West Chester Borough
Stream Protection Fee Program
Non-Residential Credit Policies and Procedures Manual

NOVEMBER 2017

Table of Contents

Introduction

In 2016, the Borough enacted Ordinance No. 10-2016, titled the "Stream Protection Fee Ordinance" which establishes a Stream Protection Fee (SPF) to provide a dedicated funding source for ongoing expenses associated with the Borough's stormwater management system and compliance with its regulatory permit requirements. All developed parcels (properties), including both residential and non-residential properties, in the Borough are required to pay the stream protection fee, with the fee amount directly proportional to the total impervious surface area of the parcel.

Overview

The Borough has developed an incentive program ("credit program") for property owners who undertake specific stormwater management activities. The credit program has been developed per Section 10 – "Stormwater Credits" of Ordinance No. 10-2016 to allow owners to apply for credits and/or rebates for implementing and maintaining eligible stormwater management practices (SMPs) on their parcel(s) that mitigate the volume, peak discharge rate or runoff pollution that leaves their parcel. By implementing such measures, property owners are helping to reduce the demand on the existing stormwater management system and related Borough services, and helping to achieve permit compliance. This manual, called the "Stream Protection Fee Program Non-Residential Credit Policies and Procedures Manual ("Credit Manual"), is called for in Section 10 of the SPF Ordinance along with its residential companion, "Residential Credit and Rebate Policies and Procedures Manual."

The primary goals of the Borough's credit program are to:

- Encourage private investment in installing and maintaining private SMPs.
- Ensure the SPF is equitable and fair by recognizing that stormwater management activities on private property can result in cost savings for the Borough which should translate into a reduced fee for the property owner.

Applicability

The Credit program has two components, a Residential Rebate and Credit Program, and a Non-Residential Credit Program. **This document provides detail on the policy and procedures for the Non-Residential Credit Program only.** Property owners of Residential Properties are permitted to apply for a rebate and/or credit listed under the Residential Rebate/Credit Program or the Non-Residential Credit Program. Property owners of Non-Residential and Multi-Family Residential Properties are permitted to apply for a credit listed under the Non-Residential Credit Program only. For more information about the Residential Credit Program, property owners should view the Stream Protection Fee Page of the West Chester Borough website.

Definitions

Words used herein shall be defined in accordance with their definition in the SPF Ordinance. If a word used in this manual is not defined in the SPF Ordinance, it shall be defined as follows:

Apartment - a building on a separate lot containing three or more dwelling units.

Credit - a recurring discount on the SPF which is applied to the property owner's bill to reduce the SPF on a recurring basis. The credit is valid for a set period (currently three years), after which time the property owner must reapply.

Dwelling Unit - One or more rooms in a building, designed for occupancy by one family for living purposes and having its own permanently installed cooking and sanitary facilities, with no enclosed space (other than vestibules. entrances or other hallways or porches) in common with any other dwelling unit. No dwelling unit shall have more than 50% of its exterior below the level of the exterior grade. A dwelling unit may be contained in any of the following structures:

A. SINGLE-FAMILY DETACHED - A building designed for and occupied exclusively as a residence for only one family and having no party wall in common with an adjacent building.

B. SINGLE-FAMILY DETACHED, MOBILE HOME - A transportable single-family detached dwelling unit intended for permanent occupancy, contained in one unit or in two units designed to be joined into one integral unit capable of again being separated for repeated towing, which arrives at a site complete and ready for occupancy except for minor and incidental unpacking and assembly operations and is constructed as permitted in Article VI, with the same, or equivalent, electrical, plumbing and sanitary facilities as for a conventional single-family detached dwelling. A mobile home shall include any addition or accessory structure, such as porches, sheds, decks or additional rooms, which is attached to it. A mobile home does not include recreational vehicles or travel trailers.

C. SINGLE-FAMILY SEMIDETACHED - A building designed for and occupied exclusively as a residence for only one family and having one party wall in common with an adjacent building.

