Towns of Rolesville, Wendell and Zebulon Stormwater Tool Directions

The Wake County Municipal Stormwater Tool is required for all stormwater submittals in Rolesville Wendell, and Zebulon. Engineer will input all data requested that is highlighted in blue. Engineer may follow provided links to view calculations used in this tool. Calculations for peak flow, runoff, time of concentration, etc. are for individual drainage areas. Engineer should complete a worksheet for each drainage area within a project limit.

	Complete SITE DATA worksheet. SITE DATA worksheet should be submitted with preliminary plan submittals and modified and submitted for construction plan submittals.
1	The 2-yr, 24-hr rainfall input will be used for projects requesting LID classification further into the tool. The 10-year, 24-hour rainfall input will be used for potential Downstream Impact Analyses (DIA).
	Stormwater Narrative should describe the site conditions in pre- and post-development conditions including a description of site improvements and proposed stormwater BMPs.
	Complete DA worksheets. Most of the site data is inputted by the engineer on the DA worksheets. DA worksheets are designed essentially to account for Ultra-Low, Low, and High Density project requirements per Ordinance standards.
2	DA Worksheets will calculate runoff, time of concentration, peak flow, and volume to be managed per drainage area. Inputs will also be used to calculate the site composite curve numbers for pre and post development, Target Curve Number (TCN), and total nitrogen loading (TN) calculations.
2	This sheet will also calculate required volume management for the 1st inch rainfall for high density projects. 1st inch of runoff should be handled by each DA BMP for High Density projects.
	Disconnected Impervious - This area will be used to provide an adjusted post development composite curve number (CN _{adjusted}) to allow a credit for the use of disconnected impervious. Site plans should clearly indicate areas of disconnected impervious.
	SITE SUMMARY worksheet summarizes the pre and post runoff, Tc, and peak flow per drainage area based on inputs from DA worksheets. This worksheet denotes the volume required for management per drainage area based on high density requirements.
2	TCN and composite curve numbers for pre and post development are also calculated and summarized. If the TCN is exceeded, this worksheet will calculate total volume to be managed for the entire site based on TCN requirements.
3	Nitrogen Loading: Nitrogen Loading Rate for the site is calculated based on the Hydrologic Soil Groups and site acreages imputed on DA worksheets. This worksheet calculates the total amount of nitrogen loading. Nitrogen total will be used on following BMP worksheets.
	Note: There are no engineer inputs on this sheet and all exeedances from DA worksheets will be flagged in red.
	DA BMP worksheets require engineer to input proposed BMP information. BMPs are categorized by sub-basins within the drainage area. Engineer should input BMP device name, type, and volume provided. BMP requirements are automatically imported from previous inputs.
	Engineer should input land uses by sub-basin. Off-site drainage to the sub-basin may also be inputted to allow credit for nitrogen removal (if said drainage is routed through the BMP).
4	BMPs are required in each DA where post-development peak flow is higher than pre-development peak flow. Only under special circumstances will a BMP not be required. In these cases, the engineer must show the following: 1. Total runoff volume for the DA must be less than 10% of the entire site runoff. 2. TN must be handled for the site elsewhere. 3. Runoff must not leave the DA at an erosive velocity. 4. Proposed design must comply with all state and federal regulations.
	DA BMP worksheets will ensure that proposed BMPs meet requirements for peak flow, TCN, and for Nitrogen. Engineer must input post-BMP discharge.
	Note: Engineers are required to input post BMP peak flow for the 1-year, 2-year, and 10-year storms for each DA. The SW Design Tool uses the TR-55 method. The TR-55 method is preferred for post BMP calculations. If engineer uses a method/model other than TR-55 for the post-BMP peak discharge and runoff, engineer must also provide pre-development calculations from the method/model (in addition to the SW Design Tool) and pre-development calculations must be within 10% of results computed by the SW Design Tool). A summary sheet should be attached with the submittal to for all inputs used in design.
	BMP SUMMARY worksheet summarizes the pre and post BMP runoff, and peak flow per drainage area based on inputs from DA BMP worksheets.
5	Nitrogen Loading: Nitrogen mitigated for the site is calculated based on the inputs on DA BMP worksheets. This worksheet calculates the total amount of nitrogen left to be mitigated for the site (Wendell only). Site expansions use the aportioning method.
	Note: There are no engineer inputs on this sheet and all exeedances from DA BMP worksheets will be flagged in red.
	LID worksheet summarizes the pre and post runoff, Tc, and peak flow per drainage area for the 2-year, 24-hour storm based on inputs from DA and BMP worksheets. This worksheet will determine if design calculations provided meet LID classification.
6	Engineers may wish to modify site design or mitigate with additional BMPs to meet LID Requirements. In that case, DA and BMP worksheets should be modified to meet these requirements and the LID sheet will be updated automatically.
	If calculation requirements for LID are met, Engineer should complete the LID CHECKLIST on LID worksheet and provide associated documentation to determine if project meets ALL LID requirements.
7	Downstream Impact Analysis DIA worksheet presents requirements for a downstream impact analysis. Based on engineer inputs, this sheet will report if a DIA is required for the project based on the 10- year storm discharge leaving each discharge point. This stormwater tool does NOT complete the actual downstream impact analyses.
	A DIA shall be performed at the outlet(s) of the site, and downstream at each tributary junction to the point(s) in the conveyance system where the area of the portion of the site draining into the system is less than or equal to 10 percent of the total drainage area above that point. The outflow hydrograph at these points is to be determined for the pre-development condition. Then, the outflow hydrograph at each of these points is to be determined for the conditions after the site in question has been developed. All hydrographs and inputs should be provided with plan submittal.



SITE DATA

		Project Information
	Project Name:	Arden Senior Living Center
	Applicant:	Juan Montes
	Applicant Contact Name:	Juan Montes
	Applicant Contact Number:	919-361-5000
	Contact Email:	montes@Mcadamsco.com
	Municipal Jurisdiction (Select from dropdown menu):	Rolesville
	Last Updated:	Wednesday, January 3, 2024
		Site Data:
	Total Site Area (Ac):	10.41
	Existing Lake/Pond Area (Ac):	0.00
	Proposed Disturbed Area (Ac):	8.26
	Impervious Surface Area (acre):	5.93
	Type of Development (Select from Dropdown menu):	Residential
	Percent Built Upon Area (BUA):	57%
	Project Density:	High
	Is the proposed project a site expansion?	Νο
	Number of Drainage Areas on Site:	4
	1-Year, 24-Hour Storm (inches) (See NOAA Website):	2.86
NOAA	2-Year, 24-Hour Storm (inches) (See NOAA Website):	3.46
	10-Year, 24-Hour Storm (inches) (See NOAA Website):	5.04
		Lot Data (if applicable):
	Total Acreage in Lots:	
	Number of Lots:	
	Average Lot Size (SF):	
	Total Impervious Surface Area on Lots (SF):	
	Average Impervious Surface Area Per Lot (SF):	
	Stormwater Narrative (limit to 1,200	characters - attach additional pages with submittal if necessary):
Arden Senior Li the Stormwater	ving is a proposed subdivision in Rolesville, Wake County of NC. Calculations book.	The existing site is an undveloped forrest. This site utilitizes one stormwater control measure. For more detail see



DRAINAGE AREA 1 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT			POST-DEVELOPMENT				
Drainage Area (Acres)=		5.	59			12	.86	
Site Acreage within Drainage=		4.	57			9.	61	
One-year, 24-hour rainfall (in)=				2.	86			
Two-year, 24-hour rainfall (in)=				3.	46			
Ten-year, 24-hour storm (in)=				5.	04			
Total Lake/Pond Area (Acres)=								
Lake/Pond Area not in the Tc flow path (Acres)=								
Site Land Use (acres):	А	В	С	D	А	В	С	D
Pasture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Fair Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Good Condition	0.00	0.36	4.14	0.07	0.00	0.39	0.58	0.12
Open Space, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Fair condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Good Condition	0.00	0.00	0.00	0.00	0.00	0.94	1.51	0.14
Reforestation (in dedicated OS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connected Impervious	0.00	0.00	0.00	0.00	0.00	2.18	3.75	0.00
Disconnected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITE FLOW	PR	E-DEVEL	OPMEN	Г Т _с	POST-DEVELOPMENT Tc			
Sheet Flow								
Length (ft)=	-	100	0.00			100	0.00	
Slope (ft/ft)=		0.0	060			0.0)35	
Surface Cover:		Wo	ods			Wo	ods	
n-value=		0.4	100		0.400			
T _t (hrs)=		0.2	244			0.3	303	
Shallow Flow					•			
Length (ft)=		380	0.00			686	6.00	
Slope (ft/ft)=		0.0)55			0.0)36	
Surface Cover:		Unp	aved			Unp	aved	
Average Velocity (ft/sec)=		3.	78			3.	06	
T _t (hrs)=		0.	03			0.	06	
Channel Flow 1								
Length (ft)=		142	2.00			103	3.00	
Slope (ft/ft)=		0.0)35			0.0)19	
Cross Sectional Flow Area (ft ²)=		4.	00			10	.50	
Wetted Perimeter (ft)=		6.	00			9.	50	
Channel Lining:		Gr	ass			Gra	ass	
n-value=		0.0)35			0.0)35	
Hydraulic Radius (ft)=		0.	67			1.	11	
Average Velocity (ft/sec)=		6.	08			6.	27	
T _t (hrs)=		0.	01			0.	00	



DRAINAGE AREA 1 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.28	0.37
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT 69	POST-DEVELOPMENT 87
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT 69	POST-DEVELOPMENT 87
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT 69	POST-DEVELOPMENT 87
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT 69 8	POST-DEVELOPMENT 87 7
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT 69 8	POST-DEVELOPMENT 87 7
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT 69 8 21,	POST-DEVELOPMENT 87 7 707
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT 69 8 21,	POST-DEVELOPMENT 87 7 7
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} =	PRE-DEVELOPMENT 69 8 21, 0.59	POST-DEVELOPMENT 87 7 7 707 1.59
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 69 21, 0.59 9,841	POST-DEVELOPMENT 87 7 7 707 1.59 55,507
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) =	PRE-DEVELOPMENT 69 21, 0.59 9,841 45,	POST-DEVELOPMENT 87 7 7 707 1.59 55,507 666
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} =	PRE-DEVELOPMENT 69 21, 0.59 9,841 45,	POST-DEVELOPMENT 87 7 7 707 1.59 55,507 666
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (finches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT 69 21, 0.59 9,841 45,	POST-DEVELOPMENT 87 7 7 7 1.59 55,507 666
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} =	PRE-DEVELOPMENT 69 21, 0.59 9,841 45, 0.93	POST-DEVELOPMENT 87 7 7 7 1.59 55,507 666 2.12
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 69 21, 21, 0.59 9,841 45, 0.93 15,368	POST-DEVELOPMENT 87 7 7 707 666 666 666 7 2.12 73,851
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Peak Discharge (cfs) = Q _{1-year} = Peak Discharge (cfs) = Q _{1-year} =	PRE-DEVELOPMENT 69 21, 0.59 9,841 45, 0.93 15,368	POST-DEVELOPMENT 87 7 7 7 7 666 666 2.12 73,851
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = Migh Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (from 1" rainfall for DA High Density Only Volume Colspan="2">Volume from 1" rainfall for DA High Density Only Volume Colspan="2">Volume from 1" rainfall for DA High Density Only Volume of runoff (from 3) = Volume of runoff (from 1" Volume of runoff (from 3) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (frl 3) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) </td <td>PRE-DEVELOPMENT 69 21, 0.59 9,841 45, 0.93 15,368</td> <td>POST-DEVELOPMENT 87 7 7 7 1.59 55,507 666 2.12 73,851</td>	PRE-DEVELOPMENT 69 21, 0.59 9,841 45, 0.93 15,368	POST-DEVELOPMENT 87 7 7 7 1.59 55,507 666 2.12 73,851
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} =	PRE-DEVELOPMENT 69 21, 0.59 9,841 45, 0.93 15,368 1.98	POST-DEVELOPMENT 87 7 7 7 7 1.59 55,507 666 2.12 73,851 3.57
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft ³) = Volume of runoff (inches) = Q* _{10-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 69 21, 21, 0.59 9,841 45, 0.93 15,368 1.98 32,862	POST-DEVELOPMENT 87 7 7 7 7 1.59 55,507 666 2.12 73,851 3.57 59,217



