

Chapter 7 Generation, Certification, Trading, and Retirement of Stormwater Retention Credits

7.1 Stormwater Retention Credits Overview

This chapter provides details on the eligibility requirements for certification of Stormwater Retention Credits (SRCs); the administrative process for certifying SRCs; the format for SRC serial numbers; the consequences for failure to maintain SRC-generating retention capacity; buying and selling SRCs; and voluntary retirement of SRCs. The chapter also explains how to calculate SRCs using DDOE's SRC Calculator and provides some example calculations.

The following background, covered elsewhere in this Guidebook and the regulations, may be helpful in reviewing this chapter:

- One Stormwater Retention Credit (SRC) is equal to one gallon of retention for one year.
- One SRC can be used by a major regulated project to achieve one gallon of its Off-Site Retention Volume (Offv) for one year.
- The clock starts on an SRC's one-year lifespan when it is used to satisfy an Offv.
- An unused SRC can be banked for future use without expiring.
- An SRC can be traded.
- An SRC can be voluntarily retired without being used.

7.2 Eligibility Requirements

DDOE will certify Stormwater Retention Credits (SRCs) for eligible stormwater best management practices (BMPs) and land cover in the District of Columbia. To be eligible, the retention capacity in a BMP or land cover must do the following:

- Achieve retention volume in excess of regulatory requirements, but less than the SRC ceiling;
- For unregulated projects or voluntary stormwater retrofits, achieve retention volume in excess of preproject retention but less than the SRC ceiling;
- Be designed and installed in accordance with a DDOE-approved Stormwater Management Plan (SWMP) and the Stormwater Management Guidebook;
- Pass a post-construction inspection and ongoing maintenance inspections; and
- Provide a maintenance contract or maintenance agreement(s) for ongoing maintenance.

In addition, retention capacity installed must have been installed after May 1, 2009 in order to be eligible.

7.2.1 Eligibility Requirements: Retention Volume

To be eligible, retention capacity must achieve retention in excess of stormwater management regulatory requirements or, for unregulated sites, in excess of preproject retention.

For sites required to achieve a Stormwater Retention Volume (SWRv), eligible retention volume is the volume achieved in excess of the SWRv, but less than the SRC ceiling as shown in Figure 7.1.

For sites required to treat a water quality treatment volume (prior to establishment of SWRv requirements), eligible retention volume is the volume retained in excess of the stormwater treatment requirements in place at that time. For example, for a regulated site that provided treatment for the 0.5-inch storm by installing BMPs capable of retaining the 0.9-inch storm, the eligible retention volume would be the difference between the 0.9-inch storm volume and the 0.5-inch storm volume (i.e., 0.4-inch storm volume).

For sites that are unregulated or that would only trigger the regulations because of the voluntary installation of retention capacity, eligible retention volume is the volume achieved in excess of preproject on-site retention, as shown in Figure 7.1.

Guidance on calculating volume eligibility of retention capacity for certification of SRCs is below, and an SRC calculation spreadsheet is available on DDOE's website.

In all cases, DDOE shall not certify SRCs for retention capacity in excess of the runoff volume expected to occur from a 1.7 inch rainfall event ("SRC Ceiling") (see Figure 7.1),