D. SINGLE-FAMILY ATTACHED - A building designed for and occupied exclusively as a residence for only one family and having two party walls in common with an adjacent building, except for end units.

E. TWO-FAMILY DETACHED - A building designed for and occupied exclusively as a residence for two families, with one family living wholly or partly over the other, and having no party wall in common with an adjacent building.

F. TWO-FAMILY SEMIDETACHED - A building designed for and occupied exclusively as a residence for two families, with one family living wholly or partly over the other, and having one party wall in common with an adjacent building.

G. TWO-FAMILY ATTACHED - A building designed for and occupied exclusively as a residence for two families, with one family living wholly or partly over the other, and having two party walls in common with adjacent buildings.

H. MULTIFAMILY - See "apartment."

Impervious Drainage Area (IA) – the impervious surfaces within the land contributing runoff to a single point (including but not limited to the point/line of interest used for hydrologic and hydraulic calculations) and that is enclosed by a natural or man-made ridge line.

Multi-Family Residential Property- a property which is improved with a building that is used as an apartment of multi family dwelling. Multi-Family Residential Properties are only eligible to apply for a credit under the Non-Residential Credit Program. Apartment units are considered Multi-Family Residential under the SPF Credit Program.

Non-Residential Property - a property which is improved with a building that is used in any manner other than as a Residential Property or a Multi-Family Residential Property as defined herein. This term shall include but not be limited to buildings used for commercial, industrial and institutional uses.

Non-Structural Stormwater Management Practices or measures – operational and/or behavior-related practices that attempt to minimize the contact of pollutants with stormwater runoff whereas structural SMPs or measures are those that consist of a physical device or practice that is installed to capture and treat stormwater runoff.

Rebate - a one-time refund per Residential Property that is issued for installing a stormwater practice. The amount of the refund is based on the drainage area managed and the constructed stormwater management practice. One Residential Property can have multiple rebates.

Residential Property - a property which is improved with a building that is used as any form of Dwelling other than a Multi-Family Residential Property.

Stormwater Management Practice (SMP) – Activities, facilities, designs, measures, or procedures used to manage stormwater impacts from regulated activities, to provide water quality treatment, infiltration, volume reduction, and/or peak rate control, to promote groundwater recharge, and to otherwise meet the purposes of the Stream Protection Fee Program and associated ordinance. SMPs are commonly grouped into one (1) of two (2) broad categories or measures: "structural" or "non-structural."

Structural Stormwater Management Practices or measures - include, but are not limited to, a wide variety of practices and devices from large-scale retention ponds and constructed wetlands to small-scale underground treatment systems, infiltration facilities, filter strips, low impact design, bioretention, wet ponds, permeable paving, grassed swales, riparian or forested buffers, sand filters, detention basins, and manufactured devices. Structural SMPs are permanent appurtenances to the Site.

Objectives

The objective of the credit program is to provide a way for property owners who install qualifying stormwater management practices (SMPs) on their property to reduce their SPF payment amount. SMPs are measures or facilities that prevent or reduce the transport of pollutants and/or control stormwater runoff volume or rate. Implementing such measures reduces the impact a developed property has on the downstream storm drainage system, which includes both natural features such as streams and man-made features such as pipes.

Additional Resources

Non-Residential property owners are encouraged to research and utilize the following free resources found online:

- Technical resources for green infrastructure are available in Chapter 6 of the Pennsylvania Stormwater Best Management Practices Manual or Chapter 4 of the City of Philadelphia Water Department Stormwater Management Guidance Manual.
- Further information on peak rate control practices is available in Chapter 6.5 the Pennsylvania Stormwater Best Management Practices Manual.