DRAINAGE AREA 2 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT			POST-DEVELOPMENT				
Drainage Area (Acres)=		7.	57		0.34			
Site Acreage within Drainage=		5.	29			0.	29	
One-year, 24-hour rainfall (in)=				2.	86			
Two-year, 24-hour rainfall (in)=				3.	.46			
Ten-year, 24-hour storm (in)=				5.	04			
Total Lake/Pond Area (Acres)=								
Lake/Pond Area not in the Tc flow path (Acres)=								
Site Land Use (acres):	А	В	С	D	А	В	С	D
Pasture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Fair Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Good Condition	0.00	2.74	2.55	0.00	0.00	0.18	0.11	0.00
Open Space, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Fair condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Good Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reforestation (in dedicated OS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Disconnected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITE FLOW	PR	E-DEVEL	OPMENT	Г Т _с	POST-DEVELOPMENT Tc			
Sheet Flow								
Length (ft)=		100	0.00			100	0.00	
Slope (ft/ft)=		0.0)60			0.0)60	
Surface Cover:		Wo	ods			Wo	ods	
n-value=		0.4	400		0.400			
T _t (hrs)=		0.2	244		0.244			
Shallow Flow					-			
Length (ft)=		322	2.00			137	.00	
Slope (ft/ft)=		0.0)49			0.0)29	
Surface Cover:		Unp	aved			Unp	aved	
Average Velocity (ft/sec)=		3.	57			2.	75	
T _t (hrs)=		0.	03			0.	01	
Channel Flow 1								
Length (ft)=		0.	00			0.	00	
Slope (ft/ft)=		0.0	000			0.0	000	
Cross Sectional Flow Area (ft ²)=		0.	00			0.	00	
Wetted Perimeter (ft)=		0.	00			0.	00	
Channel Lining:								
n-value=								
Hydraulic Radius (ft)=								
Average Velocity (ft/sec)=								
T _t (hrs)=								



DRAINAGE AREA 2 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.27	0.26
. ,		
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61 61
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61 62
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT 62	POST-DEVELOPMENT 61 62
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} =	0.35	POST-DEVELOPMENT 61 62 0.30
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	0.35 6,744	POST-DEVELOPMENT 61 61 62 0.30 320
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) =	OCCUPY OCUPY OCUPY <t< td=""><td>POST-DEVELOPMENT 61 62 0.30 320</td></t<>	POST-DEVELOPMENT 61 62 0.30 320
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Numoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} =	0.35 6,744	POST-DEVELOPMENT 61 62 0.30 320
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID)	0.35 6,744	POST-DEVELOPMENT 61 62 0.30 320
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} =	0.35 6,744 0.61	POST-DEVELOPMENT 61 62 0.30 320
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Nolume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	ORE-DEVELOPMENT 62 0.35 6,744 0.61 11,650	POST-DEVELOPMENT 61 62 0.30 320 0.54 571
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (inches) = Q* _{2-year} = Peak Discharge (cfs) = Q _{2-year} =	ORE-DEVELOPMENT 62 0.35 6,744 0.61 11,650	POST-DEVELOPMENT 61 62 0.30 320 0.54 571
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (inches) = Q* _{2-year} = Volume of runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} =	PRE-DEVELOPMENT 62 0.35 6,744 0.61 11,650	POST-DEVELOPMENT 61 62 0.30 320 0.54 571
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q _{1-year} = Volume change (cfs) = Q _{1-year} = Volume change (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} =	ORE-DEVELOPMENT 62 0.35 6,744 0.61 11,650 1.48	POST-DEVELOPMENT 61 62 0.30 320 0.54 571 1.37
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q1-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q1-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q2-year 10-year, 24-hour storm (DIA) Runoff (inches) = Q* 10-year Volume of runoff (ft ³) =	PRE-DEVELOPMENT 62 0.35 6,744 0.61 11,650 1.48 28,408	POST-DEVELOPMENT 61 62 0.30 320 0.54 571 1.37 26,341



DRAINAGE AREA 3 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT			POST-DEVELOPMENT				
Drainage Area (Acres)=		0.	23		0.21			
Site Acreage within Drainage=		0.	23			0.	21	
One-year, 24-hour rainfall (in)=				2.	86			
Two-year, 24-hour rainfall (in)=				3.	46			
Ten-year, 24-hour storm (in)=				5.	04			
Total Lake/Pond Area (Acres)=								
Lake/Pond Area not in the Tc flow path (Acres)=								
Site Land Use (acres):	А	В	С	D	А	В	С	D
Pasture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Fair Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Good Condition	0.00	0.23	0.00	0.00	0.00	0.21	0.00	0.00
Open Space, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Fair condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Good Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reforestation (in dedicated OS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Disconnected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITE FLOW	PR	E-DEVEL	OPMEN	Г Т _с	POST-DEVELOPMENT Tc			
Sheet Flow								
Length (ft)=		100	0.00			100	0.00	
Slope (ft/ft)=		0.0)30			0.0)30	
Surface Cover:		Wo	ods			Wo	ods	
n-value=		0.4	400			0.4	100	
T _t (hrs)=		0.3	322			0.3	322	
Shallow Flow								
Length (ft)=		120	0.00			120	0.00	
Slope (ft/ft)=		0.0)17			0.0)17	
Surface Cover:		Unp	aved			Unp	aved	
Average Velocity (ft/sec)=		2.	10			2.	10	
T _t (hrs)=		0.	02			0.	02	
Channel Flow 1								
Length (ft)=		0.	00			0.	00	
Slope (ft/ft)=		0.0	000			0.0	000	
Cross Sectional Flow Area (ft ²)=		0.	00			0.	00	
Wetted Perimeter (ft)=		0.	00			0.	00	
Channel Lining:								
n-value=								
Hydraulic Radius (ft)=								
Average Velocity (ft/sec)=								
T _t (hrs)=								



DRAINAGE AREA 3 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.34	0.34
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} =	DRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55 38 0.16
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	DEVELOPMENT 55 0.16 133	POST-DEVELOPMENT 55 55 38 0.16 121
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) =	DEVELOPMENT 55 0.16 133	POST-DEVELOPMENT 55 38 0.16 121
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} =	DEVELOPMENT 55 0.16 133	POST-DEVELOPMENT 55 55 38 0.16 121
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (finches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID)	DEVELOPMENT 55 0.16 133	POST-DEVELOPMENT 55 55 0.16 121
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = Night Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} =	PRE-DEVELOPMENT 55 0.16 133 0.33	POST-DEVELOPMENT 55 55 0.16 121 0.33
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = Nigh Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (fr ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (fr ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 55 0.16 133 0.33 278	POST-DEVELOPMENT 55 55 0.16 0.16 121 0.33 0.33 253
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft³) = Volume of runoff (ft³) = Volume of runoff (ft³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft³) = Peak Discharge (cfs) = Q _{2-year} =	DEVELOPMENT 55 0.16 133 0.33 278	POST-DEVELOPMENT 55 55 38 0.16 121 0.33 253
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Nolume of runoff (inches) = Q* _{1-year} Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (cfs) = Q _{1-year} = Volume change (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA)	DEVELOPMENT 55 0.16 133 0.33 278	POST-DEVELOPMENT 55 55 0.16 121 0.33 253
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = Migh Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} =	PRE-DEVELOPMENT 55 0.16 0.16 133 0.33 278 1.00	POST-DEVELOPMENT 55 55 0.16 0.16 121 0.33 0.33 253 1.00
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = Night Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (fr3) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume change (rf3) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (fr3) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} = Volume of runoff (fr3) =	PRE-DEVELOPMENT 55 0.16 0.16 133 0.33 278 1.00 835	POST-DEVELOPMENT 55 55 38 0.16 121 0.33 253 1.00 835



DRAINAGE AREA 4 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT			POST-DEVELOPMENT				
Drainage Area (Acres)=		0.	32		0.30			
Site Acreage within Drainage=		0.	32			0.	30	
One-year, 24-hour rainfall (in)=				2.	86			
Two-year, 24-hour rainfall (in)=				3.	.46			
Ten-year, 24-hour storm (in)=				5.	04			
Total Lake/Pond Area (Acres)=								
Lake/Pond Area not in the Tc flow path (Acres)=								
Site Land Use (acres):	А	В	С	D	А	В	С	D
Pasture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Fair Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Woods, Good Condition	0.00	0.32	0.00	0.00	0.00	0.30	0.00	0.00
Open Space, Poor Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Fair condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Open Space, Good Condition	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Reforestation (in dedicated OS)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Connected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Disconnected Impervious	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SITE FLOW	PR	E-DEVEL	OPMEN	Г Т _с	POST-DEVELOPMENT Tc			
Sheet Flow								
Length (ft)=		100	0.00			100	0.00	
Slope (ft/ft)=		0.0)40			0.0)40	
Surface Cover:		Wo	ods			Wo	ods	
n-value=		0.4	100			0.4	100	
T _t (hrs)=		0.2	287		0.287			
Shallow Flow	-							
Length (ft)=		35	.00			35	.00	
Slope (ft/ft)=		0.0)29			0.0)29	
Surface Cover:		Unp	aved			Unp	aved	
Average Velocity (ft/sec)=		2.	73			2.	75	
T _t (hrs)=		0.	00			0.	00	
Channel Flow 1					-			
Length (ft)=		0.	00			0.	00	
Slope (ft/ft)=		0.0	000			0.0	000	
Cross Sectional Flow Area (ft ²)=		0.	00			0.	00	
Wetted Perimeter (ft)=		0.	00			0.	00	
Channel Lining:								
n-value=								
Hydraulic Radius (ft)=								
Average Velocity (ft/sec)=								
T _t (hrs)=								



DRAINAGE AREA 4 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=	0.00	0.00
Slope (ft/ft)=	0.000	0.000
Cross Sectional Flow Area (ft ²)=	0.00	0.00
Wetted Perimeter (ft)=	0.00	0.00
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.29	0.29
. ,		
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} =	PRE-DEVELOPMENT 55 55 55 55 55 55 55 55 55 55 55 55 55	POST-DEVELOPMENT 55 55 54 0.16
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 55 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	POST-DEVELOPMENT 55 55 64 0.16 173
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year) = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) =	PRE-DEVELOPMENT 55	POST-DEVELOPMENT 55 55 54 0.16 173
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} =	PRE-DEVELOPMENT 55 6 0.16 185 0.024	POST-DEVELOPMENT 55 55 64 0.16 173 0.022
RESULTS Composite Curve Number= Disconnected Impervious Adjustment ON adjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft³) = Place Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft³) = Volume change (ft³) = Peak Discharge (cfs) = Q 1-year 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT 55 6 0.16 185 0.024	POST-DEVELOPMENT 55 55 54 0.16 173 0.022
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} =	PRE-DEVELOPMENT 55 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	POST-DEVELOPMENT 55 55 55 54 0.16 173 0.022 0.033
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 55 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	POST-DEVELOPMENT 55 55 64 64 60 60 60 60 60 60 60 60 60 60 60 60 60
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (inches) = Q* _{2-year} = Volume of runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} =	PRE-DEVELOPMENT 55 6 0.16 0.16 185 0.024 0.33 386 0.050	POST-DEVELOPMENT 55 55 64 64 0.16 173 0.022 0.022 0.033 362 0.047
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft³) = Peak Discharge (cfs) = Q _{1-year} = Volume colspan= (cfs) = Q _{1-year} = Volume of runoff (ft³) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (ft³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA)	PRE-DEVELOPMENT 55 55 6 0.16 0.16 185 0.024 0.033 386 0.050	POST-DEVELOPMENT 55 55 64 0.16 173 0.022 0.022 0.33 362 0.047
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (cfs) = Q _{1-year} = Volume change (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} =	PRE-DEVELOPMENT 55 55 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	POST-DEVELOPMENT 55 55 56 54 0.16 173 0.022 0.022 0.033 362 0.047 1.00
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{2-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{2-year} = Volume of runoff (inches) = Q* _{1-byear} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT 55 55 55 55 55 55 55 55 55 55 55 55 55	POST-DEVELOPMENT 55 55 64 64 0.16 173 0.022 0.022 0.022 0.033 362 0.047 0.047