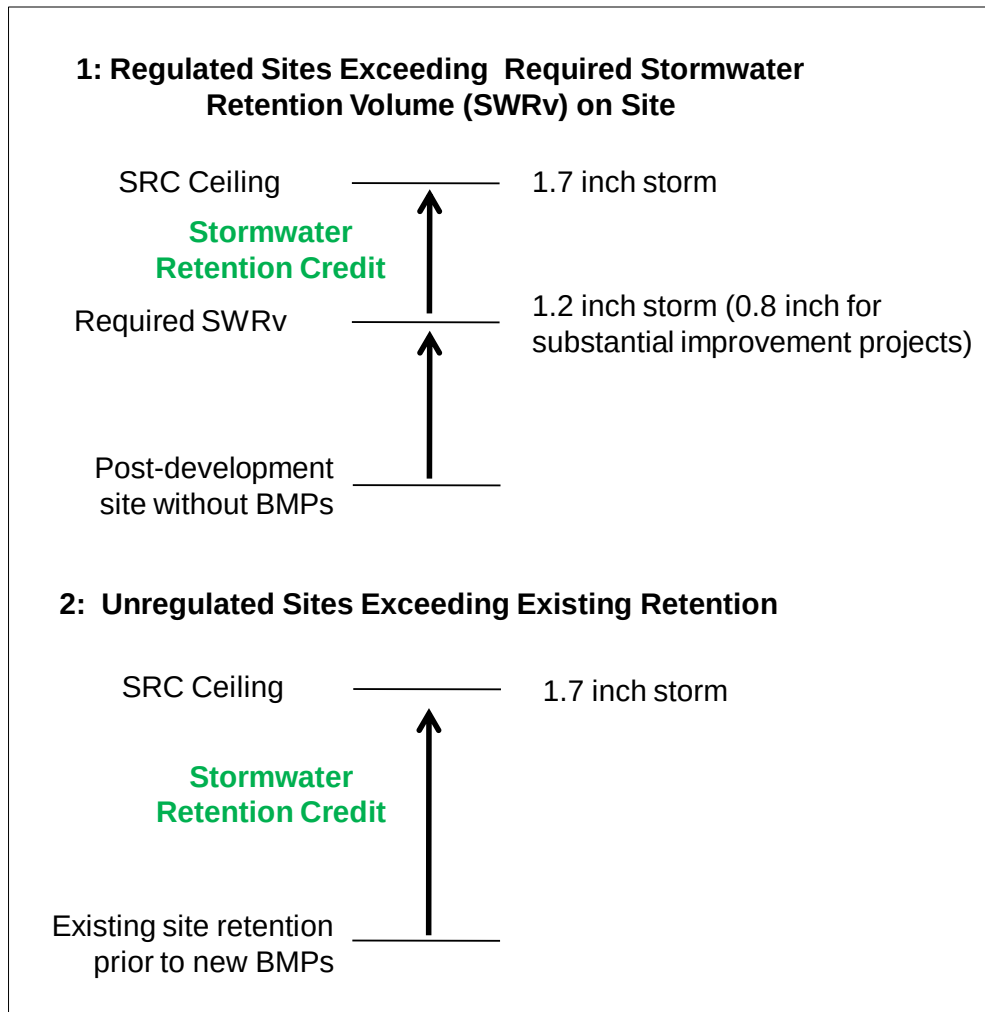


Figure 7.1 Retention volume eligible to earn SRCs.

7.2.2 Eligibility Requirements: Design and Installation

To be eligible for SRC certification, retention BMPs or land covers must be designed and installed according to a DDOE-approved SWMP, with an as-built SWMP submitted to DDOE.

DDOE recognizes that some retention capacity, voluntarily installed prior to the establishment of retention standards, was installed without obtaining DDOE approval of a SWMP prior to installation. This retention capacity may still be eligible to earn SRCs. In such cases, DDOE will require an as-built SWMP stamped by a professional engineer licensed in the District of Columbia, as well as documentation of existing site conditions prior to the installation of the retention capacity. DDOE will consider such Applications for Certification of SRCs on a case-by-case basis and will determine eligible retention capacity in accordance with the specifications in this Stormwater Management Guidebook.

7.2.3 Eligibility Requirements: Inspection

To be eligible for SRC certification, retention BMPs and land covers must pass DDOE's post-construction inspection and continue to pass inspections on an ongoing basis. DDOE typically inspects BMPs every three years but may also conduct unscheduled inspections of retention capacity, on a random basis or as a result of a potential problem that is identified by DDOE or the public.

7.2.4 Eligibility Requirements: Maintenance

To be eligible for SRC certification, retention capacity must be maintained in good working order, as specified by DDOE. In an application for certification of SRCs, the proposed SRC owner (who becomes the original SRC owner once DDOE certifies the SRCs) signs a statement swearing to maintain the retention capacity for the period of time for which SRC certification is requested. To demonstrate the commitment to maintenance, the applicant must submit a current maintenance contract for the time period for which SRC certification is requested. Alternatively, applicants may conduct this maintenance, but they must demonstrate that they have the expertise and capacity to conduct the maintenance. The applicant shall submit the maintenance contract or other documentation of expertise and capacity as an attachment to the application for certification of SRCs.

7.3 Certification of Stormwater Retention Credits

DDOE will accept applications for certification of SRCs once the regulations related to certification and ownership of SRCs are finalized in the *D.C. Register*. Required supporting documentation for the initial application includes the completed SRC calculation spreadsheet, as-built SWMP, and signed maintenance agreement or contract. Applications for retention capacity installed without prior DDOE approval of a SWMP must also provide documentation of site conditions prior to installation, including land cover type and existing retention BMPs. (See Chapter 2 and Appendix A for Stormwater Retention Volume calculations.)

Appendix D contains the application form for certification of SRCs. Through the form, DDOE receives information that is necessary to track and record generated SRCs. Such information includes the address of the site with eligible retention capacity, the owner of proposed SRCs, and the owner's agent, among other information. Applicants should note the format for submitting information on the drainage areas and BMPs that will generate SRCs on a site. Applicants should assign each drainage area a letter (e.g., A, B, C) and each BMP a corresponding number (e.g., A1, B2, C3).

DDOE will review the application and supporting documentation to make a determination as to the number of SRCs to certify. DDOE will send its response to the proposed SRC owner who is listed on the application for certification. DDOE expects that the proposed SRC owner would very often be both the owner of the retention capacity and the owner of the property, but recognizes that this may not always be the case. If the proposed SRC owner is not the property owner, the proposed SRC owner must include documentation of the right to own the SRC applied for.

