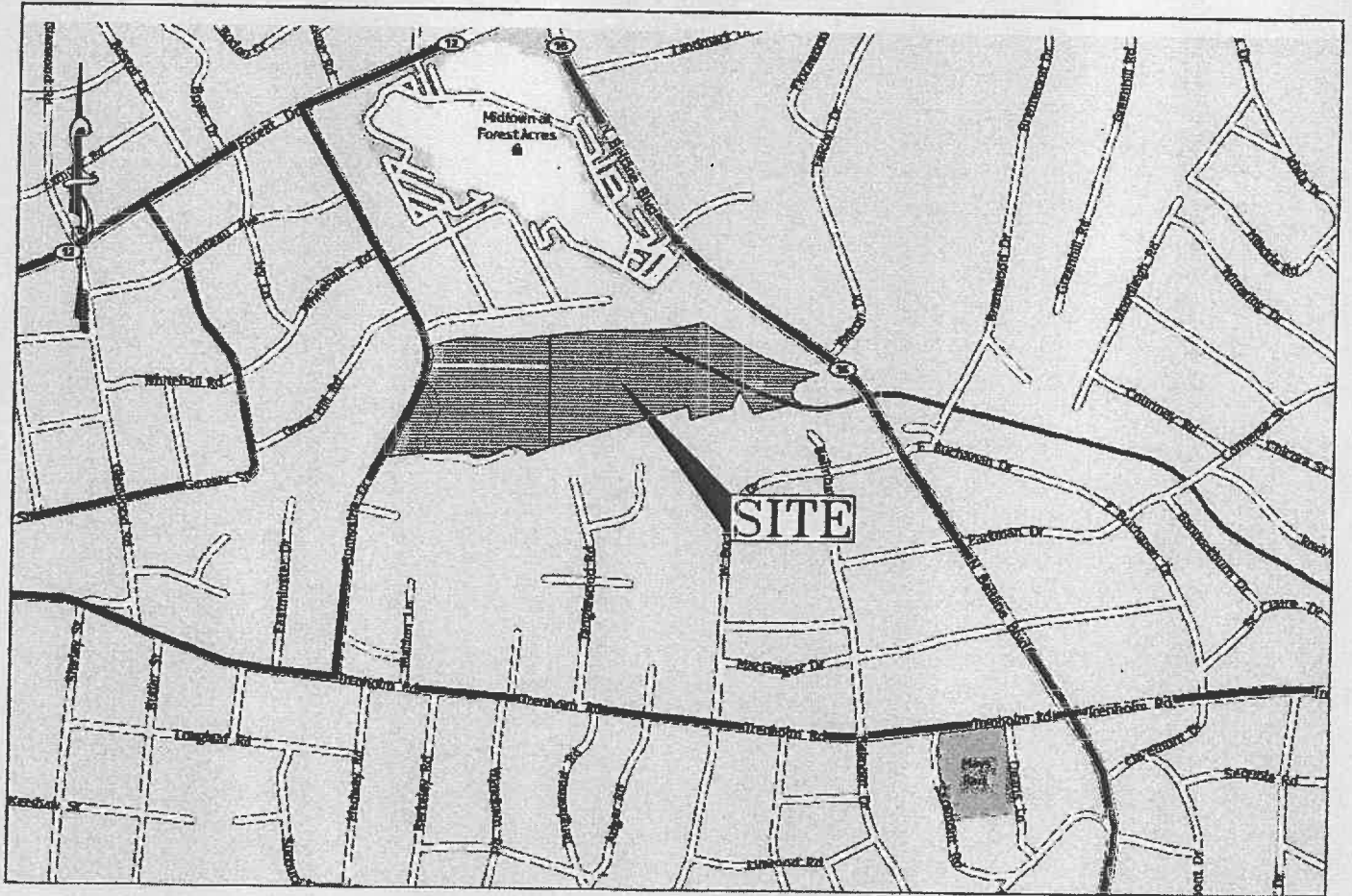
Overall Watershed, Soils and USGS Map

FIRM Map

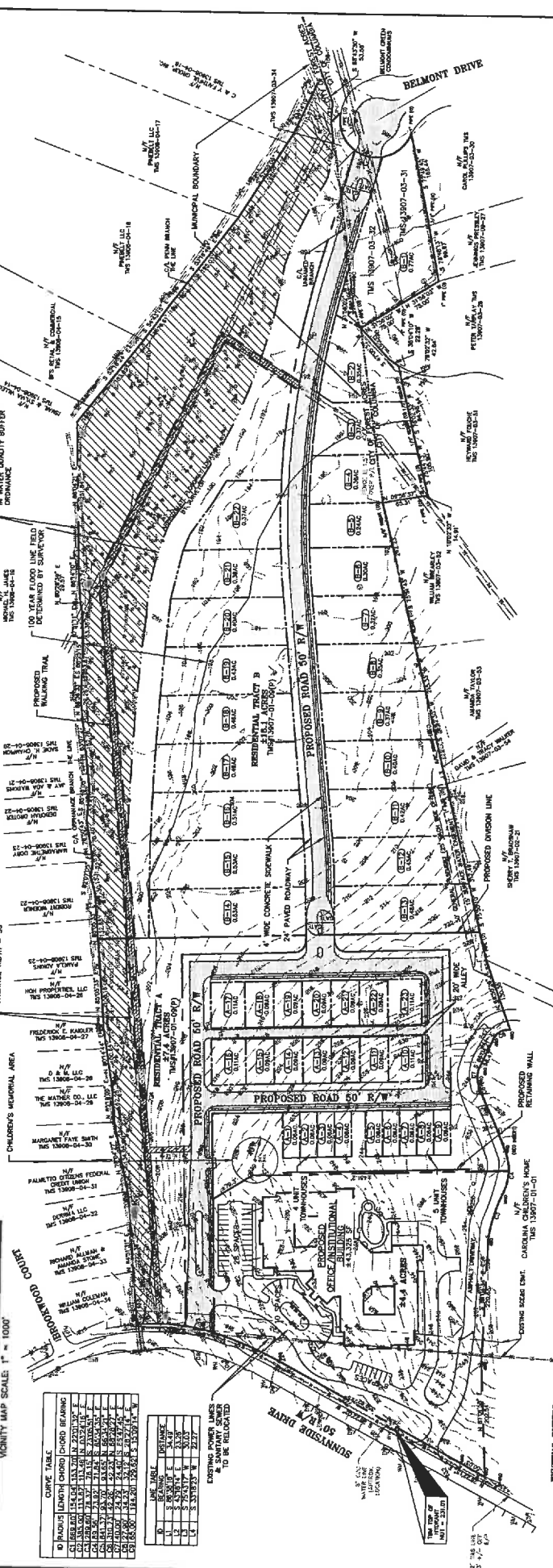
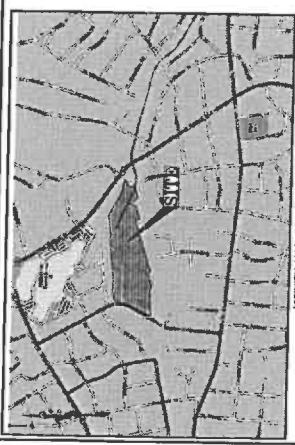
Pre-Developed Runoff Calculations

Post-Developed Runoff Calculations

Conceptual Stormwater Quality Exhibit



NOTES:  
 1. BOUNDARY AND TOPOGRAPHIC INFORMATION PROVIDED BY THE CLIENT.  
 2. ALL ELEVATIONS ARE BASED ON MEAN SEA LEVEL DATA.