Arden Senior Living Center

DRAINAGE AREA 5 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	Р	RE-DEVE	LOPME	Т	PC	OST-DEV	ELOPME	NT
Drainage Area (Acres)=								
Site Acreage within Drainage=								
One-year, 24-hour rainfall (in)=				2.	86			
Two-year, 24-hour rainfall (in)=				3.	46			
Ten-year, 24-hour storm (in)=				5.	04			
Total Lake/Pond Area (Acres)=								
Lake/Pond Area not in the Tc flow path (Acres)=								
Site Land Use (acres):	А	В	С	D	А	В	С	D
Pasture								
Woods, Poor Condition								
Woods, Fair Condition								
Woods, Good Condition								
Open Space, Poor Condition								
Open Space, Fair condition								
Open Space, Good Condition								
Reforestation (in dedicated OS)								
Connected Impervious								
Disconnected Impervious								
SITE FLOW	PR	E-DEVEL	OPMEN	Т Т _с	POS	ST-DEVE	LOPMEN	T Tc
Sheet Flow								
Length (ft)=								
Slope (ft/ft)=								
Surface Cover:								
n-value=								
T _t (hrs)=								
Shallow Flow								
Length (ft)=								
Slope (ft/ft)=								
Surface Cover:								
Average Velocity (ft/sec)=								
T _t (hrs)=								
Channel Flow 1								
Length (ft)=								
Slope (ft/ft)=								
Cross Sectional Flow Area (ft ²)=								
Wetted Perimeter (ft)=								
Channel Lining:								
n-value=								
Hydraulic Radius (ft)=								
Average Velocity (ft/sec)=								
T _t (hrs)=								



DRAINAGE AREA 5 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.00	0.00
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year= Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q1-year=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Olume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q [*] _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q [*] _{1-year} Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q _{1-year} Volume change (cfs) = Q Volume change (cfs) = Q Volume of runoff (inches) = Q [*] _{2-year} Volume of runoff (ft ³) = Peak Discharge (cfs) = Q [*] _{2-year} Volume of runoff (ft ³) = Peak Discharge (cfs) = Q [*] _{2-year} Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year}	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* Volume of runoff (inches) = Q* Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q Volume of runoff (inches) = Q* Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Discharge (cfs) = Q Note of runoff (ft ³) = Peak Discharge (cfs) = Q Note of runoff (ft ³) = Peak Discharge (cfs) = Q Q <td>PRE-DEVELOPMENT</td> <td>POST-DEVELOPMENT</td>	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (from 3) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume change (cfs) = Q _{1-year} = Volume of runoff (from 3) = Peak Discharge (cfs) = Q _{2-year} = Volume of runoff (from 3) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} = Volume of runoff (fri 3) =	PRE-DEVELOPMENT	POST-DEVELOPMENT



Arden Senior Living Center

DRAINAGE AREA 6 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT				
Drainage Area (Acres)=									
Site Acreage within Drainage=									
One-year, 24-hour rainfall (in)=				2.	86				
Two-year, 24-hour rainfall (in)=				3.	46				
Ten-year, 24-hour storm (in)=				5.	04				
Total Lake/Pond Area (Acres)=									
Lake/Pond Area not in the Tc flow path (Acres)=									
Site Land Use (acres):	А	В	С	D	А	В	С	D	
Pasture									
Woods, Poor Condition									
Woods, Fair Condition									
Woods, Good Condition									
Open Space, Poor Condition									
Open Space, Fair condition									
Open Space, Good Condition									
Reforestation (in dedicated OS)									
Connected Impervious									
Disconnected Impervious									
SITE FLOW	PR	E-DEVEL	OPMEN	Т Т _с	POST-DEVELOPMENT Tc				
Sheet Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
n-value=									
T _t (hrs)=									
Shallow Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
Average Velocity (ft/sec)=									
T _t (hrs)=									
Channel Flow 1									
Length (ft)=									
Slope (ft/ft)=									
Cross Sectional Flow Area (ft ²)=									
Wetted Perimeter (ft)=									
Channel Lining:									
n-value=									
Hydraulic Radius (ft)=									
Average Velocity (ft/sec)=									
T _t (hrs)=									



DRAINAGE AREA 6 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.00	0.00
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year= Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q1-year=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q [*] _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q [*] _{1-year} Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q _{1-year} Volume change (cfs) = Q Volume change (cfs) = Q Volume of runoff (inches) = Q [*] _{2-year} Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q 1-year Volume change (cfs) = Q 2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q 2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q 2-year 10-year, 24-hour storm (DIA)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (from 3) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT



Arden Senior Living Center

DRAINAGE AREA 7 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT				
Drainage Area (Acres)=									
Site Acreage within Drainage=									
One-year, 24-hour rainfall (in)=				2.	.86				
Two-year, 24-hour rainfall (in)=				3.	.46				
Ten-year, 24-hour storm (in)=				5.	.04				
Total Lake/Pond Area (Acres)=									
Lake/Pond Area not in the Tc flow path (Acres)=									
Site Land Use (acres):	А	В	С	D	А	В	С	D	
Pasture									
Woods, Poor Condition									
Woods, Fair Condition									
Woods, Good Condition									
Open Space, Poor Condition									
Open Space, Fair condition									
Open Space, Good Condition									
Reforestation (in dedicated OS)									
Connected Impervious									
Disconnected Impervious									
SITE FLOW	PR	E-DEVEL	OPMEN	Т Т _с	POST-DEVELOPMENT Tc				
Sheet Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
n-value=									
T _t (hrs)=									
Shallow Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
Average Velocity (ft/sec)=									
T _t (hrs)=									
Channel Flow 1									
Length (ft)=									
Slope (ft/ft)=									
Cross Sectional Flow Area (ft ²)=									
Wetted Perimeter (ft)=									
Channel Lining:									
n-value=									
Hydraulic Radius (ft)=									
Average Velocity (ft/sec)=									
T _t (hrs)=									



DRAINAGE AREA 7 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.00	0.00
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year= Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q1-year=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q [*] _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q [*] _{1-year} Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q _{1-year} Volume change (cfs) = Q Volume change (cfs) = Q Volume of runoff (inches) = Q [*] _{2-year} Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q 1-year Volume change (cfs) = Q 2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q 2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q 2-year 10-year, 24-hour storm (DIA) Runoff (inches) = Q* 10-year <	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (from 3) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT



Arden Senior Living Center

DRAINAGE AREA 8 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT				
Drainage Area (Acres)=									
Site Acreage within Drainage=									
One-year, 24-hour rainfall (in)=				2.	86				
Two-year, 24-hour rainfall (in)=				3.	46				
Ten-year, 24-hour storm (in)=				5.	04				
Total Lake/Pond Area (Acres)=									
Lake/Pond Area not in the Tc flow path (Acres)=									
Site Land Use (acres):	А	В	С	D	А	В	С	D	
Pasture									
Woods, Poor Condition									
Woods, Fair Condition									
Woods, Good Condition									
Open Space, Poor Condition									
Open Space, Fair condition									
Open Space, Good Condition									
Reforestation (in dedicated OS)									
Connected Impervious									
Disconnected Impervious									
SITE FLOW	PR	E-DEVEL	OPMEN	Т Т _с	POST-DEVELOPMENT Tc				
Sheet Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
n-value=									
T _t (hrs)=									
Shallow Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
Average Velocity (ft/sec)=									
T _t (hrs)=									
Channel Flow 1									
Length (ft)=									
Slope (ft/ft)=									
Cross Sectional Flow Area (ft ²)=									
Wetted Perimeter (ft)=									
Channel Lining:									
n-value=									
Hydraulic Radius (ft)=									
Average Velocity (ft/sec)=									
T _t (hrs)=									



DRAINAGE AREA 8 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.00	0.00
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted} (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year= Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q1-year=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q [*] _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year]} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Peak Discharge (cfs) = Q _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q [*] _{1-year} Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q _{1-year} Volume change (cfs) = Q Volume change (cfs) = Q Volume of runoff (inches) = Q [*] _{2-year} Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Volume of runoff (ft ³) = Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge (cfs) = Q Deak Discharge (cfs) = Q Peak Discharge	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = Volume of runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Volume change (cfs) = Q 1-year Volume change (cfs) = Q 2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q 2-year Volume of runoff (ft ³) = Peak Discharge (cfs) = Q 2-year 10-year, 24-hour storm (DIA) Runoff (inches) = Q* 10-year <	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (from 3) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT



Arden Senior Living Center

DRAINAGE AREA 9 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT				
Drainage Area (Acres)=									
Site Acreage within Drainage=									
One-year, 24-hour rainfall (in)=				2.	86				
Two-year, 24-hour rainfall (in)=				3.	46				
Ten-year, 24-hour storm (in)=				5.	04				
Total Lake/Pond Area (Acres)=									
Lake/Pond Area not in the Tc flow path (Acres)=									
Site Land Use (acres):	А	В	С	D	А	В	С	D	
Pasture									
Woods, Poor Condition									
Woods, Fair Condition									
Woods, Good Condition									
Open Space, Poor Condition									
Open Space, Fair condition									
Open Space, Good Condition									
Reforestation (in dedicated OS)									
Connected Impervious									
Disconnected Impervious									
SITE FLOW	PR	E-DEVEL	OPMEN	Т Т _с	POST-DEVELOPMENT Tc				
Sheet Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
n-value=									
T _t (hrs)=									
Shallow Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
Average Velocity (ft/sec)=									
T _t (hrs)=									
Channel Flow 1									
Length (ft)=									
Slope (ft/ft)=									
Cross Sectional Flow Area (ft ²)=									
Wetted Perimeter (ft)=									
Channel Lining:									
n-value=									
Hydraulic Radius (ft)=									
Average Velocity (ft/sec)=									
T _t (hrs)=									



DRAINAGE AREA 9 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.00	0.00
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
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RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = Migh Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year= Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q1-year=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID)	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CNadjusted (1-year)= High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* 1-year Volume of runoff (ft ³) = Volume of runoff (ft ³) = Peak Discharge (cfs) = Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q* 2-year Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
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RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff from 1" rainfall for DA High Density Only Volume of runoff (from 3) = 1-year, 24-hour storm (Peak Flow) Runoff (inches) = Q* _{1-year} = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = Volume of runoff (ft ³) = Peak Discharge (cfs)= Q _{2-year} = 10-year, 24-hour storm (DIA) Runoff (inches) = Q* _{10-year} = Volume of runoff (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT



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DRAINAGE AREA 10 STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT				
Drainage Area (Acres)=									
Site Acreage within Drainage=									
One-year, 24-hour rainfall (in)=				2.	86				
Two-year, 24-hour rainfall (in)=				3.	46				
Ten-year, 24-hour storm (in)=				5.	04				
Total Lake/Pond Area (Acres)=									
Lake/Pond Area not in the Tc flow path (Acres)=									
Site Land Use (acres):	А	В	С	D	А	В	С	D	
Pasture									
Woods, Poor Condition									
Woods, Fair Condition									
Woods, Good Condition									
Open Space, Poor Condition									
Open Space, Fair condition									
Open Space, Good Condition									
Reforestation (in dedicated OS)									
Connected Impervious									
Disconnected Impervious									
SITE FLOW	PR	E-DEVEI	OPMEN	T T _c	POST-DEVELOPMENT Tc				
Sheet Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
n-value=									
T _t (hrs)=									
Shallow Flow									
Length (ft)=									
Slope (ft/ft)=									
Surface Cover:									
Average Velocity (ft/sec)=									
T _t (hrs)=									
Channel Flow 1									
Length (ft)=									
Slope (ft/ft)=									
Cross Sectional Flow Area (ft ²)=									
Wetted Perimeter (ft)=									
Channel Lining:									
n-value=									
Hydraulic Radius (ft)=									
Average Velocity (ft/sec)=									
T _t (hrs)=									



DRAINAGE AREA 10 STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _t (hrs)=		
Tc (hrs)=	0.00	0.00
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number=	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only	PRE-DEVELOPMENT	POST-DEVELOPMENT
RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	PRE-DEVELOPMENT	POST-DEVELOPMENT
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RESULTS Composite Curve Number= Disconnected Impervious Adjustment Disconnected Impervious Adjustment Disconnected Impervious area (acre) = CN _{adjusted (1-year)} = High Density Only Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) = 1-year, 24-hour storm (Peak Flow) Volume of runoff (ft ³) = Volume of runoff (ft ³) = Volume change (ft ³) = Peak Discharge (cfs)= Q _{1-year} = 2-year, 24-hour storm (LID) Runoff (inches) = Q [*] _{2-year} =	PRE-DEVELOPMENT	POST-DEVELOPMENT
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DA SITE SUMMARY STORMWATER PRE-POST CALCULATIONS

SITE SUMMARY										
DRAINAGE AREA SUMMARIES										
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
	Pre-Dev	elopment	(1-year, 24	hour stor	m)	1	і І	1	 I	. <u> </u>
Runoff (in) = Q _{pre,1-year} =	0.59	0.35	0.16	0.16						
Peak Flow (cfs)=Q _{1-year} =				0.024						
	Post-Dev	velopment	t (1-year, 24	-hour stor	rm)	1		1		-
Proposed Impervious Surface (acre) =	5.93	0.00	0.00	0.00						
Runoff (in)=Q _{1-year} =	1.59	0.30	0.16	0.16						
Peak Flow (cfs)=Q _{1-year} =				0.022						
Increase in volume per DA (ft ³)_1-yr storm=	45,666									
Minimum Volume to be Managed for DA	21,707	62	38	54						
Site Data										
SITE \SOIL COMPOSITION										
HYDROLOGIC SOIL GROUP				Site	Area		%		Target CN	
Α			0.	00	0	1%		N/A		
В				4.:	20	40	0%		N/A	
С	С					5	7%		N/A	
D					26	2	!%		N/A	
Total Site Area (acres) =							10	.41		
Percent B	JA (Include	s Existing	Lakes/Pond	Areas) =	= 57%					
Project Densit				Density = High						
		Target C	urve Numbe	er (TCN) =		N/A				
			CN _{adjus}	sted (1-year)=		84				
Minimum Volume to be Manag	ed (Total S	ite) Per TC	CN Requiren	ment= ft ³ = N/A						
	s	ite Nitrog	en Loading	Data						
HSG			TN export			Site			N	
			(lbs/ac/yr)			Acreage		Export		
Pasture			1.2			0.00		0.00		
Woods, Poor Condition			1.6			0.00		0.00		
Woods, Fair Condition			1.2		0.0		0.00		0.00	
Woods, Good Condition			0.8			1.89		1.51		
Open Space, Poor Condition			1.0			0.00			0.00	
Open Space, Fair Condition			0.8			0.00			0.00	
Open Space, Good Condition			0.6			2.59			1.55	
Reforestation (in dedicated OS)			0.6			0.00			0.00	
Impervious			21.2			5.93			125.72	
SITE NITROGEN LOADING RATE	(lbs/ac/yr)=					12.37				
Nitrogen Loa	ad (lbs/yr)=					128.78				
TOTAL SITE NITROGEN TO MITIGATE (lbs/yr)_Wei	ndell Only=					91.31				
s	ite Nitroge	n Loading	g Data For E	xpansion	s Only					
			Existing					New		
Impervious(acres)=			NA					NA		
"Expansion Area" (acres=)										
Nitrogen Load (lbs/yr)=			NA					NA		
SITE NITROGEN LOADING RATE (lbs/ac/yr)=			NA					NA		
Total Site loading rate (lbs/ac/yr)										
TOTAL SITE NITROGEN TO MITIGATE (lbs/yr)=					NA	4				



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DRAINAGE AREA 1 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	RAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS											
DA1 Site Acreage=				9.61	1							
DA1 Off-Site Acreage=				3.25	5							
Total Required Storage Volume for Site				N/A								
TCN Requirement (ft ³)= Total Required Storage Volume for DA1												
1" Rainfall for High Density (ft ³)=				21,70	57							
Will site use underground detention/cistern?	No	No Enter % of the year water will be 0% S reused= 0%							e: Supporting information/details should be mitted to demonstrate water usage.			
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA											
		Sub-E	DA1(a)	Sub-I	DA1(b) Sub-DA1(c)			Sub-DA1(d)		Sub-DA1(e)		
	HSG	A)	Ac)	A)	Ac)	(/	Ac)	A)	(c)	(Ac)		
Pasture		Sile	OII-site	Sile	Oll-site	Sile	Oll-site	Sile	OII-site	Sile	OII-site	
Woods, Poor Condition												
Woods, Fair Condition												
Woods, Good Condition		0.60		0.49	0.42							
Open Space. Poor Condition		0.00		0.10	0.12							
Open Space Eair Condition												
Open Space, Fair Condition		2.02		0.57	0.14							
Peforestation (in dedicated OS)		2.02		0.57	0.14							
		5.02			0.00							
Sub-DA1(a) BMP(s)		5.93			0.26							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)			V <u>dra</u>	Provided Volume that will <u>drawdown 2-5 days</u> (ff ³)		Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)	
SCM A	Wet Detention Basin							25%	127.41	31.85	51.84	
								0%	95.56	0.00	51.04	
			17,403		22,659			0%	95.56	0.00		
								0%	95.56	0.00		
								0%	95.56	0.00		
Το	tal Nitrogen remaining leaving the subbasin (lbs):	95.56										
Sub-DA1(b) BMP(s)												
enter ti	If Sub-DA1(b) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):											
Device Name (As Shown on Plan)	Device Type	Wate fo	er Quality Vo or Sub-DA (f	olume t ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill days	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)	
Bypass								0%	7.09	0.00		
								0%	7.09	0.00		
			511					0%	7.09	0.00		
								0%	7.09	0.00		
								0%	7.09	0.00		
То	tal Nitrogen remaining leaving the subbasin (lbs):					7	.09					
Sub-DA1 (c) BMP(s)												
enter t	If Sub-DA1(c) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):											
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo or Sub-DA (f	vlume t ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill <u>days</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)	
								0%	0.00	0.00		
								0%	0.00	0.00		
								0%	0.00	0.00		
								0%	0.00	0.00		
								0%	0.00	0.00		
То	tal Nitrogen remaining leaving the subbasin (lbs):							-				



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DRAINAGE AREA 1 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
	DA	A1 BMP SUMMARY					
	Total Volume Treated (ft ³)=		#VALUE!				
	Nitrogen Mitigated(Ibs)=		31.85				
1-year, 24-hour storm	2						
	Post BMP Volume of Runoff (ft ³) _(1-year) =						
	Post BMP Runoff (Inches) = Q ⁺ _(1-year) =						
	POSt BMP CN _(1-year) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3) _(2-year) =						
	Post BMP Runoff (inches) = Q* _(2-year) =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =						
	Post BMP Runoff (inches) = $Q^*_{(10-year)}$ =						
	Post BMP CN(10-year)=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 2 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA2 Site Acreage=				0.29	9						
DA2 Off-Site Acreage=				0.05	5						
Total Required Storage Volume				N/A	1						
Total Required Storage Volume for DA2				60							
1" Rainfall for High Density (ft3)=				02	-			-			
Will site use underground detention/cistern?	No	Enter %	of the year	water will be reused=	:	0%		Note: Supp submitted to	orting inform o demonstra	ation/details te water usa	should be ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA										
		Sub-E	DA2(a)	Sub-I	DA2(b)	b) Sub-DA2(c)		Sub-E	DA2(d)	Sub-E	DA2(e)
	HSG	(A Site	AC) Off-site	(A Site	Ac) Off-site	(A Site	Off-site	(A Site	AC) Off-site	(A Site	Off-site
Pasture											
Woods, Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Fair Condition											
Open Space, Good Condition											
Reforestation (in dedicated OS)											
Impervious											
Sub-DA1(a) BMP(s)										1	
Device Name (As Shown on Plan)	Device Type	Wate fo	Provided Provided Water Quality Volume Volume that will F for Sub-DA (ft ³) drawdown 2-5 days (ft ³) F				Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)	
						0%	0.00	0.00			
		1 [0%	0.00	0.00				
								0%	0.00	0.00	
							0%	0.00	0.00		
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
enter t	If Sub-DA1(b) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type	Wate fo	er Quality Vo or Sub-DA (f	blume t ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill lays	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1 (c) BMP(s)											
enter t	If Sub-DA1(c) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):				1			1			
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo or Sub-DA (f	blume t ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill J <u>ays</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
		0% 0.00 0					0.00				
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										



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DRAINAGE AREA 2 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to unstream subb	asin(s) enter the nitrogen leaving the most unstream						
	subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream						
	subbasin(lbs):				1	-	1
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
	DA	A2 BMP SUMMARY					
	Total Volume Treated (ft ³)=						
	Nitrogen Mitigated(Ibs)=						
1-year, 24-hour storm							
	Post BMP Volume of Runoff (ft ³) _(1-year) =		320				
	Post BMP Runoff (inches) = Q* _(1-year) =		0.30				
	Post BMP CN _(1-year) =		60				
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=		571				
	Post BMP Runoff (inches) = Q* _(2-year) =		0.54				
	Post BMP CN _(2-year) =		60				
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =		26,341				
	Post BMP Runoff (inches) = Q* _(10-year) =		25.02				
	Post BMP CN(_{10-year})=		98				
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 3 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA3 Site Acreage=				0.21							
DA3 Off-Site Acreage=											
Total Required Storage Volume				N/A							
TCN Requirement (ft°)= Total Required Storage Volume for DA3	<u> </u>										
1" Rainfall for High Density (ft3)=		•		38							
Will site use underground detention/cistern?	No	Enter %	of the year v	water will be reused=		0%		Note: Supp submitted to	orting inform o demonstra	ation/details te water usa	should be ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA							•			
	HSG	Sub-D)A3(a) AC)	Sub-E	0A3(b) (c)	Sub-l	DA3(c) Ac)	Sub-E	0A3(d) (c)	Sub-E	0A3(e) .c)
		Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture			<u> </u>								
Woods, Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Fair Condition											
Open Space, Good Condition											
Reforestation (in dedicated OS)											
Impervious											
Sub-DA1(a) BMP(s)								1			
Device Name (As Shown on Plan)	Device Type	Wate fc	r Quality Vo or Sub-DA (fi	lume t ³)	Provided me Volume that will <u>drawdown 2-5 days</u> (ft ³)				Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
						0%	0.00	0.00			
					0%	0.00	0.00				
								0%	0.00	0.00	
								0%	0.00	0.00	
Tor	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
enter fi	If Sub-DA1(b) is connected to upstream subbasin(s),										
	le muogen leaving the most approxim subprovinger,					Dervided		r			
Device Name (As Shown on Plan)	Device Type	Wate fc	भ Quality Vo ज Sub-DA (f	lume t ³)	V <u>dra</u>	Provided olume that w wdown 2-5 ((ft ³)	vill days	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
Tot	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1 (c) BMP(s)											
enter ti	If Sub-DA1(c) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):							-			
Device Name (As Shown on Plan)	Device Type	Wate fc	अ Quality Vo अ Sub-DA (fi	·lume t ³)	V <u>dra</u>	Provided olume that v wdown 2-5 o (ft ³)	vill <u>days</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
		0% 0.00				0.00					
								0%	0.00	0.00	
								0%	0.00	0.00	
		0% 0.00 0.00									
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										