DDOE will certify up to three years' worth of SRCs for eligible retention capacity (the three-year period is based on DDOE's typical three-year inspection cycle). DDOE will assign each SRC a unique serial number for tracking purposes. At the end of that three-year period, the owner may apply for another three years' worth of SRCs. For example, for 1,000 gallons of eligible retention capacity, DDOE will certify up to 3,000 SRCs initially and an additional 3,000 SRCs at the beginning of each subsequent three-year period, as long as the eligibility requirements continue to be met.

An applicant should only apply for certification of SRCs corresponding to the period for which maintenance is planned. In applying for SRCs, an applicant commits to the maintenance of the retention capacity for the time period for which SRC certification is requested. Failure to maintain SRC-generating retention capacity is discussed below.

An applicant who wishes to have SRCs certified after the initial period of certification shall re-submit an application for certification of SRCs. The required supporting documentation for this re-submittal is a current maintenance contract or documentation of ongoing expertise and capacity to conduct the maintenance. DDOE expects to issue additional SRCs for retention capacity that has passed re-inspection and for which a submitted the commitment to maintain has been demonstrated.

Key Milestones for the Generation of SRCs:

1. Receive DDOE approval of proposed SWMP.
2. Install BMPs and/or land covers.
3. Pass DDOE's post-construction inspection.
4. Submit application for DDOE certification of SRCs, including:
 - (a) As-built SWMP;
 - (b) Current maintenance contract or documentation of expertise and capacity to conduct maintenance; and
 - (c) Documentation of the legal right to the SRCs applied for, if the proposed SRC owner is not the property owner.
5. Receive DDOE certification for up to three years' worth of SRCs.
6. Maintain retention capacity and pass subsequent inspections.*
7. Submit application for DDOE certification of SRCs, including:
 - (a) Current maintenance contract or documentation of expertise and capacity to conduct maintenance and.
 - (b) Documentation of the legal right to the SRCs applied for, if the proposed SRC owner is not the property owner.*
8. Receive DDOE certification for up to three years' worth of additional SRCs.*

*Steps 6, 7, and 8 can be repeated indefinitely

7.4 Format of SRC Serial Numbers

RC serial numbers are based on the following format:

Beginning of certification year (yyyymmdd)	-	Major and Sub drainage (A,R,P and 2 digits)	-	SWMP number (5 digits)	-	Individual gallon of capacity (6 digits)
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For example, a proposed SRC owner submits a complete application for certification of SRCs on January 1, 2014 for 1,000 gallons of eligible retention capacity located in the Watts Branch sub-drainage of the Anacostia River. The retention capacity was installed in accordance with a DDOE-approved SWMP with “1400” as the identification number. After approving the application for three years’ worth of SRCs, DDOE would issue 3,000 SRCs as follows:

1,000 SRCs 20140101-A19-01400-000001 -
20140101-A19-01400-001000

1,000 SRCs 20150101-A19-01400-000001 -
20150101-A19-01400-001000

1,000 SRCs 20160101-A19-01400-000001 -
20160101-A19-01400-001000

This example assumes Watts Branch has been assigned “19” as an identifying number, but the numbering of sub-drainages has not been finalized. When the list of each sub-drainage’s identifying number is final, DDOE will post it on its website.

7.5 Failure to Maintain Retention after Certification of Stormwater Retention Credits

Sites need not file a declaration of covenants for the maintenance of retention capacity for which DDOE has certified SRCs. However, DDOE will not certify additional SRCs for retention capacity that is not maintained. Furthermore, original SRC owners will be required to compensate for the associated retention failure during the time period for which maintenance did not occur by doing one of the following: 1) forfeiting those SRCs (if they have not been sold or used); 2) purchasing replacement SRCs that DDOE will then retire; or 3) paying in-lieu fee to DDOE.

7.6 Buying and Selling Stormwater Retention Credits

Each SRC has a unique serial number, and DDOE will track the ownership and use of each SRC. Before the ownership of an SRC can be officially transferred, DDOE must approve a completed application for transfer of SRC ownership in order to verify the ownership and status of the SRCs. The new owner of the SRCs cannot use the SRCs to meet an Offv until DDOE has approved the application.

SRCs can be banked for future use without expiring. The one-year lifespan of an SRC begins once it is used to achieve an Offv.

Key Milestones in Transfer of SRC Ownership

1. Negotiate terms of transfer/contract between buyer and seller.
2. Submit application for transfer of SRC ownership to DDOE.
3. Receive DDOE confirmation of transfer of SRC ownership.

7.7 Voluntary Retirement of Stormwater Retention Credits

An SRC owner can request that an SRC be retired by submitting an application to retire SRCs.

7.8 Quitting the Obligation to Maintain Retention for Stormwater Retention Credits

An original SRC owner can quit the obligation to maintain retention capacity for which an SRC is certified. If the SRC has not been sold or used to satisfy an Offv, the owner may submit an application to retire the SRC. If the SRC was sold or used, the original owner may request that DDOE retire another SRC in its place or pay the in-lieu fee to compensate.