PROPOSED RESIDENTIAL TRACT B  
 LOT & SETBACK REQUIREMENTS

MINIMUM LOT AREA	10,888 SQ FT
MINIMUM FRONT SETBACK	25'
MINIMUM REAR SETBACK	15'
MINIMUM ACCESSORY STRUCTURE	15'
SIDE & REAR SETBACK	3'

PROPOSED RESIDENTIAL TRACT A  
 LOT & SETBACK REQUIREMENTS

MINIMUM LOT AREA	2,400 SQ FT
MINIMUM FRONT SETBACK	0'
MINIMUM SIDE SETBACK	0'
MINIMUM REAR SETBACK	5'
MINIMUM ACCESSORY STRUCTURE	5'
SIDE & REAR SETBACK	3'

TRACT SUMMARY

RESIDENTIAL TRACT A	8.24 AC.
RESIDENTIAL TRACT B	416.1 AC.
RESIDENTIAL TRACT C	40.43 AC.
RESIDENTIAL PARCEL #1	20.03 AC.
RESIDENTIAL PARCEL #2	20.03 AC.
OPEN SPACE/INSTITUTIONAL TRACT	3.44 AC.
TOTAL	233.9 AC.

EXISTING BUFFER TREE LEGEND

- OAK TREE
- BROWN TREE
- CEDAR TREE
- TULIP TREE
- UNKNOWN TREE

TREES WITHOUT SIZE DESIGNATION ARE LESS THAN 15'

PROPOSED BUFFER SUBJECT TO 100 YEAR FLOOD LINE FIELD DRAINAGE

PROPOSED WALKING TRAIL

PROPOSED DIVISION LINE

PROPOSED RETAINING WALL

PROPOSED BUFFER AREA  
 MINIMUM WIDTH = 50'  
 AVERAGE WIDTH = 50'

CHILDREN'S MEMORIAL AREA

PROPOSED CONCRETE SIDEWALK

24' PAVED ROADSIDE

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

OWNER  
 H & M REAL ESTATE HOLDINGS, LLC  
 COLUMBIA, SOUTH CAROLINA 29202

LOT SUMMARY  
 THIS PROJECT IS SUBJECT TO THE CITY OF COLUMBIA ZONING ORDINANCE, CHAPTER 27, ARTICLE 2, SECTION 27-202.00  
 CURRENT ZONING = R-1

NOTES:  
 PROPOSED LOTS, ALTERNATIVE BUILDING, RESIDENTIAL LOTS AND STREET GEOMETRY AND UTILITIES ARE SUBJECT TO THE APPROVAL OF THE CITY ZONING ADMINISTRATOR.

PROPOSED BUFFER SUBJECT TO 100 YEAR FLOOD LINE FIELD DRAINAGE

PROPOSED WALKING TRAIL

PROPOSED DIVISION LINE

PROPOSED RETAINING WALL

PROPOSED ROAD 50' R/W

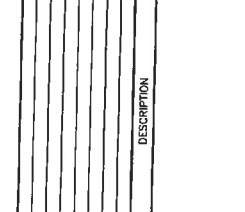
PROPOSED ROAD 50' R/W

PROPOSED ROAD 50' R/W

PROJECT No. 13059  
 DEVELOPMENT PLAN  
 PREPARED FOR  
 H & M REAL ESTATE HOLDINGS, LLC  
 IN THE CITY OF FOREST LACS, RICHLAND COUNTY, SOUTH CAROLINA  
 DATE: APR. 27, 2015 | SCALE: 1" = 80' | SHEET 01 OF 1