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DRAINAGE AREA 3 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
	Total Volume Treated (ft ³)-						
	Nitrogen Mitigated(Ibs)=						
1-vear. 24-hour storm	5 5 ()						
	Post BMP Volume of Runoff (ft ³)(1-year)=		121				
	Post BMP Runoff (inches) = Q*(1-year)=		0.16				
	Post BMP CN _(1-year) =		54				
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=		253				
	Post BMP Runoff (inches) = Q* _(2-year) =		0.33				
	Post BMP CN _(2-year) =		55				
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =		835				
	Post BMP Runoff (inches) = $Q^*_{(10-year)}$ =		1.10				
	Post BMP CN(_{10-year})=		72				
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 4 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS DA4 Site Acreage 0.30 DA4 Off-Site Acreage= Total Required Storage Volume N/A TCN Requirement (ft3)= Total Required Storage Volume for DA4 54 1" Rainfall for High Density (ft3)= Enter % of the year water will be Note: Supporting information/details should be Will site use underground detention/cistern? submitted to demonstrate water usage. reuse ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA Sub-DA4(a) Sub-DA4(b) Sub-DA4(c) Sub-DA4(d) Sub-DA4(e) HSG (Ac) (Ac) (Ac) (Ac) (Ac) Site Off-site Site Off-site Site Off-site Site Off-site Site Off-site Pasture Woods, Poor Condition Woods, Fair Condition Woods, Good Condition Open Space, Poor Condition Open Space, Fair Condition Open Space, Good Condition Reforestation (in dedicated OS) Impervious Sub-DA1(a) BMP(s) Provided Sub-DA Nitrogen Nitrogen awdo Water Quality Volume Volume that will Device Name (As Shown on Plan) Device Type Removal Nitrogen Removed Time drawdown 2-5 days for Sub-DA (ft³) Efficienc (lbs) (lbs) (hours) (ft3) 0% 0.00 0.00 0% 0.00 0.00 0% 0.00 0.00 0% 0.00 0.00 0% 0.00 0.00 Total Nitrogen remaining leaving the subbasin (lbs): Sub-DA1(b) BMP(s) If Sub-DA1(b) is connected to upstream subbasin(s) enter the nitrogen leaving the most upstream subbasin(lbs) Provided Sub-DA Volume that will Nitrogen Nitrogen Drawdow Water Quality Volume Removal Efficiency Nitrogen (lbs) Device Name (As Shown on Plan) Device Type Time (hours) for Sub-DA (ft3) drawdown 2-5 days Rer emoveo (lbs) (ft³) 0% 0.00 0.00 0.00 0.00 0% 0% 0.00 0.00 0% 0.00 0.00 0% 0.00 0.00 Total Nitrogen remaining leaving the subbasin (lbs): Sub-DA1 (c) BMP(s) If Sub-DA1(c) is connected to upstream subbasin(s) enter the nitrogen leaving the most upstream subbasin(lbs) Provided Volume that will drawdown 2-5 days Nitrogen Sub-DA Nitrogen Drawdow Water Quality Volume Device Name (As Shown on Plan) Device Type Nitrogen (Ibs) Removal Removed Time for Sub-DA (ft³) Efficiency (lbs) (hours) (ft³) 0.00 0% 0.00 0% 0.00 0.00 0% 0.00 0.00 0.00 0.00 0% 0% 0.00 0.00

Total Nitrogen remaining leaving the subbasin (lbs):



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DRAINAGE AREA 4 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
To	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):			-			-
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
		A4 DIVIP SUIVIVIAR I					
	Nitrogen Mitigated/lbs)=						
1-year 24-hour storm	(haogon hinigatou(iso)						
	Post BMP Volume of Runoff (ft ³)(1 upp)=		173				
	Post BMP Runoff (inches) = Q*(1-year)=		0.16				
	Post BMP CN _(1-vear) =		54				
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=		362				
	Post BMP Runoff (inches) = Q* _(2-year) =		0.33				
	Post BMP CN _(2-year) =		55				
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =		1,162				
	Post BMP Runoff (inches) = $Q^*_{(10-year)}$ =		1.07				
	Post BMP CN(10-year)=		71				
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 5 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA5 Site Acreage=											
DA5 Off-Site Acreage=											
Total Required Storage Volume				N/A	\ \						
TCN Requirement (ft ³)=											
1" Rainfall for High Density (ft3)=								-			
Will site use underground detention/cistern?		Enter %	of the year	water will be reused=				Note: Supp submitted to	orting inform o demonstra	ation/details te water usa	should be ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA	Sub-)∆ 5(a)	Sub-I	0 4 5(b)	Sub-I) 4 5(c)	Sub-	2A5(d)	Sub-) 4 5(e)
	HSG	(A	(u) (c)	(/	Ac)	(4	NC)	(A	Ac)	(A	ic)
Pasture		Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Maada Baar Condition											
Woods, Foor Condition											
Woods, Fair Condition											
Open Space, Poor Condition											
Open Space, Fair Condition											
Open Space, Good Condition											
Reforestation (in dedicated US)											
Impervious Sub-DA1(a) BMP(s)											
Device Name (As Shown on Plan)	Device Type	Wate	Water Quality Volume Provided for Sub-DA (ft ³) drawdown 2-5 days (ft ³)				Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)	
						0%	0.00	0.00			
					0%	0.00	0.00				
					0%	0.00	0.00				
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):							070	0.00	0.00	
Sub-DA1(b) BMP(s)	······································	I									
enter t	If Sub-DA1(b) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo or Sub-DA (f	lume ⁽³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill lays	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1 (c) BMP(s)											
enter t	If Sub-DA1(c) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):				1			1	1		
Device Name (As Shown on Plan)	Device Type	Wate fo	er Quality Vo or Sub-DA (f	lume ¹³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill <u>lays</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
		0% 0.00 0					0.00				
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										



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DRAINAGE AREA 5 BMP CALCULATIONS

					_		
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
To	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
To	tal Nitrogen remaining leaving the subbasin (lbs):						
	DA	A5 BMP SUMMARY					
	Total Volume Treated (ft ³)=						
	Nitrogen Mitigated(lbs)=						
1-year, 24-hour storm							
	Post BMP Volume of Runoff (ft ³) _(1-year) =						
	Post BMP Runoff (inches) = Q* _(1-year) =						
	Post BMP CN _(1-year) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=						
	Post BMP Runoff (inches) = Q* _(2-year) =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =						
	Post BMP Runoff (inches) = Q* _(10-year) =						
	Post BMP CN(10-year)=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 6 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA6 Site Acreage=											
DA6 Off-Site Acreage=											
Total Required Storage Volume	 			N/A							
Total Required Storage Volume for DA6 1" Rainfall for High Density (ft3)=											
Will site use underground detention/cistern?		Enter %	of the year v	water will be reused=				Note: Supp submitted to	orting inform o demonstra	ation/details te water usa	should be ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA										
	HSG	Sub-D (A	0A6(a) Ac)	Sub-I	DA6(b) Ac)	Sub-E (A)A6(c) \c)	Sub-E (A	DA6(d) (c)	Sub-D (A)A6(e) .c)
Pasture		Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Woods, Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Fair Condition											
Open Space, Good Condition											
Reforestation (in dedicated OS)											
Impervious											
Sub-DA1(a) BMP(s)								-			
Device Name (As Shown on Plan)	Device Type	Water Quality Volume Provided N for Sub-DA (ft ³) drawdown 2-5 days R (ft ³) (ft ³) E				Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)		
							0%	0.00	0.00		
								0%	0.00	0.00	
		1						0%	0.00	0.00	
		1						0%	0.00	0.00	
								0%	0.00	0.00	
Tot	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
enter ti	If Sub-DA1(b) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type	Wate fc	∍r Quality Vo or Sub-DA (fi	lume t ³)	V <u>dra</u> v	Provided olume that w wdown 2-5 c (ft ³)	vill Jays	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
	!	1						0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
		 						0%	0.00	0.00	
Tot	al Nitrogen remaining leaving the subbasin (lbs):	L									
	If Sub-DA1(c) is connected to unstream subbasin(s)										
enter th	ne nitrogen leaving the most upstream subbasin(lbs):	1									
Device Name (As Shown on Plan)	Device Type	Wate fc	эr Quality Vo or Sub-DA (fi	lume t ³)	V <u>dra</u>	Provided olume that w wdown 2-5 c (ft ³)	vill <u>Jays</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
		<u> </u>						0%	0.00	0.00	
Tot	tal Nitrogen remaining leaving the subbasin (lbs):	1									



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DRAINAGE AREA 6 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
	DA	A6 BMP SUMMARY					
	Total Volume Treated (ft ³)=						
	Nitrogen Mitigated(Ibs)=						
1-year, 24-hour storm	2						
	Post BMP Volume of Runoff (ft ³) _(1-year) =						
	Post BMP Runoff (inches) = Q* _(1-year) =						
	Post BMP CN _(1-year) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3) _(2-year) =						
	Post BMP Runoff (inches) = $Q^*_{(2-year)}$ =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff $(ft^3)_{(10-year)}$ =						
	Post BMP Runoff (inches) = Q* _(10-year) =						
	Post BMP CN(10-year)=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 7 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA7 Site Acreage=											
DA7 Off-Site Acreage=											
Total Required Storage Volume				N/A							
TCN Requirement (ft ³)=											
1" Rainfall for High Density (ft3)=											
		Enter %	of the year	water will be				Note: Supp	orting inform	ation/details	should be
will site use underground detention/cistern?				reused=	:			submitted to	o demonstra	te water usa	ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA				•			•			
		Sub-E	DA7(a)	Sub-I	DA7(b)	Sub-	DA7(c)	Sub-E	DA7(d)	Sub-E	0A7(e)
	HSG	(A Site	AC) Off-site	(A Site	AC) Off-site	(A Site	AC) Off-site	(A Site	AC) Off-site	(A Site	.c) Off-site
Pasture		0110	On one	Onto	OII OILO	ono	Off Offe	<u>onto</u>	OII OILO	ono	on one
Woods, Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Fair Condition											
Open Space, Good Condition											
Reforestation (in dedicated OS)											
Impervious											
Sub-DA1(a) BMP(s)										-	
						Provided		Nitrogen	Sub-DA	Nitrogen	Drawdown
Device Name (As Shown on Plan)	Device Type	for Sub-DA (ft ³)			V dra	olume that v wdown 2-5 (vill days	Removal	Nitrogen	Removed	Time
		(ft ³)				Efficiency	(lbs)	(lbs)	(hours)		
						0%	0.00	0.00			
					0%	0.00	0.00				
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
Το	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
(-)(-)	If Sub-DA1(b) is connected to upstream subbasin(s).										
enter t	he nitrogen leaving the most upstream subbasin(lbs):										
						Provided		Nitrogon	Sub DA	Nitrogon	Droudown
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo	olume	V	olume that w	vill	Removal	Nitrogen	Removed	Time
		10	DI SUD-DA (I	()	uru	(ft ³)	aays	Efficiency	(lbs)	(lbs)	(hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
Το	tal Nitrogen remaining leaving the subbasin (lbs):							070	0.00	0.00	
Sub-DA1 (c) BMP(s)											
	If Sub DA1(c) is connected to upstream subbasin(c)										
enter t	he nitrogen leaving the most upstream subbasin(lbs);										
						Provided		A PA		N.P.	D
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo	olume	V	olume that w	vill	Removal	Sub-DA Nitrogen	Nitrogen Removed	Drawdown Time
, , , , , , , , , , , , , , , , , , ,		(lbs) (lbs) (lbs)					(lbs)	(hours)			
		0% 0.00 0					0.00				
		0% 0.00				0.00					
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
Το	tal Nitrogen remaining leaving the subbasin (lbs):								0.00	0.00	