7.9 Calculation of Stormwater Retention Credits

A person should use DDOE's SRC calculator spreadsheet, available on DDOE's website, to calculate the retention capacity on a site that meets the retention volume eligibility requirement. As discussed above, retention capacity must also meet eligibility requirements for design and installation; inspection; and maintenance in order for DDOE to certify SRCs.

Use of the SRC calculator spreadsheet is discussed below. The calculator allows SRC calculation for multiple drainage areas on a site.

Note that major regulated projects that are interested in exceeding the required SWRv in order to generate SRCs should input data in the SRC calculator's Existing Retention section based on the proposed site conditions upon achievement of the SWRv. Any changes to land cover and retention above and beyond the SWRv should be input in the Proposed Retention section. Scenario 3 in Section 7.9 is an example of a major regulated project that exceeds the SWRv in order to generate SRCs.

On the SRC calculator spreadsheet, cells highlighted in blue are user input cells. Cells highlighted in gray are calculation cells, and cells highlighted in yellow are constant values.

The steps given below are meant to be followed while working with DDOE's SRC calculator spreadsheet. Note that **only entry of input data is required by users**—no manual calculations are required except when more than 4 BMPs are present or proposed in each drainage area for Steps 1(c) and 2(c) (adding up BMP retention). The equations utilized in the spreadsheet are given below for informational purposes.

Step 1: Determine Preproject Retention for Drainage Area 1.

- a. Input area of each preproject land cover, including Impervious Cover, Compacted Cover, and Natural Cover in **lines 14–16**. Guidance for various land covers is provided in Appendix N and Table A.1 of Appendix A.
- b. Automatic calculation of retention provided by preproject land cover. This is equivalent to the abstraction provided by the land, determined by modifying the formula for calculating the SWRv. The calculation applies a retention coefficient (0.05 for Impervious Cover, 0.75 for Compacted Cover, and 1.0 for Natural Cover) to each of the land cover areas, using the 1.7-inch storm depth. (**line 17**).

$$ER_{LC} = (0.05 \times EIA + 0.75 \times ECCA + 1.0 \times ENA) \times \frac{PC}{12} \times 7.48$$

where:

ER_{LC}	=	retention from the existing (preproject) land cover (gal) (line 17)
EIA	=	existing (preproject) impervious cover area (ft ²) (line 14)
$ECCA$	=	existing (preproject) compacted cover area (ft ²) (line 15)
EN	=	existing (preproject) natural cover area (ft ²) (line 16)
PC	=	precipitation ceiling (in.) (line 10)

- c. Input each existing retention BMP in **lines 20–23**. If there are more than four existing BMPs, sum the additional BMP retention volumes (for example, BMP 4 + BMP 5 + BMP 6 + ...) by drainage area in the last row (**line 23**).
- d. Automatic calculation of the total existing retention as sum of existing retention by land (**line 17**) and existing retention by BMPs (**lines 20 through 23**). (**line 25**).

$$ER_T = ER_{LC} + ER_{P1} + ER_{P2} + ER_{P3} + ER_{P4,5,6,etc.}$$

where:

ER_T	=	total existing (preproject) retention (gal) (line 25)
ER_{LC}	=	retention from the existing (preproject) land cover (gal) (line 17)
ER_{P1}	=	retention from first existing (preproject) BMP (gal) (line 20)
ER_{P2}	=	retention from second existing (preproject) BMP (gal) (line 21)
ER_{P3}	=	retention from third existing (preproject) BMP (gal) (line 22)
$ER_{P4, 5, 6, etc.}$	=	retention from third existing (preproject) BMP (gal) (line 23)

Step 2: Determine Proposed Retention for Drainage Area 1.

- a. Input the proposed land cover including Impervious Cover, Compacted Cover, and Natural Cover in **lines 28–30**. Guidance for various land covers is provided in Table A.1 and Appendix N.

- b. Automatic calculation of retention provided by proposed land cover. This is equivalent to the abstraction provided by the land, determined by modifying the formula for calculating the SWRv. The calculation applies a retention coefficient (0.05 for Impervious Cover, 0.75 for compacted cover, and 1.0 for natural cover) to each of the land cover areas, using the 1.7-inch storm depth. **(line 31)**.

$$PR_{LC} = (0.05 \times PIA + 0.75 \times PCCA + 1.0 \times PNA) \times \frac{PC}{12} \times 7.48$$

where:

PR_{LC}	=	retention from the proposed land cover (gal) (line 31)
PIA	=	proposed impervious cover area (ft ²) (line 28)
$PCCA$	=	proposed compacted cover area (ft ²) (line 29)
PNA	=	proposed natural cover area (ft ²) (line 30)
PC	=	precipitation ceiling (in.) (line 10)

- c. Input each proposed retention BMP in **lines 34-37**. If there are more than four existing BMPs, sum the additional BMP retention volumes (for example, BMP 4 + BMP 5 + BMP 6 + ...) by drainage area in the last row **(line 37)**.
- d. Automatic calculation of the total proposed retention as a sum of proposed retention by land **(line 31)** and proposed retention by BMPs **(lines 34 through 37)**. **(line 39)**.