REVISIONS

NO.	DATE	DESCRIPTION

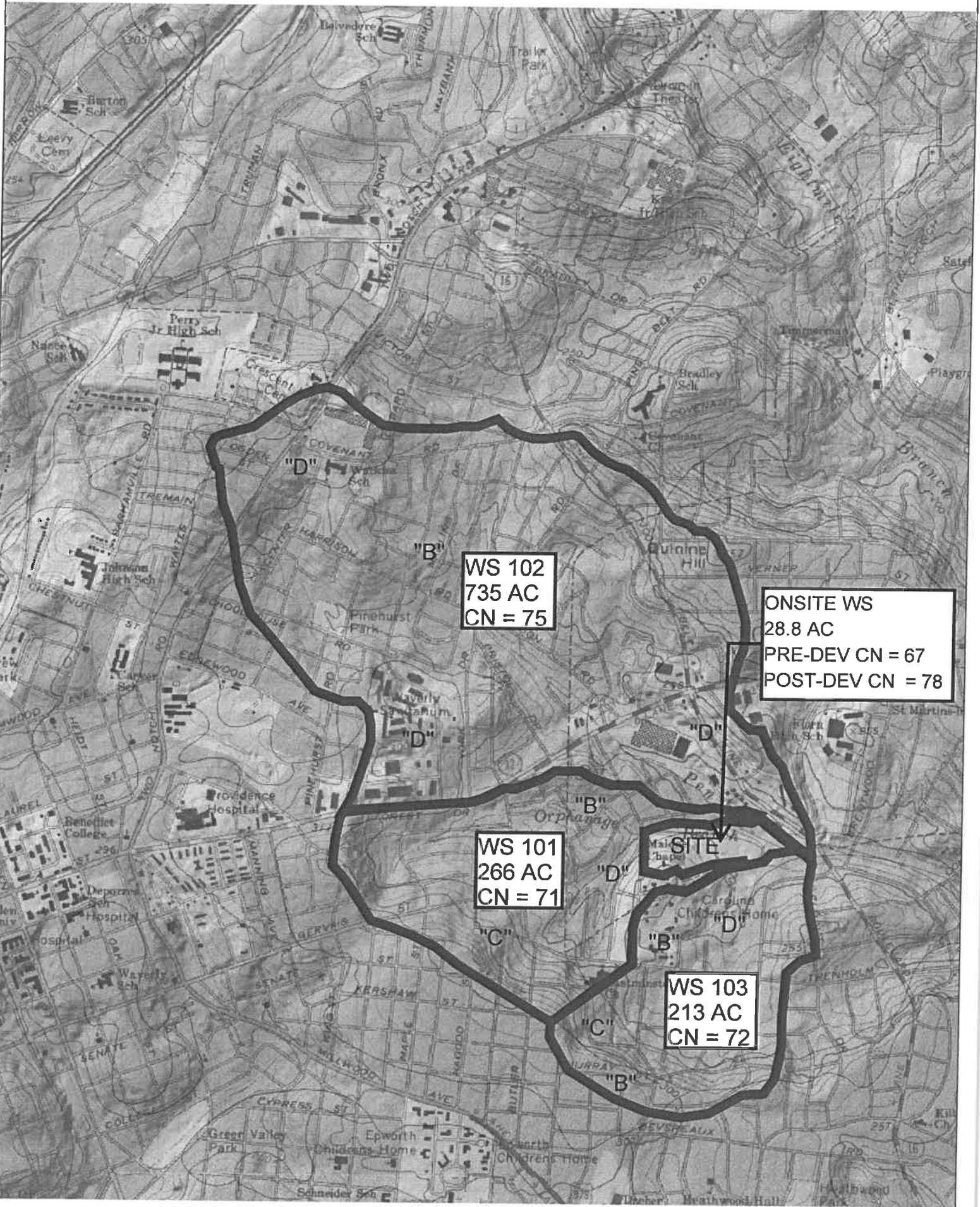


10719 WASSON ROAD, SUITE 100, COLUMBIA, SOUTH CAROLINA, 29208  
 (803) 714-9828 OFFICE • (803) 477-0288 FAX





# Richland County Map

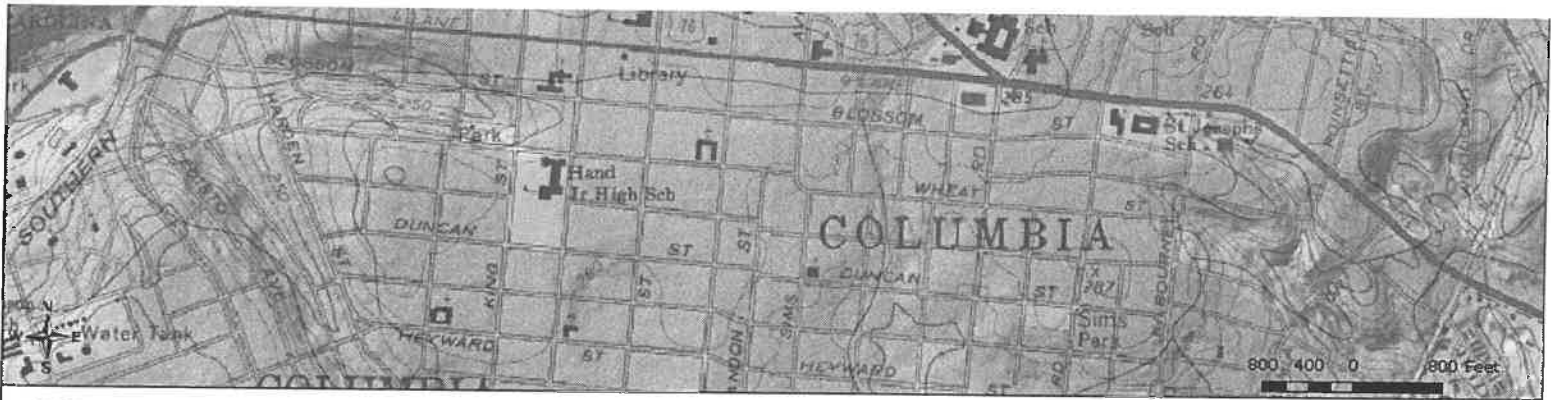


**WS 102**  
735 AC  
CN = 75

**ONSITE WS**  
28.8 AC  
PRE-DEV CN = 67  
POST-DEV CN = 78

**WS 101**  
266 AC  
CN = 71

**WS 103**  
213 AC  
CN = 72



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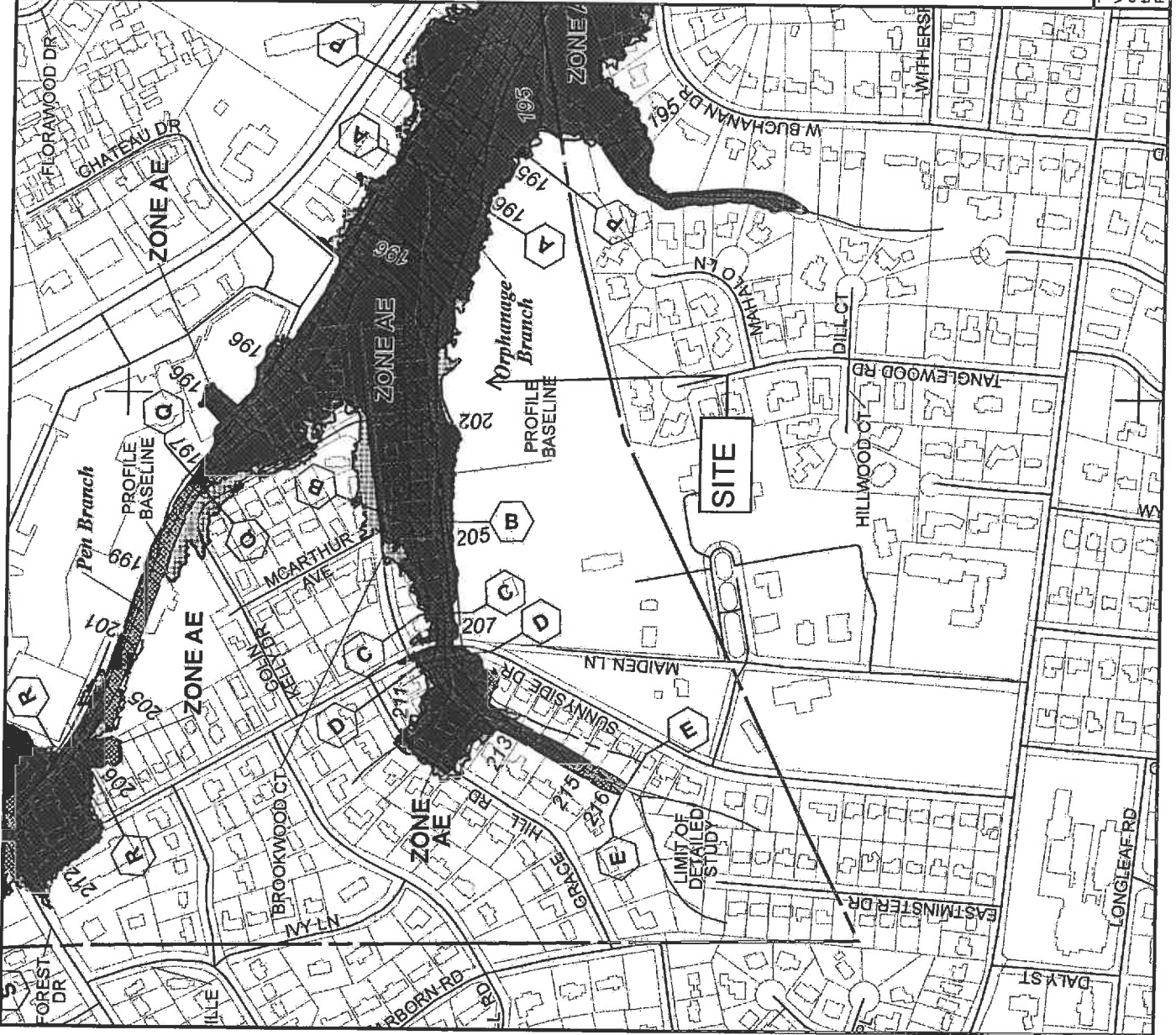
DISCLAIMER : THIS IS A PRODUCT OF THE RICHLAND COUNTY GIS DEPARTMENT. THE DATA DEPICTED HERE HAVE BEEN DEVELOPED WITH EXTENSIVE COOPERATION FROM OTHER COUNTY DEPARTMENTS, AS WELL AS OTHER FEDERAL, STATE AND LOCAL GOVERNMENTS AGENCIES. RICHLAND COUNTY EXPRESSLY DISCLAIMS RESPONSIBILITY FOR DAMAGES OR LIABILITY THAT MAY ARISE FROM THE USE OF THIS MAP.