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DRAINAGE AREA 7 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
To	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):			-			
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
		AT BWP SUMMART					
	Nitrogen Mitigated (It)=						
1-year 24-hour storm	integer mitgated(i20)						
	Post BMP Volume of Runoff (ft ³)(1 year)=						
	Post BMP Runoff (inches) = Q*(1-year)=						
	Post BMP CN _(1-vear) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=						
	Post BMP Runoff (inches) = Q* _(2-year) =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =						
	Post BMP Runoff (inches) = $Q^*_{(10-year)}$ =						
	Post BMP CN(_{10-year})=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 8 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA8 Site Acreage=											
DA8 Off-Site Acreage=											
Total Required Storage Volume				N/A							
Total Required Storage Volume for DA8 1" Rainfall for High Density (ft3)=											
Will site use underground detention/cistern?		Enter %	of the year v	water will be reused=				Note: Supp submitted to	orting inform o demonstra	ation/details te water usa	should be ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA										
	HSG	Sub-E (A)A8(a) (c)	Sub-I (A	DA8(b) Ac)	Sub-I (A	DA8(c) Ac)	Sub-E (A	0A8(d) (c)	Sub-E (A	0A8(e) .c)
Pasture		Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Woods Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Good Condition											
Reforestation (in dedicated OS)											
Impervious											
Sub-DA1(a) BMP(s)		<u> </u>									
Device Name (As Shown on Plan)	Device Type	Wate fc	अ Quality Vo ज Sub-DA (fl	lume ⁽³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill lays_	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
enter t	If Sub-DA1(b) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type	Wate fc	अ Quality Vo ज Sub-DA (ft	lume ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill lays	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
		1						0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
		<u> </u>						0%	0.00	0.00	
To Sub-DA1 (c) BMP(s)	tal Nitrogen remaining leaving the subbasin (lbs):										
(-)	If Sub-DA1(c) is connected to upstream subbasin(s).										
enter ti	he nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type	Wate fc	अ Quality Vo ज Sub-DA (ft	lume ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill lays	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
								0%	0.00	0.00	
		1						0%	0.00	0.00	
		l						0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):	i									



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DRAINAGE AREA 8 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
	DA	AS BMP SUMMARY					
	l otal Volume Treated (ft)=						
1.voar 24 hour storm	Nillogen Millgaled(ibs)-						
	Post BMP Volume of Runoff (ff ³),						
	Post BMP Runoff (inches) = Q*(1-year)						
	Post BMP CN _(1-year) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=						
	Post BMP Runoff (inches) = Q* _(2-year) =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =						
	Post BMP Runoff (inches) = Q* _(10-year) =			·			
	Post BMP CN(_{10-year})=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 9 BMP CALCULATIONS

DRAINAGE AREA 1 - BMP DEVICES AN	ID ADJUSTMENTS										
DA9 Site Acreage=											
DA9 Off-Site Acreage=											
Total Required Storage Volume				N/A							
TCN Requirement (ft ³)=											
1" Rainfall for High Density (ft3)=								-			
Will site use underground detention/cistern?		Enter %	of the year	water will be reused=	:			Note: Supp submitted to	orting inform o demonstra	ation/details te water usa	should be ge.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA										
		Sub-E	0A9(a)	Sub-l	DA9(b)	Sub-l	DA9(c)	Sub-I	DA9(d)	Sub-	0A9(e)
	HSG	A)	(c)	(/	Ac)	(4	Ac)	(A	(c)	A)	ic)
Pasture		Sile	Oll-site	Sile	Oll-site	Sile	OII-site	Sile	OII-site	Sile	On-site
Woods, Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Fair Condition	vace. Fair Condition										
Open Space, Good Condition											
Reforestation (in dedicated QS)											
Impervious											
Sub-DA1(a) BMP(s)											
Device Name (As Shown on Plan)	Device Type	Wate fo	er Quality Vo or Sub-DA (f	lume ⁽³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill days_	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
enter t	If Sub-DA1(b) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo or Sub-DA (f	lume ¹³)	V <u>dra</u>	Provided olume that v wdown 2-5 o (ft ³)	vill <u>days</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1 (c) BMP(s)											
enter t	If Sub-DA1(c) is connected to upstream subbasin(s), he nitrogen leaving the most upstream subbasin(lbs):				I			1	•	•	
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo or Sub-DA (f	lume ¹³)	V <u>dra</u>	Provided olume that v wdown 2-5 o (ft ³)	vill <u>days</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):										



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DRAINAGE AREA 9 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
To	tal Nitrogen remaining leaving the subbasin (lbs):						
	Total Volume Treated (ft ³)=						
	Nitrogen Mitigated(lbs)=						
1-vear. 24-hour storm	5 5 ()						
	Post BMP Volume of Runoff (ft ³) _(1-vear) =						
	Post BMP Runoff (inches) = Q*(1-year)=						
	Post BMP CN _(1-year) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=						
	Post BMP Runoff (inches) = Q* _(2-year) =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =						
	Post BMP Runoff (inches) = $Q^*_{(10-year)}$ =						
	Post BMP CN(10-year)=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



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DRAINAGE AREA 10 BMP CALCULATIONS

NORTH CAROLINA											
DRAINAGE AREA 1 - BMP DEVICES AN	ND ADJUSTMENTS										
DA10 Site Acreage=											
DA10 Off-Site Acreage=											
TCN Requirement (ft ³)=				N/A							
Total Required Storage Volume for DA10											
Will site use underground detention/cistern?		Enter %	of the year	water will be				Note: Supporting information/details should be			should be
win site use underground detention/cisterne				reused=				submitted t	o demonstra	te water usa	ige.
ENTER ACREAGE FOR ALL SUB-DRAINAGE	AREAS IN DA										
	Had	Sub-D	A10(a)	Sub-D	A10(b)	Sub-E	A10(c)	Sub-D	A10(d)	Sub-D	A10(e)
	1.00	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture											
Woods, Poor Condition											
Woods, Fair Condition											
Woods, Good Condition											
Open Space, Poor Condition											
Open Space, Fair Condition											
Open Space, Good Condition											
Reforestation (in dedicated OS)											
Impervious											
Sub-DA1(a) BMP(s)		-				Devided		1	1	1	1
Device Name (As Shown on Plan)	Device Type	Wate fo	er Quality Vo or Sub-DA (f	olume it ³)	V <u>dra</u>	Provided olume that w wdown 2-5 o (ft ³)	vill Jays_	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	otal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1(b) BMP(s)											
enter t	If Sub-DA1(b) is connected to upstream subbasin(s), the nitrogen leaving the most upstream subbasin(lbs):										
						Provided		Γ	1	1	1
Device Name (As Shown on Plan)	Device Type	Wate	er Quality Vo or Sub-DA (f	olume ^{it³)}	۷ dra	olume that w wdown 2-5 o (ft ³)	vill <u>days</u>	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	otal Nitrogen remaining leaving the subbasin (lbs):										
Sub-DA1 (c) BMP(s)		-									
enter t	If Sub-DA1(c) is connected to upstream subbasin(s), the nitrogen leaving the most upstream subbasin(lbs):										
		Wate	er Quality Vo	olume	· · · ·	Provided olume that v	vill	Nitrogen	Sub-DA	Nitrogen	Drawdown
Device Name (As Shown on Plan)	Device Type	fo	or Sub-DA (f	it ³)	<u>dra</u>	wdown 2-5 ((ft ³)	<u>lays</u>	Removal Efficiency	(lbs)	(lbs)	l ime (hours)
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
								0%	0.00	0.00	
То	otal Nitrogen remaining leaving the subbasin (lbs):										



Arden Senior Living Center

DRAINAGE AREA 10 BMP CALCULATIONS

Sub-DA1(d) BMP(s)							
If Sub DA1(d) is connected to unstream subb	asin(s) enter the nitrogen leaving the most unstream						
	subbasin(lbs):						
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
To	tal Nitrogen remaining leaving the subbasin (lbs):						
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subb	asin(s), enter the nitrogen leaving the most upstream subbasin(lbs):		-				
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will <u>drawdown 2-5 days</u> (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (Ibs)	Nitrogen Removed (Ibs)	Drawdown Time (hours)
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
То	tal Nitrogen remaining leaving the subbasin (lbs):						
	DA	10 BMP SUMMARY					
	Total Volume Treated (ft ³)=						
	Nitrogen Mitigated(Ibs)=						
1-year, 24-hour storm							
	Post BMP Volume of Runoff (ft ³)(1-year)=						
	Post BMP Runoff (inches) = Q* _(1-year) =						
	Post BMP CN _(1-year) =						
	Post BMP Peak Discharge (cfs)= Q _{1-year} =						
2-year, 24-hour storm (LID)							
	Post BMP Volume of Runoff (ft3)(2-year)=						
	Post BMP Runoff (inches) = Q* _(2-year) =						
	Post BMP CN _(2-year) =						
	Post BMP Peak Discharge (cfs)= Q _(2-year) =						
10-year, 24-hour storm (DIA)							
	Post BMP Volume of Runoff (ft ³) _(10-year) =						
	Post BMP Runoff (inches) = Q* _(10-year) =						
	Post BMP CN(_{10-year})=						
	Post BMP Peak Discharge (cfs)= Q _(10-year) =						



Arden Senior Living Center

DA SITE SUMMARY BMP CALCULATIONS

	BM	IP SUMM	ARY							
DRAINAGE AREA SUMMARIES										
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
Pre-	Developm	ent (1-yea	r, 24-hour s	storm)						
Runoff (in)=Q* _{1-year} =	0.59	0.35	0.16	0.16						
Peak Flow (cfs)=Q _{1-year} =				0.024						
Post	-Developm	ient (1-yea	r, 24-hour	storm)						
Target Curve Number (TCN) =					NA	1				
Post BMP Runoff (inches) = $Q^*_{(1-year)}$ =		0.30	0.16	0.16						
Post BMP Peak Discharge (cfs)= Q _{1-year} =										
Post BMP CN _(1-year) =					4					
	Post-BN	IP Nitroge	n Loading							
TOTAL SITE NITROGEN MITIGATED (lbs)=					31.8	85				
SITE NITROGEN LOADING RATE (lbs/ac/yr)=					9.3	1				
TOTAL SITE NITROGEN LEFT TO MITIGATE_Wendell Only (lbs)=					59.4	5				