In addition to the above, the following resources relating primarily to residential based green infrastructure are available online and apply to both Residential and Non-Residential properties:

- Homeowner's Guide to Stormwater Management prepared by the Philadelphia Water Department in 2006
- Homeowner's Guide to Stormwater produced by the Lancaster County Conservation District in 2013

- The Alliance for the Chesapeake Bay has developed a website, Reduce Your Stormwater, which provides do-it-yourself guidance for SMPs.
- The Chesapeake Stormwater Network has developed a Homeowner Guide that provides excellent step-by-step guidance on designing, constructing and maintaining rain gardens, rain barrels, pervious pavers, and planting trees.

General Credit Program Policies

The property owner must own and maintain a qualifying stormwater facility or approved non-structural control. Property owners are required to submit an application and documentation of construction or installation, as well as documentation regarding operation and maintenance (O & M) of the stormwater management facility. The property owner must pay their fee in full, and not be past due on their SPF payments. General policies for the Non-Residential credit program are provided below.

Types of Projects Eligible for Credit

To be eligible for a SPF credit, a property owner must treat impervious area (IA) with a qualifying SMP that is owned and maintained by the property owner. The property owner must have an approved non-structural control, NPDES permit, or other eligible stormwater management feature, as listed in Table 1.

If residential property owners are interested in obtaining credit under the Non-Residential Program, they should reach out to the Public Works Department to discuss their application with staff early in the process.

Table 1.

Eligible types of SMPs for the Residential and Non-Residential Credit Programs

Credit Category	Stormwater Management Practice (SMP)	Residential *	Non-Residential and Multi-Family Residential **
Green Infrastructure / Runoff Volume Controls	Pervious pavement with infiltration bed	X	X
	Infiltration basin		X
	Rain garden/bioretention	X	X
	Subsurface infiltration bed		X
	Green Roof		X
	Infiltration trench/ Tree Infiltration Trench		X
	Runoff Capture & Reuse – Cistern or Rain Barrel	X	X
	Dry Well/ Seepage Pit	X	X
Peak Runoff Rate (Flood) Controls	Constructed wetland		X
	Wet pond/ retention basin		X
	Dry extended detention basin		X
	Special Detention areas (parking lots/roof)		X
Water Quality Treatment	Constructed wetland		X
	Constructed Filter		X
	Proprietary Water Quality Filters & Hydrodynamic Devices		X
	Vegetated Swale		X
	Vegetated Filter Strip		X
Non-Structural Controls	Tree Canopy Cover	X	X
	Downspout Disconnection	X	X
	Approved Adopt-a-Stream volunteer program		X
	Approved environmental education/outreach program		X
National Pollutant Discharge Elimination System (NPDES) Stormwater Permit	Facilities with an active, fully-compliant NPDES Permit from PADEP		X

Notes:

** Single family residential property owners are eligible for SMPs listed in the non-residential categories.*

*** Non-residential and multi-family residential are excluded from obtaining the Rain Barrel rebate, but can obtain a cistern credit*

Maximum Credit Amount

The maximum credit that any one property can receive is 60% percent of their fee. No property will receive 100% credit or reduction of the fee, and the maximum is set at 60% because the Borough needs to fund programmatic elements, public stormwater facilities, and perform standard maintenance, repair and rehabilitation of publicly owned stormwater facilities. Even if a property manages 100% of the stormwater runoff on their site, the Borough still has obligations under its MS4 permit and needs to maintain the public drainage system to protect the health and safety of the public.

Non-Residential Credit Types

The Non-Residential Credit Program incentivizes owners of any non-residential property (commercial, institutional, industrial, etc.) and multi-family residential property to manage their stormwater on site and reduce IA on their property. This program includes credits which can be applied to the property owner's bill to reduce the SPF on a recurring basis. The credit is valid for a set period (currently three years), after which time the property owner must reapply. The maximum credit is 60% of the SPF if the facility is maintained by the property owner and provides both quantity and/or quality controls. The maximum can be achieved by applying for a credit associated with one or more SMP types.