Flood Insurance Program at 1-800-638-6620.



MAP SCALE 1" = 500'



PANEL 0263K

# FIRM

FLOOD INSURANCE RATE MAP  
RICHLAND COUNTY,  
SOUTH CAROLINA  
AND INCORPORATED AREAS

PANEL 263 OF 650  
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COLUMBIA CITY OF	450172	0263	K
FOREST ACRES, CITY OF	450174	0263	K
RICHLAND COUNTY	450176	0263	K

Notes to User: The Map Number shown below should be used when ordering maps from the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER  
45079C0263K  
MAP REVISED  
SEPTEMBER 29, 2010

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)



**PRE-DEVELOPED  
RUNOFF CALCULATIONS**

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF  
 Subarea : 101

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

COVER DESCRIPTION	Hydrologic Soil Group				
	A	B	C	D	
	Acres (CN)				
-----					
FULLY DEVELOPED URBAN AREAS (Veg Estab.)					
Urban Districts	Avg % imperv				
Commercial & business	85	-	26(92)	-	2(95)
Residential districts	Avg % imperv				
(by average lot size)					
1/2 acre	25	-	100(70)	30(80)	-
OTHER AGRICULTURAL LANDS					
Pasture, grassland or range	good	-	20(61)	-	-
Woods	good	-	35(55)	38(70)	15(77)
Total Area (by Hydrologic Soil Group)		181	68	17	
		=====	=====	=====	

-----  
 SUBAREA: 101 TOTAL DRAINAGE AREA: 266 Acres WEIGHTED CURVE NUMBER: 71  
 -----

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 12-22-2014

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: EXISTING RUNOFF

Subarea : 102

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts				
Commercial & business				
Avg % imperv				
85	-	61(92)	-	110(95)
Residential districts				
Avg % imperv				
(by average lot size)				
1/2 acre				
25	-	310(70)	-	82(85)
OTHER AGRICULTURAL LANDS				
Pasture, grassland or range				
good	-	76(61)	-	-
Woods				
good	-	60(55)	-	36(77)
Total Area (by Hydrologic Soil Group)		507		228
		=====		=====

SUBAREA: 102      TOTAL DRAINAGE AREA: 735 Acres      WEIGHTED CURVE NUMBER: 75

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF  
 Subarea : 103

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
-----				
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts				
Commercial & business				
Avg % imperv				
85	-	10 (92)	-	-
Residential districts				
Avg % imperv				
(by average lot size)				
1/2 acre				
25	-	120 (70)	30 (80)	5 (85)
OTHER AGRICULTURAL LANDS				
Woods				
good	-	26 (55)	2 (70)	20 (77)
Total Area (by Hydrologic Soil Group)		156	32	25
		=====	=====	=====

-----  
 SUBAREA: 103      TOTAL DRAINAGE AREA: 213 Acres      WEIGHTED CURVE NUMBER: 72  
 -----

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF  
 Subarea : ON

User: KH  
 Checked: \_\_\_\_\_

Date: 12-22-2014  
 Date: \_\_\_\_\_

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Impervious Areas				
Paved parking lots, roofs, driveways	-	.92(98)	-	-
OTHER AGRICULTURAL LANDS				
Pasture, grassland or range	good	-	8.4(61)	-
Woods	good	-	8.28(55)	- 11.2(77)
Total Area (by Hydrologic Soil Group)		17.6		11.2
		====		====

-----  
 SUBAREA: ON      TOTAL DRAINAGE AREA: 28.8 Acres      WEIGHTED CURVE NUMBER: 67  
 -----



TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

----- Subarea #1 - 101 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	180	.04	E					0.187
Sheet		40	.05	H					0.112
Shallow Concent'd		380	.04	U					0.033
Open Channel		4800						2.5	0.533
									Time of Concentration = 0.87*
									=====

----- Subarea #2 - 102 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	50	.04	A					0.008
Sheet		225	.04	G					0.499
Shallow Concent'd		600	.04	U					0.052
Shallow Concent'd		200	.02	P					0.019
Open Channel		8285						2.5	0.921
									Time of Concentration = 1.50*
									=====

----- Subarea #3 - 103 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	150	.04	E					0.161
Sheet		20	.04	H					0.071
Shallow Concent'd		500	.04	U					0.043
Shallow Concent'd		170	.04	P					0.012
Open Channel		3600						2.5	0.400
									Time of Concentration = 0.69*
									=====

\* - Generated for use by TABULAR method

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND  
 Subtitle: EXISTING RUNOFF

User: KH  
 Checked: \_\_\_\_\_

Date: 12-22-2014  
 Date: \_\_\_\_\_

----- Subarea #4 - ON -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	200	.05	H					0.407
Sheet		50	.05	A					0.008
Shallow Concent'd		500	.05	U					0.038
Shallow Concent'd		100	.05	P					0.006
Open Channel		1000						2.5	0.111
									Time of Concentration = 0.57*
									=====