$$PR_T = PR_{LC} + PR_{p1} + PR_{p2} + PR_{p3} + PR_{p4,5,6,etc.}$$

where:

PR_T	=	total proposed retention (gal) (line 39)
PR_{LC}	=	retention from the proposed land cover (gal) (line 31)
PR_{p1}	=	retention from first proposed BMP (gal) (line 34)
PR_{p2}	=	retention from second proposed BMP (gal) (line 35)
PR_{p3}	=	retention from third proposed BMP (gal) (line 36)
$PR_{p4, 5, 6, etc.}$	=	retention from third proposed BMP (gal) (line 37)

Step 3: Calculate SRCs for Drainage Area 1.

Automatic calculation of SRC-eligible volume. The total preproject retention **(line 25)** is subtracted from the total proposed retention **(line 39)** providing an initial calculation of SRCs in **line 42**.

$$PAR_T = PR_T - ER_T$$

where:

PAR_T	=	proposed additional retention (gal) (line 42)
PR_T	=	total proposed retention (gal) (line 39)
ER_T	=	total existing (preproject) retention (gal) (line 25)

Step 4: Verify SRC-Eligible Volume Against Maximum Allowable for Drainage Area 1.

- a. Automatic calculation of $SRC_{Ceiling}$, based on runoff from preproject land cover, with $P = 1.7$ inches (**line 45**).

$$SRC_{Ceiling} = (0.95 \times EIA + 0.25 \times ECCA + 0 \times ENA) \times \frac{PC}{12} \times 7.48$$

where:

$SRC_{Ceiling}$	=	Stormwater Retention Credit ceiling (gal) (line 45)
EIA	=	existing (preproject) impervious cover area (ft ²) (line 14)
$ECCA$	=	existing (preproject) compacted cover area (ft ²) (line 15)
ENA	=	existing (preproject) natural cover area (ft ²) (line 16)
PC	=	precipitation ceiling (in.) (line 10)

- b. Automatic calculation of maximum allowable number of SRCs. SRCs shall not exceed maximum allowable SRCs, as defined by the difference between the SRC Ceiling and the sum of Preproject BMP Retention (**line 46**).

$$SRC_{Maximum} = SRC_{Ceiling} - (ER_{P1} + ER_{P2} + ER_{P3} + ER_{P4,5,6,etc.})$$

where:

$SRC_{Maximum}$	=	maximum Stormwater Retention Credit allowable (gal) (line 46)
$SRC_{Ceiling}$	=	Stormwater Retention Credit ceiling (gal) (line 45)
ER_{P1}	=	retention from first existing (preproject) BMP (gal) (line 20)
ER_{P2}	=	retention from second existing (preproject) SBMP (gal) (line 21)
ER_{P3}	=	retention from third existing (preproject) BMP (gal) (line 22)
$ER_{P4, 5, 6, etc.}$	=	retention from third existing (preproject) BMP (gal) (line 23)

- c. Automatic output of SRC-eligible volume for drainage area 1 by comparing initial calculation of SRCs against maximum allowable (**line 48**).

if:

$$PAR_T < SRC+, \text{ then } SRC_{Eligible} = PAR_T$$

otherwise:

$$SRC_{Eligible} = SRC_{Maximum}$$

where:

$SRC_{Eligible}$	=	eligible Stormwater Retention Credit (gal) (line 48)
$SRC_{Maximum}$	=	maximum Stormwater Retention Credit Allowable (gal) (line 46)
PAR_T	=	proposed additional retention (gal) (line 42)

Step 5: Repeat Steps 1–4 for Each Applicable Drainage Area.

Five drainage area columns are provided. Sites with more than five drainage areas will require additional spreadsheets.

Step 6: Total SRC-Eligible Volume.

Automatic calculation of the total eligible SRC gallons for the site by summing SRC-eligible volume for each drainage area in **line 50**.

$$SRC_{Eligible-Site} = SRC_{Eligible-A} + SRC_{Eligible-B} + SRC_{Eligible-C} + SRC_{Eligible-D}$$