LOW IMPACT DEVELOPMENT SUMMARY

DRAINAGE AREA SUMMARIES										
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
		I	Pre-Develo	opment						
Runoff (in) = Q _{pre_2-year} =	0.93	0.61	0.33	0.33						
Total Runoff Volume (ft ³)=	15,368	11,650	278	386						
Peak Flow (cfs)=Q _{2-year} =				0.050						
		F	Post-Devel	opment						
2-year, 24-hour storm (LID)								1		
Post BMP Runoff (inches) = Q* _(2-year) =		0.54	0.33	0.33						
Post BMP Peak Discharge (cfs)= Q _(2-year) =										
Post BMP Volume of Runoff (ft3) _(2-year) =		571	253	362						
Does Runoff meet LID requirements?	Yes	Yes	Yes	Yes						
Does Peak Flow meet LID requirements?				Yes						
Does Runoff Volume meet LID requirements?	Yes	Yes	Yes	Yes						
SITE SUMMARY										
			Site Da	ata						
Target CN =					N	/A				
Post-Development CN =					2	1				
Does CN meet LID requirements?										
Corr	plete the b	elow check	LID CHEC list if all req	KLIST	have been	met above:				
LID Techniques (check all that apply) At least one of the following techniques must be	used to acl	hieve LID c	lassificatior	1:						
	On-site infi	Itration								
Additional LID Techniques (check all that app At least two (one for Wendell) of the following to	l y) echniques r	nust be use	ed to achiev	/e LID class	sification:					
	Retention	of 50% of v	egetated ar	ea, includir	ng open spa	ace, landsca	aping or for	rests		
	Use of per	meable pav	ement for a	all private d	riveways, p	rivate roads	s, sidewalks	s and parkir	ng areas	
	Installation	of one rain	ı cistern per	r lot or three	e rain barre	ls per lot				
	Installation	of vegetati	ve roofs							
	Increasing	all buffers i	in the Ripar	ian buffer z	one or the	Flood Prote	ction Zone	, whichever	is greater,	by 50 feet
	Use of recl	aimed wate	er for all bui	ldings						
	Use of inno	ovative LID	techniques	subject to	approval					



DOWNSTREAM IMPACT ANALYSIS SITE SUMMARY

Project Name:

Arden Senior Living Center

DRAINAGE AREA SUMMARIES										
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
			Pre-Devel	opment						
Peak Discharge (cfs)=Q _{10-year} =				0.15						
Volume of Runoff (ft ³) _(10-year) =	32,862	28,408	835	1,162						
			Post-Devel	opment						
10-year, 24-hour storm (DIA)										
Post BMP Peak Discharge (cfs)= Q _(10-year) =										
Post BMP Volume of Runoff (ft ³) _(10-year) =		26,341	835	1,162						

CALCULATIONS AND REFERENCE

	TAR	GET CURVE NUMBER		
MAXIMUM CURVE NUMBER AFTER	DEVELOPMENT			
PROJECT DENSITY	Α	В	С	D
Ultra-Low	43	63	76	81
Low	48	66	78	83
High	N/A	N/A	N/A	N/A
	WEIGI	TED CURVE NUMBE	R	
RUNOFF CURVE NUMBERS FOR U	RBAN AREAS			
LAND USE	Α	В	С	D
Pasture	39	61	74	80
Woods, Poor Condition ¹	n ¹ 45 66		77	83
Woods, Fair Condition ²	36	60 73		79
Woods, Good Condition ³	30	55	70	77
Open Space, Poor Condition ⁴	68	79	86	89
Open Space, Fair Condition ⁵	49	69	79	84
Open Space, Good Condition ⁶	39	61	74	80
Reforestation (in dedicated OS) ⁷	30	55	70	77
Impervious ⁸	98	98	98	98
Impervious ⁸ Notes: ¹ <u>Poor Condition</u> = Forest ² <u>Fair Condition</u> = Woods ³ <u>Good Condition</u> = Woods ⁴ <u>Poor Condition</u> = Grass C ⁵ <u>Fair Condition</u> = Grass C ⁶ Cood Condition = Cross	98 litter, small trees, and brus are grazed but not burned that are protected from gr cover <50% (lawns, parks, over = 50% - 75% (lawns, cover >50% (lawns, parks)	98 sh are destroyed by heavy s , and some forest litter cov- razing, litter, and brush ade golf courses, cemeteries, parks, golf courses, cemet	98 grazing or regular burning. ers the soil. iquately cover the soil etc.) eries, etc.)	98

⁷Includes paved/gravel/compacted soil driveways and roads, roofs, etc.

⁸Includes paved/gravel/compacted soil driveways and roads, roofs, etc.

SCS RUNOFF METHOD

Q*= (P-.2S)²/(P+.8S) Where: Q*= Runoff (in)

P= Precipitation (in) S= Potential max retention after runoff begins (in) = (1000/CN)-10

Calculations used on Drainage Area Sheets

DISCRETE RUNOFF METHOD (HIGH DENSITY ONLY)

Q*_{High}=Q*_{(imp) X} DA_(imp) + Q*_(pervious) X DA_(pervious)

Q*_(imp) = Runoff from Impervious Area (in) DA_(imp) = Drainage from impervious area (acre) Q*_(pervious) = Runoff from pervious area (in)

DA(pervious) = Drainage from pervious area (acre)

PEAK FLOW Method: TR-55 Graphical Peak Discharge Method for Type II Distribution

$Q_p = q_u AmQ^*Fp$

Notes:

Where: Q_p = Peak Discharge (cfs) q_u = Unit peak discharge (csm/in) *TR-55 Appendix F* A_m = Drainage Area (mi²) Q* = runoff (inches) F_p = pond adjustment factor

$\log(q_u) = C_0 + C_1 \log(Tc) + C_2 [\log(Tc)]^2$

 $C_0, C_1, C_2 = coefficient from Table F-1$ $T_c = time of concentration (hr)$

The watershed must be hydrologically homogeneous Limitations: The watershed may have only one main stream or, if more than one, the branches must have nearly equal Tc's. The Fp factor can be applied only for ponds or swamps that are not in the $\rm T_{c}$ flow path This method should be used only if the weighted CN is greater than 40. When this method is used to develop estimates of peak discharge for both pre and post development, use the same procedure for estimating Tc. $\rm T_{c}$ values with this method may range from 0.1 to 10 hours.