--- Sheet Flow Surface Codes ---

A Smooth Surface	F Grass, Dense	--- Shallow Concentrated ---
B Fallow (No Res.)	G Grass, Burmuda	--- Surface Codes ---
C Cultivated < 20 % Res.	H Woods, Light	P Paved
D Cultivated > 20 % Res.	I Woods, Dense	U Unpaved
E Grass-Range, Short	J Range, Natural	

\* - Generated for use by TABULAR method

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 2 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	3.6	3.6	3.6	3.6
Curve number	71*	75*	72*	67*
Runoff(in)	1.13	1.37	1.19	0.91
Tc (hrs)	0.87*	1.50*	0.69*	0.57*
(Used)	0.75	1.50	0.75	0.50
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.23	0.19	0.22	0.27

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	12	2	8	2	0
11.3	15	3	9	3	0
11.6	22	4	14	4	0
11.9	31	6	19	6	0
12.0	39	8	22	8	1
12.1	58	14	28	13	3
12.2	103	29	41	26	7
12.3	188	59	63	52	14
12.4	303	102	95	88	18P
12.5	423	144	137	124	18
12.6	517	170	186	145	16
12.7	575	174P	241	148P	12
12.8	599P	161	292	136	10
13.0	581	116	361	98	6
13.2	559	83	401P	70	5
13.4	471	62	353	52	4
13.6	397	49	304	41	3
13.8	325	40	249	33	3
14.0	272	34	207	28	3
14.3	214	28	161	23	2
14.6	175	24	129	20	2
15.0	139	21	99	17	2
15.5	112	18	77	15	2
16.0	96	16	65	14	1
16.5	83	15	55	12	1
17.0	72	13	47	11	1
17.5	68	13	44	10	1
18.0	62	12	39	10	1
19.0	56	11	35	9	1
20.0	50	9	32	8	1
22.0	39	8	24	6	1
26.0	2	0	2	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 5 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	4.5	4.5	4.5	4.5
Curve number	71*	75*	72*	67*
Runoff(in)	1.75	2.05	1.82	1.46
Tc (hrs)	0.87*	1.50*	0.69*	0.57*
(Used)	0.75	1.50	0.75	0.50
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.18	0.15	0.17	0.22

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	27	6	16	5	0
11.3	35	8	19	7	1
11.6	46	10	26	9	1
11.9	69	15	38	14	2
12.0	86	20	45	18	3
12.1	122	31	57	27	7
12.2	201	58	78	51	14
12.3	341	109	113	94	25
12.4	525	178	165	151	31P
12.5	709	242	231	205	31
12.6	848	279P	308	235P	26
12.7	926	279	393	234	20
12.8	953P	255	469	214	15
13.0	907	181	565	151	10
13.2	860	128	619P	106	7
13.4	717	94	539	78	6
13.6	597	73	459	60	5
13.8	486	59	374	49	4
14.0	400	49	306	41	4
14.3	312	41	235	33	3
14.6	252	35	186	28	3
15.0	198	30	141	24	3
15.5	158	26	108	22	2
16.0	133	23	89	19	2
16.5	118	21	78	17	2
17.0	103	19	66	16	2
17.5	95	17	61	15	2
18.0	87	17	54	14	2
19.0	75	15	47	12	1
20.0	67	13	42	11	1
22.0	54	11	33	9	1
26.0	2	0	2	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 10 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	5.3	5.3	5.3	5.3
Curve number	71*	75*	72*	67*
Runoff(in)	2.35	2.69	2.43	2.01
Tc (hrs)	0.87*	1.50*	0.69*	0.57*
(Used)	0.75	1.50	0.75	0.50
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.15	0.13	0.15	0.19

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	43	9	25	8	1
11.3	56	13	31	11	1
11.6	75	18	40	15	2
11.9	107	25	56	23	3
12.0	134	33	68	28	5
12.1	189	50	84	44	11
12.2	300	90	111	77	22
12.3	495	161	161	137	36
12.4	746	255	232	215	44P
12.5	991	340	322	286	43
12.6	1174	387P	427	324P	36
12.7	1272	383	542	320	27
12.8	1301P	349	641	290	21
13.0	1224	244	764	203	13
13.2	1153	170	832P	141	10
13.4	953	124	718	103	8
13.6	787	96	607	78	6
13.8	638	77	492	63	6
14.0	524	64	402	53	5
14.3	406	53	306	43	4
14.6	325	44	241	36	4
15.0	255	38	183	31	3
15.5	204	34	139	28	3
16.0	172	30	115	24	3
16.5	150	26	99	22	3
17.0	129	24	84	19	2
17.5	117	22	74	19	2
18.0	108	21	68	17	2
19.0	95	19	59	15	2
20.0	86	17	53	14	2
22.0	66	14	40	11	1
26.0	3	0	3	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines



TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 25 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	6.4	6.4	6.4	6.4
Curve number	71*	75*	72*	67*
Runoff(in)	3.22	3.63	3.32	2.84
Tc (hrs)	0.87*	1.50*	0.69*	0.57*
(Used)	0.75	1.50	0.75	0.50
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.13	0.10	0.12	0.15

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	67	15	37	13	2
11.3	87	21	46	18	2
11.6	116	28	62	23	3
11.9	169	42	87	35	5
12.0	208	54	100	45	9
12.1	289	79	125	67	18
12.2	456	138	167	117	34
12.3	732	240	237	201	54
12.4	1083	371	337	311	64P
12.5	1419	488	462	407	62
12.6	1665	549P	608	457P	51
12.7	1783	537	762	446	38
12.8	1814P	486	895	404	29
13.0	1691	336	1058	278	19
13.2	1577	232	1141P	191	13
13.4	1294	168	978	138	10
13.6	1064	127	824	105	8
13.8	855	102	662	84	7
14.0	698	84	537	70	7
14.3	538	68	408	56	6
14.6	427	58	316	48	5
15.0	333	50	237	41	5
15.5	262	44	179	35	4
16.0	220	39	146	31	4
16.5	191	35	125	28	3
17.0	163	31	104	25	3
17.5	151	29	96	23	3
18.0	139	27	87	22	3
19.0	121	24	75	20	2
20.0	108	21	67	18	2
22.0	83	17	50	14	2
26.0	4	0	4	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: EXISTING RUNOFF

User: KH Date: 12-22-2014  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 100 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	8.3	8.3	8.3	8.3
Curve number	71*	75*	72*	67*
Runoff(in)	4.84	5.31	4.96	4.37
Tc (hrs)	0.87*	1.50*	0.69*	0.57*
(Used)	0.75	1.50	0.75	0.50
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.10	0.08	0.09	0.12
(Used)	0.10	0.10	0.10	0.12