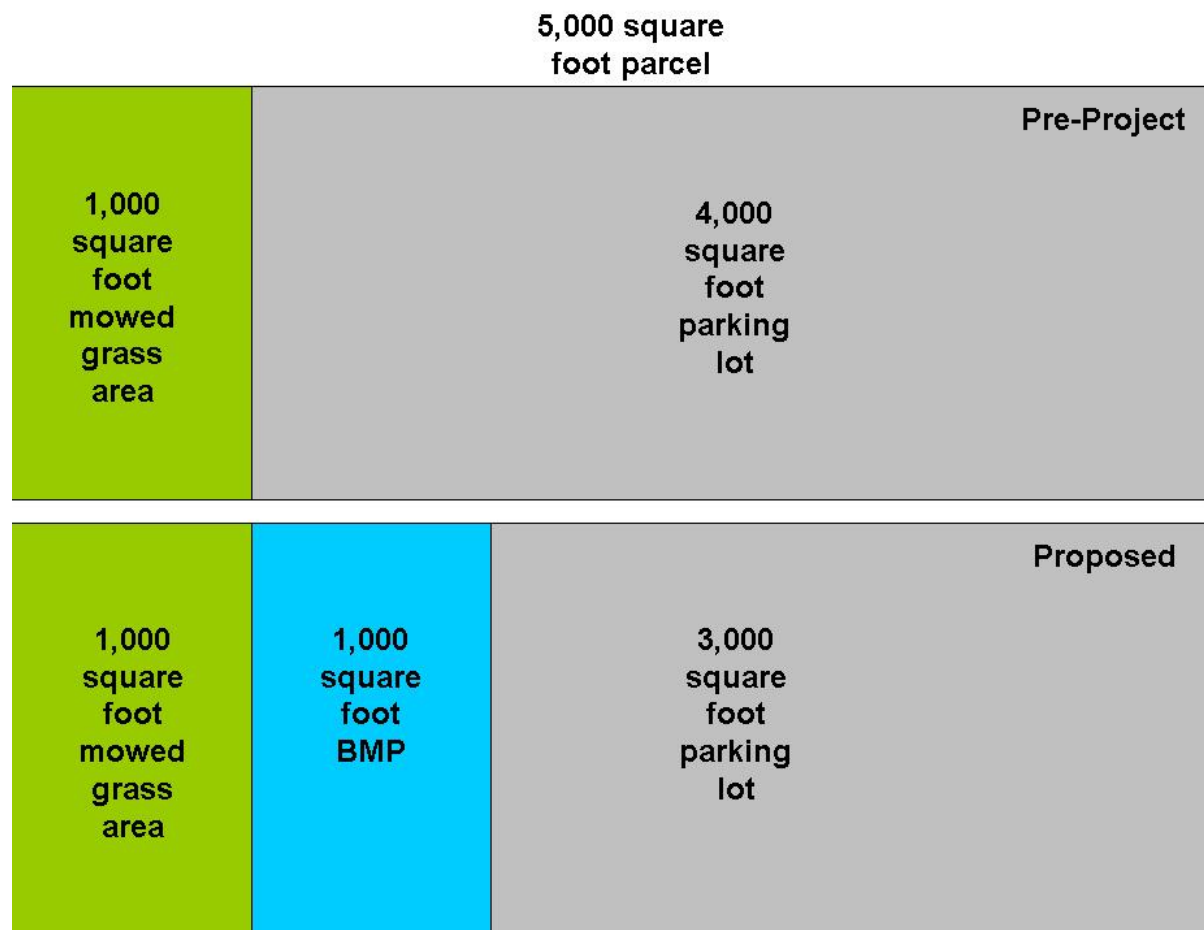
where:

$SRC_{Eligible-Site}$	=	total eligible SRC for the entire site (gal) (line 50)
$SRC_{Eligible-A}$	=	total eligible SRC for Drainage Area 1 (gal) (line 48)
$SRC_{Eligible-B}$	=	total eligible SRC for Drainage Area 2 (gal) (line 48)
$SRC_{Eligible-C}$	=	total eligible SRC for Drainage Area 3 (gal) (line 48)
$SRC_{Eligible-D}$	=	total eligible SRC for Drainage Area 4 (gal) (line 48)

7.10 Stormwater Retention Credit Calculation Scenarios

Scenario 1

The site has a single drainage area. The parcel is a 5,000-square foot rectangle. There are two land covers on the site: a 4,000-square foot parking lot and an adjacent 1,000-square foot grass area that is regularly mowed. The parking lot is defined as impervious surface and the mowed grass area is defined as compacted cover. The owner contemplates converting 1,000 square feet of parking surface into a bioretention, which is defined as impervious. Using Chapter 3.5 Bioretention, the proposed BMP is designed to retain 1,500 gallons of runoff from the parking lot.



Drainage Area					
Step 1: Pre-Project Retention					
	A	B	C	D	E
Impervious Area (ft ²)	4,000	0	0	0	0
Compacted Cover Area (ft ²)	1,000	0	0	0	0
Natural Area (ft ²)	0	0	0	0	0
Retention from Pre-Project Land Cover (gal)	1,007	0	0	0	0
Retention from Pre-Project Best Management Practice (BMP)					
BMP 1 (gal)	0	0	0	0	0
BMP 2 (gal)	0	0	0	0	0
BMP 3 (gal)	0	0	0	0	0
Add together BMP 4, 5, 6, etc. (gal)	0	0	0	0	0
Total Pre-Project Retention (gal)	1,007	0	0	0	0
Step 2: Proposed Retention					
Impervious Area (ft ²)	4,000	0	0	0	0
Compacted Cover Area (ft ²)	1,000	0	0	0	0
Natural Area (ft ²)	0	0	0	0	0
Retention from Proposed Land Cover (gal)	1,007	0	0	0	0
Retention from Proposed BMP - include BMPs retained from pre-project conditions					
BMP 1 (gal)	1,500	0	0	0	0
BMP 2 (gal)	0	0	0	0	0
BMP 3 (gal)	0	0	0	0	0
Add together BMP 4, 5, 6, etc. (gal)	0	0	0	0	0
Total Proposed Retention (gal)	2,507	0	0	0	0
Step 3: Calculate SRCs (internal calculation)					
Total Additional Retention Proposed	1,500	0	0	0	0
Step 4: Verify SRCs (internal calculation)					
SRC Ceiling	4,292	0	0	0	0
Maximum SRCs (based on Pre-Project BMP)	4,292	0	0	0	0
SRC Eligible Volume (gal)	1,500	0	0	0	0
Site Total SRC Eligible Volume (gal)	1,500				