A non-residential property owner may apply for an eligible SMP type that is listed in Table 3. The amount of financial credit(s) earned for any given property is based on the type of SMP installed. Intensive practices such as green infrastructure are a primary strategy in the Borough's stormwater program due in large part to the multiple benefits they provide above and beyond management of stormwater volume. Therefore, green infrastructure is eligible for a larger credit than less intensive practices such as the non-structural controls category. Table 3 lists the eligible practices for credits under the non-residential program, and includes the specific credit amounts. Requirements for each type of SMP category and example calculations are provided in the following sections.

TABLE 3.
Credits for Non-Residential Property Credit Types

Type of Stormwater Management Practice	Credit (%)	Possible Example Practices
Green Infrastructure / Runoff Volume Controls	60%	Rain gardens, bioretention, infiltration trenches, permeable pavements, green roofs
Peak Runoff Rate (Flood) Controls	30%	Constructed wetland, dry extended detention pond, wet/retention pond, underground detention system
Water Quality Treatment	30%	Constructed wetland, constructed filters, vegetated swale/filter strip, proprietary treatment devices
Non-Structural Controls	15%	Tree canopy, downspout disconnection, approved environmental education/outreach program
National Pollutant Discharge Elimination System (NPDES) Stormwater Permit	15%	Facilities with an active and fully-compliant NPDES stormwater permit

Calculation of Non-Residential Credits

The Non-Residential Credit is calculated based on the amount of IA treated by stormwater management facilities (also called the *impervious drainage area*) that are owned and maintained by a property owner. For each type of credit summarized in Table 3, the fee associated with the amount of IA treated by a stormwater management facility is reduced by the percent credit for the type of credit. The following equation illustrates the credit calculation:

$$SPF\ Credit\ = \left(\frac{Treated\ IA}{1{,}000}\right) \times Credit\ \%\ by\ Type \times SPF$$

Where:

- Treated IA: amount of impervious area treated by an eligible stormwater facility, ft^2
- Credit% by Type: the percent credit allowed for by type of facility (see Table 3)
- SPF: Stream Protection Fee for current levy year, expressed as $ per 1,000 ft^2

Requirements and examples of the credit calculation for each SMP type are detailed below.

Stormwater Feature Drainage Area Percentage

To determine the amount of IA treated by a stormwater facility, the drainage area specific to the facility must be determined. Note that if the facility drains IA either on or off the property, the total impervious treated for the purposes of credit calculations typically cannot exceed the amount of IA on the property. This information is generally included in the original design documents (drawings and/or stormwater report) for a facility. If the owner cannot find this information, they may attempt to estimate it through an online mapping package such as the (free) Google Earth or Google Maps program, or hire a registered professional engineer or registered land surveyor.

Green Infrastructure / Runoff Volume Control Credit

Runoff volume control practices reduce the volume of stormwater runoff entering the public drainage system. Green infrastructure practices can reduce volume and restore the natural hydrologic cycle, in addition to providing several community-related benefits. Green infrastructure employs the following processes to mimic predevelopment conditions:

- Infiltration (allowing water to slowly soak into the soil)
- Evaporation/transpiration using native vegetation
- Rainwater capture and re-use (storing runoff to water plants, flush toilets, etc.)

Green Infrastructure Credit Requirements

- Any green infrastructure or volume control practice must capture 1 inch of runoff for full credit. The 1 inch of captured runoff is translated into a volume of water by multiplying it by the captured drainage area. Table 4 provides brief guidance on various green infrastructure technologies, including consideration of design, construction, operation and maintenance. In all cases, retention and detention facilities should be designed to completely drain water within 48 hours.

TABLE 4.
Green infrastructure types with brief overview of design and construction requirements, as well as operational and maintenance needs.