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	105	26	55	21	3
11.3	137	36	67	30	4
11.6	186	48	92	40	6
11.9	269	72	128	59	10
12.0	339	93	153	76	17
12.1	469	137	189	112	31
12.2	729	231	250	190	58
12.3	1153	390	354	320	89
12.4	1679	592	500	485	102P
12.5	2174	765	683	627	99
12.6	2529	853P	897	700P	79
12.7	2683	825	1123	677	58
12.8	2714P	742	1318	609	45
13.0	2507	507	1556	416	28
13.2	2327	346	1678P	284	19
13.4	1905	247	1440	203	15
13.6	1560	187	1208	153	12
13.8	1252	149	970	122	11
14.0	1021	123	787	101	10
14.3	786	99	598	81	8
14.6	621	82	464	68	7
15.0	482	70	348	58	6
15.5	381	62	262	51	6
16.0	318	54	214	45	5
16.5	276	48	183	40	5
17.0	237	44	153	36	4
17.5	217	40	140	33	4
18.0	201	38	128	31	4
19.0	175	34	110	28	3
20.0	156	30	98	25	3
22.0	120	24	73	20	3
26.0	6	0	6	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

**POST-DEVELOPED  
RUNOFF CALCULATIONS**

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: PROPOSED RUNOFF  
 Subarea : 101

User: KH  
 Checked: \_\_\_\_\_

Date: 01-13-2015  
 Date: \_\_\_\_\_

COVER DESCRIPTION	Hydrologic Soil Group				
	A	B	C	D	
	Acres (CN)				
-----					
FULLY DEVELOPED URBAN AREAS (Veg Estab.)					
Urban Districts	Avg % imperv				
Commercial & business	85	-	26(92)	-	2(95)
Residential districts	Avg % imperv				
(by average lot size)					
1/2 acre	25	-	100(70)	30(80)	-
OTHER AGRICULTURAL LANDS					
Pasture, grassland or range	good	-	20(61)	-	-
Woods	good	-	35(55)	38(70)	15(77)
Total Area (by Hydrologic Soil Group)		181	68	17	
		=====	=====	=====	

-----  
 SUBAREA: 101 TOTAL DRAINAGE AREA: 266 Acres WEIGHTED CURVE NUMBER: 71  
 -----

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 01-13-2015

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: PROPOSED RUNOFF

Subarea : 102

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts				
Commercial & business				
Avg % imperv				
85	-	61(92)	-	110(95)
Residential districts				
Avg % imperv				
(by average lot size)				
1/2 acre				
25	-	310(70)	-	82(85)
OTHER AGRICULTURAL LANDS				
Pasture, grassland or range				
good	-	76(61)	-	-
Woods				
good	-	60(55)	-	36(77)
Total Area (by Hydrologic Soil Group)		507		228
		=====		=====

SUBAREA: 102      TOTAL DRAINAGE AREA: 735 Acres      WEIGHTED CURVE NUMBER: 75



RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 01-13-2015

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: PROPOSED RUNOFF

Subarea : 103

COVER DESCRIPTION	Hydrologic Soil Group			
	A	B	C	D
	Acres (CN)			
-----				
FULLY DEVELOPED URBAN AREAS (Veg Estab.)				
Urban Districts	Avg % imperv			
Commercial & business	85	-	-	-
	-	10 (92)	-	-
Residential districts	Avg % imperv			
(by average lot size)				
1/2 acre	25	-	120 (70)	30 (80)
	-	120 (70)	30 (80)	5 (85)
OTHER AGRICULTURAL LANDS				
Woods	good	-	26 (55)	2 (70)
		-	26 (55)	20 (77)
Total Area (by Hydrologic Soil Group)				
		156	32	25
		====	====	====

SUBAREA: 103

TOTAL DRAINAGE AREA: 213 Acres

WEIGHTED CURVE NUMBER: 72

RUNOFF CURVE NUMBER COMPUTATION

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 01-13-2015

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: PROPOSED RUNOFF

Subarea : ON

COVER DESCRIPTION	Hydrologic Soil Group				
	A	B	C	D	
	Acres (CN)				
FULLY DEVELOPED URBAN AREAS (Veg Estab.)					
Urban Districts	Avg % imperv				
Commercial & business	85	-	4.7 (92)	-	0.2 (95)
Residential districts	Avg % imperv				
(by average lot size)					
1/4 acre	38	-	5.6 (75)	-	0.4 (87)
1/2 acre	25	-	8.7 (70)	-	3.8 (85)
OTHER AGRICULTURAL LANDS					
Woods	good	-	-	-	5.4 (77)
Total Area (by Hydrologic Soil Group)		19		9.8	
		====		====	

SUBAREA: ON

TOTAL DRAINAGE AREA: 28.8 Acres

WEIGHTED CURVE NUMBER: 78

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 01-13-2015

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: PROPOSED RUNOFF

----- Subarea #1 - 101 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	180	.04	E					0.187
Sheet		40	.05	H					0.112
Shallow Concent'd		380	.04	U					0.033
Open Channel		4800						2.5	0.533
									Time of Concentration = 0.87*
									=====

----- Subarea #2 - 102 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	50	.04	A					0.008
Sheet		225	.04	G					0.499
Shallow Concent'd		600	.04	U					0.052
Shallow Concent'd		200	.02	P					0.019
Open Channel		8285						2.5	0.921
									Time of Concentration = 1.50*
									=====

----- Subarea #3 - 103 -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	150	.04	E					0.161
Sheet		20	.04	H					0.071
Shallow Concent'd		500	.04	U					0.043
Shallow Concent'd		170	.04	P					0.012
Open Channel		3600						2.5	0.400
									Time of Concentration = 0.69*
									=====

\* - Generated for use by TABULAR method

TIME OF CONCENTRATION AND TRAVEL TIME

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 01-13-2015

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: PROPOSED RUNOFF

----- Subarea #4 - ON -----

Flow Type	2 year rain	Length (ft)	Slope (ft/ft)	Surface code	n	Area (sq/ft)	Wp (ft)	Velocity (ft/sec)	Time (hr)
Sheet	3.6	150	.04	A					0.020
Sheet		50	.05	G					0.137
Shallow Concent'd		430	.05	U					0.033
Shallow Concent'd		220	.05	P					0.013
Open Channel		1000						2.5	0.111
									Time of Concentration = 0.31*
									=====

--- Sheet Flow Surface Codes ---

A Smooth Surface	F Grass, Dense	--- Shallow Concentrated ---
B Fallow (No Res.)	G Grass, Burmuda	--- Surface Codes ---
C Cultivated < 20 % Res.	H Woods, Light	P Paved
D Cultivated > 20 % Res.	I Woods, Dense	U Unpaved
E Grass-Range, Short	J Range, Natural	