Scenario 2

The site has a single drainage area. The parcel is a 5,000-square foot rectangle and is divided between a 4,500-square foot parking lot and an adjacent 400-square foot grass area that is regularly mowed. There is an existing bioretention (the land areas of all BMPs are considered impervious) covering 100 square feet and determined to retain 1,000 gallons using Chapter 3.5. The parking lot is defined as impervious surface and the mowed grassy area is defined as compacted cover. The owner contemplates converting the grass area into bioretention and reducing the parking lot size by 1,000 square feet, with that area converted into mowed grass. Using Chapter 3.5 Bioretention, the proposed 400-square foot BMP is designed to retain 1,500

gallons of runoff from the parking lot in addition to the 1,000 gallons retained by the original BMP.

5,000 square foot parcel		
400 square foot mowed grass area	Pre-Project	
100 square foot BMP	4,500 square foot parking lot	
400 square foot BMP	1,000 square foot mowed grass area	Proposed
100 square foot BMP		3,500 square foot parking lot

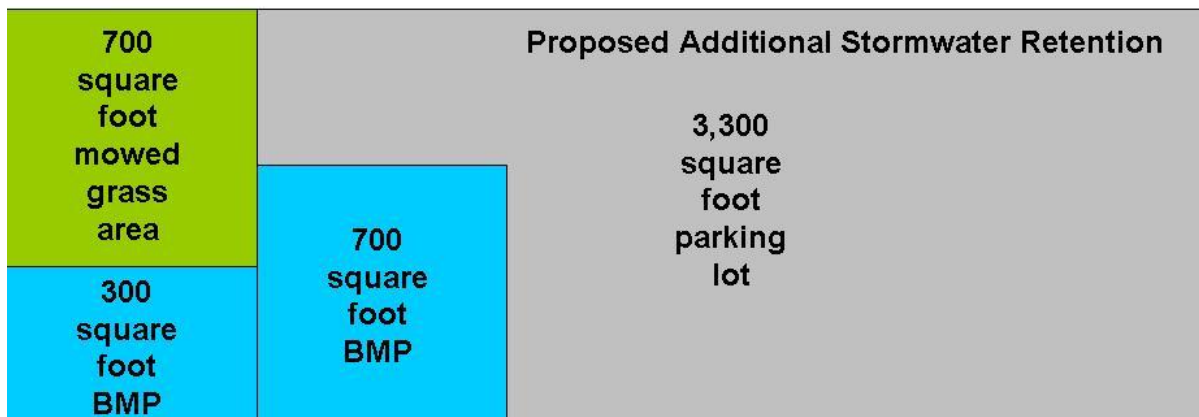
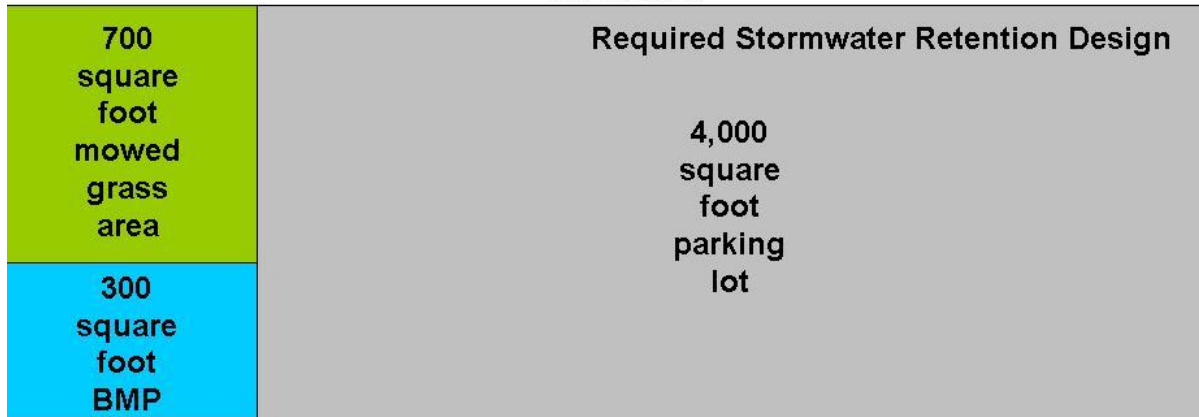
Drainage Area					
Step 1: Pre-Project Retention					
	A	B	C	D	E
Impervious Area (ft ²)	4,600	0	0	0	0
Compacted Cover Area (ft ²)	400	0	0	0	0
Natural Area (ft ²)	0	0	0	0	0
Retention from Pre-Project Land Cover (gal)	562	0	0	0	0
Retention from Pre-Project Best Management Practice (BMP)					
BMP 1 (gal)	1,000	0	0	0	0
BMP 2 (gal)	0	0	0	0	0
BMP 3 (gal)	0	0	0	0	0
Add together BMP 4, 5, 6, etc.(gal)	0	0	0	0	0
Total Pre-Project Retention (gal)	1,562	0	0	0	0
Step 2: Proposed Retention					
Impervious Area (ft ²)	4,000	0	0	0	0
Compacted Cover Area (ft ²)	1,000	0	0	0	0
Natural Area (ft ²)	0	0	0	0	0
Retention from Proposed Land Cover (gal)	1,007	0	0	0	0
Retention from Proposed BMP - include BMPs retained from pre-project conditions					
BMP 1 (gal)	1,000	0	0	0	0
BMP 2 (gal)	1,500	0	0	0	0
BMP 3 (gal)	0	0	0	0	0
Add together BMP 4, 5, 6, etc.(gal)	0	0	0	0	0
Total Proposed Retention (gal)	3,507	0	0	0	0
Step 3: Calculate SRCs (internal calculation)					
Total Additional Retention Proposed	1,945	0	0	0	0
Step 4: Verify SRCs (internal calculation)					
SRC Ceiling	4,737	0	0	0	0
Maximum SRCs (based on Pre-Project BMP)	3,737	0	0	0	0
SRC Eligible Volume (gal)	1,945	0	0	0	0
Site Total SRC Eligible Volume (gal)	1,945				