Green Infrastructure Type	Design / Construction Guidance	Operation and Maintenance
Cisterns/Rain Barrels	Provide overflow to discharge water during large storm events Discharge water before next storm event Consider site topography, placing structure up-gradient of plantings (if applicable) will allow watering to work with gravity and eliminate pumping needs All rain barrel openings must have screens to prevent the growth of mosquitoes (or other vector-control must be provided).	Discharge before next storm event Clean annually and check for loose valves, etc. Winterize the system: may require flow bypass valves during the winter
Bioretention/Rain Gardens	Ponding depths of no more than 12 inches and drawdown within 48 hours Native vegetation that is tolerant of hydrologic variability, salts etc. Water Table/ Bedrock Separation: 2-foot minimum, 4-foot recommended Soils: HSG A and B preferred; C & D may require an underdrain	May require watering during establishment Spot weeding, pruning, erosion repair, trash removal, mulch reapplication required 2-3x/growing season Maintenance tasks and costs are generally similar to traditional landscaping but less frequently performed

TABLE 4.
Green infrastructure types with brief overview of design and construction requirements, as well as operational and maintenance needs.

Green Infrastructure Type	Design / Construction Guidance	Operation and Maintenance
	Overflow required to release water during extreme events Maximum loading ratio: 20:1; not more than 1 acre to one rain garden	
Green Roofs	2-6 inches of non-soil engineered media; assemblies that are 4 inches and deeper may include more than one type of engineered media. The roof structure must be evaluated for compatibility with the maximum predicted dead and live loads. Waterproofing must be resistant to biological and root attack. Typically installed on flat or gently-sloping rooftops	Once vegetation is established, spot weeding, replanting, and fertilization as required Maintenance cost is similar to traditional landscaping, $0.30-$1.00 per square foot
Permeable Pavements	Level storage bed bottoms, uncompacted permeable subgrade soils Water Table/ Bedrock Separation: 2-foot minimum, 4-foot recommended Provide positive stormwater overflow from bed Surface permeability >20”/hour and drawdown within 48 hours Pretreatment for sediment-laden runoff	Clean inlets/outlets Vacuum twice per year (typically), usually with a street cleaning unit Maintain adjacent landscaping/planting beds to prevent wash-on Periodic replacement of paver blocks During winter, no sand/grit/abrasives and only clean salt or other deicers
Tree Trenches	Flexible in size and configuration Native, appropriate tree species selection and spacing and soil volumes Quick drawdown Linear infiltration/storage trench New inlets, curb cuts, or other means to introduce runoff into the trench	Water, mulch, treat diseased trees, and remove litter as needed Annual inspection for erosion, sediment buildup, vegetative conditions Biannual inspection of cleanouts, inlets, outlets, etc.
Subsurface Infiltration Practices	Water Table/ Bedrock Separation: 2-foot minimum, 4-foot recommended Level or terraced infiltration surfaces preferred Avoid proximity to buildings, drinking water supplies, karst features, and other sensitive areas Appropriate soil types (permeability, limiting layer, etc.) Drawdown within 48 hours Provide pretreatment and positive overflow in most cases	All pretreatment devices, catch basins, and inlets should be inspected and cleaned at least twice per year If vegetated, the overlying vegetation of subsurface infiltration feature should be maintained in good condition and any bare spots re-vegetated as soon as possible. Vehicular access on vegetated subsurface infiltration areas should be prohibited.

Further information on green infrastructure is available in Chapter 6 of the Pennsylvania Stormwater Best Management Practices Manual or Chapter 4 of the City of Philadelphia Water Department Stormwater Management Guidance Manual.

Green Infrastructure Credit Calculation

The following example calculation shows the methodology for the green infrastructure credit. A property has one green infrastructure facility that treats 5,500 sf of IA. Assuming the SPF is $6.70 per 1,000 sf per month, the SPF Credit for that facility would be as follows:

$$SPF\ Credit\ = \left(\frac{5{,}500}{1{,}000}\right) \times 60\% \times \$6.70 = \$22.11$$

Peak Runoff Rate (Flood) Control Credit

Peak runoff rate control protects against immediate downstream erosion and flooding by detaining runoff to reduce the peak flow. Most designs achieve peak rate control using detention structures. Peak rate control can also be integrated into volume control practices to become "at source" measures for reducing the rate and volume of runoff released during rainfall events.