\* - Generated for use by TABULAR method

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME

User: KH

Date: 01-13-2015

County : RICHLAND

State: SC

Checked: \_\_\_\_\_

Date: \_\_\_\_\_

Subtitle: PROPOSED RUNOFF

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 2 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	3.6	3.6	3.6	3.6
Curve number	71*	75*	72*	78*
Runoff(in)	1.13	1.37	1.19	1.57
Tc (hrs)	0.87*	1.50*	0.69*	0.31*
(Used)	0.75	1.50	0.75	0.30
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.23	0.19	0.22	0.16

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	13	2	8	2	1
11.3	16	3	9	3	1
11.6	24	4	14	4	2
11.9	37	6	19	6	6
12.0	51	8	22	8	13
12.1	83	14	28	13	28
12.2	141	29	41	26	45
12.3	220	59	63	52	46P
12.4	317	102	95	88	32
12.5	425	144	137	124	20
12.6	515	170	186	145	14
12.7	574	174P	241	148P	11
12.8	598P	161	292	136	9
13.0	581	116	361	98	6
13.2	559	83	401P	70	5
13.4	471	62	353	52	4
13.6	398	49	304	41	4
13.8	326	40	249	33	4
14.0	272	34	207	28	3
14.3	215	28	161	23	3
14.6	176	24	129	20	3
15.0	139	21	99	17	2
15.5	112	18	77	15	2
16.0	97	16	65	14	2
16.5	84	15	55	12	2
17.0	73	13	47	11	2
17.5	69	13	44	10	2
18.0	62	12	39	10	1
19.0	56	11	35	9	1
20.0	50	9	32	8	1
22.0	39	8	24	6	1
26.0	2	0	2	0	0

P - Peak Flow

\* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: PROPOSED RUNOFF

User: KH Date: 01-13-2015  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 5 years

	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	4.5	4.5	4.5	4.5
Curve number	71*	75*	72*	78*
Runoff(in)	1.75	2.05	1.82	2.29
Tc (hrs)	0.87*	1.50*	0.69*	0.31*
(Used)	0.75	1.50	0.75	0.30
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.18	0.15	0.17	0.13

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	29	6	16	5	2
11.3	36	8	19	7	2
11.6	49	10	26	9	4
11.9	78	15	38	14	11
12.0	105	20	45	18	22
12.1	159	31	57	27	44
12.2	255	58	78	51	68P
12.3	384	109	113	94	68
12.4	541	178	165	151	47
12.5	708	242	231	205	30
12.6	843	279P	308	235P	21
12.7	921	279	393	234	15
12.8	950P	255	469	214	12
13.0	906	181	565	151	9
13.2	860	128	619P	106	7
13.4	717	94	539	78	6
13.6	597	73	459	60	5
13.8	487	59	374	49	5
14.0	401	49	306	41	5
14.3	313	41	235	33	4
14.6	253	35	186	28	4
15.0	198	30	141	24	3
15.5	159	26	108	22	3
16.0	134	23	89	19	3
16.5	118	21	78	17	2
17.0	103	19	66	16	2
17.5	95	17	61	15	2
18.0	87	17	54	14	2
19.0	76	15	47	12	2
20.0	67	13	42	11	1
22.0	54	11	33	9	1
26.0	2	0	2	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: PROPOSED RUNOFF

User: KH Date: 01-13-2015  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 10 years

	Subareas			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	5.3	5.3	5.3	5.3
Curve number	71*	75*	72*	78*
Runoff(in)	2.35	2.69	2.43	2.97
Tc (hrs)	0.87*	1.50*	0.69*	0.31*
(Used)	0.75	1.50	0.75	0.30
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.15	0.13	0.15	0.11

Time (hr)	Total Flow	Subarea Contribution to Total Flow (cfs)			
		101	102	103	ON
11.0	45	9	25	8	3
11.3	59	13	31	11	4
11.6	78	18	40	15	5
11.9	119	25	56	23	15
12.0	160	33	68	28	31
12.1	237	50	84	44	59
12.2	368	90	111	77	90P
12.3	549	161	161	137	90
12.4	763	255	232	215	61
12.5	986	340	322	286	38
12.6	1164	387P	427	324P	26
12.7	1265	383	542	320	20
12.8	1295P	349	641	290	15
13.0	1222	244	764	203	11
13.2	1152	170	832P	141	9
13.4	953	124	718	103	8
13.6	788	96	607	78	7
13.8	638	77	492	63	6
14.0	525	64	402	53	6
14.3	407	53	306	43	5
14.6	325	44	241	36	4
15.0	256	38	183	31	4
15.5	205	34	139	28	4
16.0	172	30	115	24	3
16.5	150	26	99	22	3
17.0	130	24	84	19	3
17.5	118	22	74	19	3
18.0	108	21	68	17	2
19.0	95	19	59	15	2
20.0	86	17	53	14	2
22.0	67	14	40	11	2
26.0	3	0	3	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: PROPOSED RUNOFF

User: KH Date: 01-13-2015  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 25 years

	Subareas			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	6.4	6.4	6.4	6.4
Curve number	71*	75*	72*	78*
Runoff(in)	3.22	3.63	3.32	3.93
Tc (hrs)	0.87*	1.50*	0.69*	0.31*
(Used)	0.75	1.50	0.75	0.30
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.13	0.10	0.12	0.09
(Used)	0.13	0.10	0.12	0.10

Time (hr)	Total Flow	Subarea Contribution to Total Flow (cfs)			
		101	102	103	ON
11.0	69	15	37	13	4
11.3	90	21	46	18	5
11.6	120	28	62	23	7
11.9	185	42	87	35	21
12.0	241	54	100	45	42
12.1	350	79	125	67	79
12.2	542	138	167	117	120P
12.3	798	240	237	201	120
12.4	1100	371	337	311	81
12.5	1407	488	462	407	50
12.6	1649	549P	608	457P	35
12.7	1771	537	762	446	26
12.8	1805P	486	895	404	20
13.0	1686	336	1058	278	14
13.2	1576	232	1141P	191	12
13.4	1294	168	978	138	10
13.6	1065	127	824	105	9
13.8	856	102	662	84	8
14.0	698	84	537	70	7
14.3	539	68	408	56	7
14.6	428	58	316	48	6
15.0	333	50	237	41	5
15.5	263	44	179	35	5
16.0	220	39	146	31	4
16.5	192	35	125	28	4
17.0	164	31	104	25	4
17.5	151	29	96	23	3
18.0	139	27	87	22	3
19.0	122	24	75	20	3
20.0	108	21	67	18	2
22.0	83	17	50	14	2
26.0	4	0	4	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines



TABULAR HYDROGRAPH METHOD

Version 2.10

Project : CAROLINA CHILDRENS HOME  
 County : RICHLAND State: SC  
 Subtitle: PROPOSED RUNOFF