Scenario 3

The site is a proposed development with land disturbance activities that trigger the stormwater regulation. We limit the scenario to one of several drainage areas within the project's limits of disturbance. The drainage area is 5,000 square feet. It will contain a newly constructed 4,000-square foot parking lot and an adjacent existing 700-square foot grass area that is regularly mowed. A proposed bioretention will manage parking lot runoff and cover 300 square feet. This bioretention will retain 3,186 gallons based on Chapter 3.5. In this scenario, these gallons are the regulated Stormwater Retention Volume (SWRV) for this drainage area. The parking lot and the bioretention are defined as impervious surface, and the mowed grass area is defined as

compacted cover. The owner contemplates converting 700 square feet of parking lot into bioretention to gain additional retention gallons above the regulatory obligation. Using Chapter 3.5 Bioretention, the additional 700 square feet will provide 3,000 gallons of additional retention.

**5,000 square
foot parcel**



	Drainage Area				
Step 1: Pre-Project Retention	A	B	C	D	E
Impervious Area (ft ²)	4,300	0	0	0	0
Compacted Cover Area (ft ²)	700	0	0	0	0
Natural Area (ft ²)	0	0	0	0	0
Retention from Pre-Project Land Cover (gal)	784	0	0	0	0
Retention from Pre-Project Best Management Practice (BMP)					
BMP 1 (gal)	3,186	0	0	0	0
BMP 2 (gal)	0	0	0	0	0
BMP 3 (gal)	0	0	0	0	0
Add together BMP 4, 5, 6, etc. (gal)	0	0	0	0	0
Total Pre-Project Retention (gal)	3,970	0	0	0	0
Step 2: Proposed Retention					
Impervious Area (ft ²)	4,300	0	0	0	0
Compacted Cover Area (ft ²)	700	0	0	0	0
Natural Area (ft ²)	0	0	0	0	0
Retention from Proposed Land Cover (gal)	784	0	0	0	0
Retention from Proposed BMP - include BMPs retained from pre-project conditions					
BMP 1 (gal)	3,186	0	0	0	0
BMP 2 (gal)	3,000	0	0	0	0
BMP 3 (gal)	0	0	0	0	0
Add together BMP 4, 5, 6, etc. (gal)	0	0	0	0	0
Total Proposed Retention (gal)	6,970	0	0	0	0
Step 3: Calculate SRCs (internal calculation)					
Total Additional Retention Proposed	3,000	0	0	0	0
Step 4: Verify SRCs (internal calculation)					
SRC Ceiling	4,514	0	0	0	0
Maximum SRCs (based on Pre-Project BMP)	1,328	0	0	0	0
SRC Eligible Volume (gal)	1,328	0	0	0	0
Site Total SRC Eligible Volume (gal)	1,328				

7.11 Forms for Stormwater Retention Credits

See Appendix D for the following forms for use by the applicant:

- Application for Certification of Stormwater Retention Credits
- Application for Transfer of Stormwater Retention Credit Ownership
- Application to Retire Stormwater Retention Credits