				TIM	E OF CO	NCENTRATION
			T _t =	L 3600V	-	T _t =travel time (hr) L = flow length (ft) V = average velocity (ft/s) 3600 = conversion factor from seconds to hours
			T _c =	sum of T _t va	alues for con	secutive flow segments
			I _c =	$I_1 + I_2 + I_3$	+ I _m	$T_{\rm c}$ = time of concentration (br)
						m = # of flow segments
ote: Minimal {	5 minute Tc		ESS THA		T)	SHALLOW FLOW
		ONTLOW			-')	Surface Cover
Tt	= <u>0.0007(nL)^{0.}</u>	.8				Unpaved: V= 16.1345(s) ^{0.5}
	(P ₂) ^{0.5} s ^{0.4}					Paved: V= 20.3282(s) ^{0.6}
	T _t =travel tin	ne (hr)				V=Average Velocity (ft/s)
	n = Manning	s roughness	coefficient (1	able 3-1)		s = slope of hydraulic grade line (watercourse slope, ft/ft)
	L = flow leng P₂ = 2-vear.	gtn (ft) 24-hour rainfa	all (in)			T, = L
	s = slope of	hydraulic grad	le line (land	slope, ft/ft)		3600V
						T ₁ =travel time (hr)
						L = flow length (ft)
						V = average velocity (ft/s)
Modified Table 3-1 for Stormwater Tool						3000 – conversion factor from seconds to hours
	Modified T	able 3-1 for	Stormwate	er Tool		OPEN CHANNEL FLOW
	Modified T	able 3-1 for	Stormwate	er Tool		OPEN CHANNEL FLOW
URFACE DE	Modified T	able 3-1 for	Stormwate	er Tool	n	OPEN CHANNEL FLOW V= 1.49r ^{2/3} s ^{1/2}
URFACE DEs aved, Gravel,	Modified T SCRIPTION or Bare Soil	able 3-1 for	Stormwate	er Tool	n 0.011	OPEN CHANNEL FLOW V= 1.49r ²³ s ^{1/2} n n
URFACE DE aved, Gravel, rass	Modified T SCRIPTION or Bare Soil	able 3-1 for	Stormwate	er Tool	n 0.011 0.24 0.40	OPEN CHANNEL FLOW V= <u>1.49r²³s^{1/2}</u> n V=Average Velocity (ff(s)
URFACE DEs aved, Gravel, rass /oods	Modified T SCRIPTION or Bare Soil	able 3-1 for	Stormwate	er Tool	n 0.011 0.24 0.40	OPEN CHANNEL FLOW V= 1.49r ^{2/3} s ^{1/2} n V V=Average Velocity (ft/s)
URFACE DE: aved, Gravel, rass ′oods	Modified T SCRIPTION or Bare Soil	TABLE 4-1,	Stormwate	er Tool	n 0.011 0.24 0.40	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft)
URFACE DE: aved, Gravel, rass /oods	Modified T SCRIPTION or Bare Soil	TABLE 4-1, s for runoff c	Stormwate TR-55 surve numb	er Tool	n 0.011 0.24 0.40	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ V V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow
URFACE DES aved, Gravel, rass 'oods CN	Modified T SCRIPTION or Bare Soil I _a value I _a (in)	TABLE 4-1, s for runoff c	Stormwate TR-55 curve numb	er Tool bers CN	n 0.011 0.24 0.40	OPEN CHANNEL FLOW V= 1.49r ^{2/3} s ^{1/2} n V V=Average Velocity (ft/s) r r = hydraulic radius (ft) s s = slope of hydraulic grade line (channel slope, ft/ft) n m Manning's roughness coefficient for open channel flow
URFACE DE aved, Gravel, rass 'oods CN 40	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000	TABLE 4-1, s for runoff c <u>CN</u> 60	Stormwate	pers CN 80	n 0.011 0.24 0.40 I _a (in) 0.500	OPEN CHANNEL FLOW V= 1.49r ^{2/3} s ^{1/2} n V V=Average Velocity (ft/s) r r = hydraulic radius (ft) s s = slope of hydraulic grade line (channel slope, ft/ft) n n = Manning's roughness coefficient for open channel flow
URFACE DE aved, Gravel, rass /oods CN 40 41	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.722	TABLE 4-1, s for runoff c <u>CN</u> 60 61	Stormwate TR-55 curve numb 1.333 1.279	er Tool bers CN 80 81 22	n 0.011 0.24 0.40 I _a (in) 0.500 0.469	OPEN CHANNEL FLOW $V = \underline{1.49r^{2/3}s^{1/2}}{n}$ $V = Average Velocity (ft/s)$ $r = hydraulic radius (ft)$ $s = slope of hydraulic grade line (channel slope, ft/ft)$ $n = Manning's roughness coefficient for open channel flow r = \underline{a} T_t = \underline{L} 200V_t $
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651	TABLE 4-1, s for runoff c CN 60 61 62 63	TR-55 curve numb 1.333 1.279 1.226 1.175	er Tool bers CN 80 81 82 83	n 0.011 0.24 0.40 <u>I_a (in)</u> 0.500 0.469 0.439 0.410	OPEN CHANNEL FLOW $V = \underline{1.49r^{2/3}s^{1/2}}{n}$ $V = Average Velocity (ft/s)$ $r = hydraulic radius (ft)$ $s = slope of hydraulic grade line (channel slope, ft/ft)$ $n = Manning's roughness coefficient for open channel flow r = \underline{a} T_t = \underline{L} p_w T_t = \underline{L} $
URFACE DE3 aved, Gravel, rass foods CN 40 41 42 43 44	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.661 2.545	TABLE 4-1, s for runoff c CN 60 61 62 63 64	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125	Ders CN 80 81 82 83 84	n 0.011 0.24 0.40 <u>I_a (in)</u> 0.500 0.469 0.439 0.439 0.439	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ $V = Average Velocity (ft/s)$ $r = hydraulic radius (ft)$ $s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underbrace{a}_{p_w} T_t = \underbrace{L}_{3600V} a = cross sectional flow area (ft2) $
URFACE DE3 aved, Gravel, rass loods CN 40 41 42 43 44 45	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.545 2.444	Cable 3-1 for TABLE 4-1, s for runoff c CN 60 61 62 63 64 65	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077	er Tool bers CN 80 81 82 83 84 85	n 0.011 0.24 0.40 1 <u>1</u> a (in) 0.500 0.469 0.439 0.439 0.439 0.353	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ $V = Average$ Velocity (ft/s) $r = hydraulic radius (ft)$ $s = slope$ of hydraulic grade line (channel slope, ft/ft) $n = Manning's$ roughness coefficient for open channel flow $r = \underbrace{a}_{p_w}$ $T_t = \underbrace{L}_{3600V}$ $a = cross$ sectional flow area (ft2) T_t =travel time (hr) p_w =wetted perimeter (ft) $L =$ flow length (ft)
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255	TABLE 4-1, s for runoff c CN 60 61 62 63 64 65 66 67	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077 1.030 0.985	er Tool bers CN 80 81 82 83 84 85 86 86 87	n 0.011 0.24 0.40 0.500 0.469 0.439 0.439 0.439 0.439 0.439 0.430 0.381 0.353 0.326	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ $V = Average$ Velocity (ft/s) $r = hydraulic radius (ft)$ $s = slope$ of hydraulic grade line (channel slope, ft/ft) $n = Manning's$ roughness coefficient for open channel flow $r = \underbrace{a}_{p_w}$ $T_t = \underbrace{L}_{3600V}$ $a = cross sectional flow area (ft2)$ $T_t = travel time (hr)$ p_w =wetted perimeter (ft) $L = flow length (ft)$ $V = average velocity (ft/s)$ $3600 = conversion forter (con brc) $
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47 48	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.167	CN 60 61 62 63 64 65 66 67 68	Stormwate TR-55 surve numb 1.333 1.279 1.226 1.175 1.077 1.030 0.985 0.941	er Tool bers CN 80 81 82 83 84 85 86 86 87 88	n 0.011 0.24 0.40 	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underbrace{a}_{p_w} T _t = \underbrace{L}_{3600V} a = cross sectional flow area (ft2) T _t = travel time (hr) L = flow length (ft) V = average velocity (ft/s) 3600 = conversion factor (sec-hrs)
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47 48 49	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.444 2.348 2.255 2.167 2.082	CN 60 61 62 63 64 65 66 67 68 69	Stormwate TR-55 surve numb 1.333 1.279 1.226 1.175 1.025 1.077 1.030 0.985 0.941 0.899	er Tool bers CN 80 81 82 83 84 85 86 87 88 88 89	n 0.011 0.24 0.40 I _a (in) 0.500 0.469 0.439 0.439 0.440 0.381 0.353 0.326 0.299 0.273 0.247	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underbrace{a}_{p_w} T ₁ = \underbrace{L}_{3600V} a = cross sectional flow area (ft2) T ₁ = flow length (ft) V = average velocity (ft/s) 3600 = conversion factor (sec-hrs)
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47 48 49 50	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.444 2.348 2.255 2.167 2.082 2.000	CN 60 61 62 63 64 65 66 67 68 69 70	Stormwate TR-55 surve numb 1.333 1.279 1.226 1.175 1.025 1.077 1.030 0.985 0.941 0.899 0.857	er Tool bers CN 80 81 82 83 84 85 86 87 88 88 89 90	n 0.011 0.24 0.40 I _a (in) 0.500 0.469 0.439 0.439 0.439 0.439 0.433 0.381 0.353 0.326 0.299 0.273 0.247 0.222	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underbrace{a}_{p_w} T ₁ = \underbrace{L}_{3600V} a = cross sectional flow area (ft2) p_w =wetted perimeter (ft) L = flow length (ft) V = average velocity (ft/s) 3600 = conversion factor (sec-hrs) TABLE 3-9, TR-55 Rational Runoff Coefficients
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47 45 46 47 48 49 50 51 52	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.167 2.082 2.000 1.922 1.946	CN 60 61 62 63 64 65 66 67 68 69 70 71 72	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077 1.030 0.985 0.941 0.899 0.857 0.817 0.817	er Tool ers CN 80 81 82 83 84 85 86 87 88 89 90 91 92	n 0.011 0.24 0.40	OPEN CHANNEL FLOW $V = \underline{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r =
URFACE DE3 aved, Gravel, rass /oods CN 40 41 42 43 44 45 46 47 45 46 47 48 49 50 51 52 53	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.167 2.082 2.000 1.922 1.846 1.774	CN 60 61 62 63 64 65 66 67 68 69 70 71 72 73	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077 1.030 0.985 0.941 0.899 0.857 0.817 0.778 0.778	er Tool ers CN 80 81 82 83 84 85 86 87 88 89 90 91 92 93	n 0.011 0.24 0.40 1 _a (in) 0.500 0.469 0.439 0.440 0.381 0.353 0.326 0.299 0.273 0.247 0.222 0.198 0.174 0.151	OPEN CHANNEL FLOW $V = \underline{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r =
URFACE DE: aved, Gravel, rass /oods CN 40 41 42 43 44 45 46 47 45 46 47 48 49 50 51 51 52 53 54	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.167 2.082 2.000 1.922 1.846 1.774 1.774	CN 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.125 1.125 1.1077 1.030 0.985 0.941 0.899 0.857 0.817 0.778 0.778 0.7740 0.703	er Tool ers CN 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94	n 0.011 0.24 0.40 1a (in) 0.500 0.469 0.439 0.410 0.381 0.353 0.326 0.299 0.273 0.227 0.222 0.198 0.174 0.151 0.128	OPEN CHANNEL FLOW $V = \underline{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underline{a} $T_t = \underline{L}$ p_w $T_t = 1$ p_w $T_t = 1$ p_w $T_t = 1$ $p_w = 1$ $T_t = 1$ <t< td=""></t<>
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 44 45 46 47 48 49 50 51 52 53 54 55 55	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.651 2.545 2.444 2.348 2.255 2.167 2.082 2.000 1.922 1.846 1.774 1.774 1.636	CN CN<	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077 1.030 0.985 0.941 0.899 0.857 0.817 0.778 0.778 0.740 0.703 0.667	er Tool bers CN 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 95	n 0.011 0.24 0.40 0.500 0.469 0.439 0.439 0.439 0.439 0.439 0.439 0.247 0.222 0.198 0.174 0.151 0.128 0.105	OPEN CHANNEL FLOW $V = \underline{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underline{a} $T_t = \underline{L}$ p_w $T_t = 1$
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 54 55 56 57	Modified T SCRIPTION or Bare Soil I _a value I _a (in) 3.000 2.878 2.762 2.661 2.545 2.444 2.348 2.255 2.167 2.082 2.000 1.922 1.846 1.774 1.636 1.571 1.570	TABLE 4-1, s for runoff c CN 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077 1.030 0.985 0.941 0.899 0.857 0.847 0.740 0.778 0.740 0.773 0.667 0.632 0.557	er Tool ers CN 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97	n 0.011 0.24 0.40 0.500 0.469 0.439 0.439 0.439 0.439 0.247 0.222 0.198 0.273 0.247 0.222 0.198 0.174 0.151 0.128 0.105 0.083 0.083	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underbrace{a}_{p_w} T _t = \underbrace{L}_{3600V} a = cross sectional flow area (ft2) T _t =travel time (hr) p _w =wetted perimeter (ft) L = flow length (ft) V = average velocity (ft/s) 3600 = conversion factor (sec-hrs) TABLE 3-9, TR-55 Rational Runoff Coefficients CHANNEL LINING Asphalt 0.016 Concrete, finished 0.012 Concrete, unfinished 0.014 Gravel Bottom/ingrap sides 0.035
URFACE DE3 aved, Gravel, rass 'oods CN 40 41 42 43 44 45 46 47 48 49 50 51 52 53 51 52 53 54 55 56 57 58	Modified T SCRIPTION or Bare Soil a value la value la (in) 3.000 2.878 2.762 2.651 2.565 2.167 2.2444 2.348 2.255 2.167 2.000 1.922 1.846 1.774 1.774 1.704 1.509 1.448	TABLE 4-1, s for runoff c CN 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78	Stormwate TR-55 curve numb 1.333 1.279 1.226 1.175 1.125 1.077 1.030 0.985 0.941 0.899 0.857 0.817 0.740 0.778 0.740 0.773 0.667 0.632 0.597 0.564	er Tool bers CN 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98	n 0.011 0.24 0.40 1a (in) 0.500 0.469 0.439 0.410 0.381 0.353 0.326 0.299 0.273 0.247 0.222 0.198 0.174 0.128 0.105 0.083 0.062 0.041	OPEN CHANNEL FLOW $V = \underbrace{1.49r^{2/3}s^{1/2}}{n}$ n V=Average Velocity (ft/s) r = hydraulic radius (ft) s = slope of hydraulic grade line (channel slope, ft/ft) n = Manning's roughness coefficient for open channel flow r = \underbrace{a}_{p_w} T _t = \underbrace{L}_{3600V} a = cross sectional flow area (ft2) T _t =travel time (hr) p _w =wetted perimeter (ft) L = flow length (ft) V = average velocity (ft/s) 3600 = conversion factor (sec-hrs) TABLE 3-9, TR-55 Rational Runoff Coefficients CHANNEL LINING Concrete, finished 0.0112 Concrete, unfinished 0.012 Gorarete, suffnished 0.0135 Gravel Bottom/riprap sides 0.034

DISCONNECTED IMPERVIOUS CALCULATION
$\begin{split} & CN_{adjusted} = CN_p + [(P_{imp}/100)^*(98\text{-}CN_p)^*(1\text{-}(0.5^*\text{R}))] \\ & Where: \\ & CN_{adjusted} = Composite Curve Number \\ & CN_p = Pervious runoff curve number = (PostCN - (Pimp/100)^*98)/(1 - (Pimp/100)) \\ & P_{imp} = Percent Imperviousness \\ & R = ratio of unconnected impervious area to total impervious area \end{split}$

TABLE 4-1, SW BMP MANUAL BMP ABILITY FOR SW QUANTITY CONTROL					
			BMP	TSS	TN
			Bioretention without IWS	85%	35%
Bioretention with IWS	85%	40%			
Stormwater Wetlands	85%	40%			
Wet Detention Basin	85%	25%			
Sand Filter	85%	35%			
Filter Strip	25-40%	20%			
Grass Swale	35%	20%			
Restored Riparian Buffer	60%	30%			
Infiltration Device	85%	30%			
Dry Extended Detention Basin	50%	10%			
Permeable Pavement	0%	0%			
Rooftop Runoff Management (Excluding Cisterns)	0%	0%			
Cistern/Underground Detention	See Note	100%			

¹ Use of underground detention reduces total volume required for storage as well total nitrogen load. To receive total reduction, engineer must show year-round use of reclaimed water. If water is not reused year-round, a percent of the total reduction may be given (See DA BMP sheets).