User: KH Date: 01-13-2015  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

Total watershed area: 1.942 sq mi Rainfall type: II Frequency: 100 years

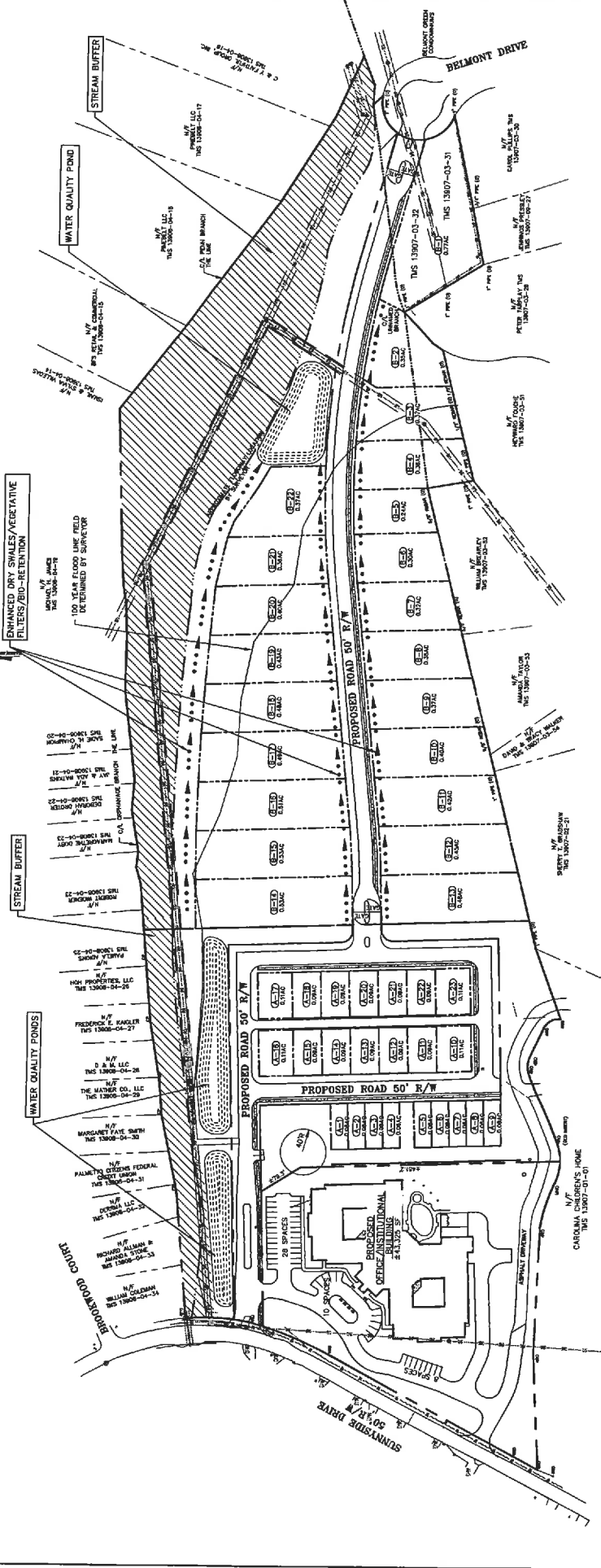
	----- Subareas -----			
	101	102	103	ON
Area(sq mi)	0.42*	1.15*	0.33*	0.04*
Rainfall(in)	8.3	8.3	8.3	8.3
Curve number	71*	75*	72*	78*
Runoff(in)	4.84	5.31	4.96	5.67
Tc (hrs)	0.87*	1.50*	0.69*	0.31*
(Used)	0.75	1.50	0.75	0.30
TimeToOutlet	0.00	0.00	0.00	0.00
Ia/P	0.10	0.08	0.09	0.07
(Used)	0.10	0.10	0.10	0.10

Time (hr)	Total Flow	----- Subarea Contribution to Total Flow (cfs) -----			
		101	102	103	ON
11.0	107	26	55	21	5
11.3	140	36	67	30	7
11.6	190	48	92	40	10
11.9	289	72	128	59	30
12.0	382	93	153	76	60
12.1	552	137	189	112	114
12.2	843	231	250	190	172P
12.3	1236	390	354	320	172
12.4	1694	592	500	485	117
12.5	2147	765	683	627	72
12.6	2500	853P	897	700P	50
12.7	2662	825	1123	677	37
12.8	2698P	742	1318	609	29
13.0	2499	507	1556	416	20
13.2	2325	346	1678P	284	17
13.4	1905	247	1440	203	15
13.6	1561	187	1208	153	13
13.8	1253	149	970	122	12
14.0	1022	123	787	101	11
14.3	787	99	598	81	9
14.6	622	82	464	68	8
15.0	484	70	348	58	8
15.5	382	62	262	51	7
16.0	319	54	214	45	6
16.5	277	48	183	40	6
17.0	238	44	153	36	5
17.5	218	40	140	33	5
18.0	202	38	128	31	5
19.0	176	34	110	28	4
20.0	156	30	98	25	3
22.0	120	24	73	20	3
26.0	6	0	6	0	0

P - Peak Flow \* - value(s) provided from TR-55 system routines

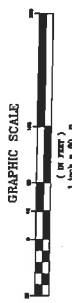
- NOTES:
1. EXISTING AND PROPOSED STORMWATER INFRASTRUCTURE SHOWN BY DASHED AND SOLID LINES, RESPECTIVELY.
  2. ALL ELEVATIONS ARE BASED ON MEAN SEA LEVEL DATA.

NOTE: THIS EXHIBIT IS INTENDED TO ILLUSTRATE GENERAL WATER QUALITY MEASURES DESCRIBED IN THE STUDY, THE LOCATION, TYPE AND EXTENT OF WHICH MAY VARY AS DESIGN DEVELOPMENT PROGRESSES AND IS SUBJECT TO CHANGE BASED ON FINAL DESIGN.



LET SUMMARY  
 H & M REAL ESTATE HOLDINGS, LLC  
 1500 S. FIRST ST. SUITE 300  
 COLUMBIA, SOUTH CAROLINA 29902

PROJECT NO. 13059  
 PREPARED FOR  
 H&M REAL ESTATE HOLDINGS, LLC  
 IN THE CITY OF FORREST ACRE, BEGLEND COUNTY, SOUTH CAROLINA  
 DATE: APR. 27, 2015 | SCALE: 1" = 60'



18719 WILSON ROAD, SUITE 100 • BOYNTON, S.C. 29018  
 (803) 774-4668 OFFICE • (803) 777-8946 FAX

### CONCEPTUAL STORMWATER QUALITY EXHIBIT

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 PREPARED FOR  
 H&M REAL ESTATE HOLDINGS, LLC  
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 DATE: APR. 27, 2015 | SCALE: 1" = 60'

NO.	DATE	DESCRIPTION