Peak Runoff Rate Credit Requirements

Peak rate control practices should aim to maintain the peak rate of runoff from pre-development conditions for the 1-year through 100-year design storm events. Constructed wetlands, dry extended detention ponds, and wet/retention ponds are excellent examples of peak rate control practices. Constructed Wetlands are shallow marsh systems planted with emergent vegetation that are designed to treat stormwater runoff to improve water quality. A dry extended detention basin is an earthen structure constructed either by impoundment of a natural depression or excavation of existing soils, that provides temporary storage of runoff and functions hydraulically to attenuate stormwater runoff peaks. Wet Ponds/Retention Basins are stormwater basins that include a substantial permanent pool for water quality treatment and additional capacity above the permanent pool for temporary runoff storage.

Table 5 has guidance on design, construction, operation and maintenance for these peak rate control practices. In all cases, retention and detention facilities should be designed to completely drain water within 72 hours.

TABLE 5.
Peak rate control practices with design and construction requirements, as well as operational and maintenance needs.

Peak Runoff Rate practice	Design / Construction Guidance	Operation and Maintenance
Constructed Wetland	Adequate drainage area (usually 5 to 10 acres minimum) or proof of sustained base flow	Periodic sediment removal from the forebay and vegetation maintenance
	May require investigation of water supply to ensure a sustained baseflow to maintain the wetland	Inspect and maintain inlet and outlet structures as needed
	Maintenance of permanent water surface	
	Multiple vegetative growth zones through varying depths	
	Robust and diverse vegetation	
	Relatively impermeable soils or engineered liner	
	Provide for a way to collect and remove sediment	

TABLE 5.
Peak rate control practices with design and construction requirements, as well as operational and maintenance needs.

Peak Runoff Rate practice	Design / Construction Guidance	Operation and Maintenance
	Adjustable permanent pool and dewatering mechanism	
Dry Extended Detention Pond	Hydraulic capacity controls effectiveness Ideal in combination with other BMPS Highly structural design features (rip-rap for erosion control, etc.) can be more costly than naturalized basins.	Regular maintenance is necessary including periodic sediment removal and vegetation maintenance
Wet/Retention Pond	Adequate drainage area (usually 5 to 10 acres minimum) or proof of sustained baseflow Natural high groundwater table Maintenance of permanent water surface Should have at least 2 to 1 length to width ratio Robust and diverse vegetation surrounding wet pond Relatively impermeable soils Forebay for sediment collection and removal Dewatering mechanism	Outlet control devices should draw from open water areas 5 to 7 feet deep to prevent clogging and allow the WP to be drained for maintenance A pond drain should also be included which allows the permanent pool to be completely drained for maintenance within 24 hours Permanent access must be provided to the forebay, outlet, and embankment areas. It should be at least 9 feet wide, have a maximum slope of 15%, and be stabilized for vehicles.

Further information on peak rate control practices is available in Chapter 6.5 the Pennsylvania Stormwater Best Management Practices Manual.

Peak Runoff Rate Credit Calculation

A property with 15,000 square feet (sf) of total IA had retention pond that treats 8,000 sf of IA. The SPF is $6.70 per 1,000 sf per month, the SPF Credit would be as follows:

$$SPF\ Credit\ = \left(\frac{8{,}000}{1{,}000}\right) \times 30\% \times \$6.70 = \$16.08$$

The SPF before the credit is $100.50 per month and the net SPF including the credit is $84.42

Water Quality Treatment Credit

During precipitation events, stormwater is carried over impervious surfaces like roads and rooftops, picking up pollutants including gasoline residue, motor oil, heavy metals, fertilizers, pesticides and more. Practices that provide water quality treatment serve to reduce pollutant loads in runoff.

Water Quality Treatment Credit Requirements

Water quality functions include reducing suspended solids (TSS), phosphorus (TP), nitrogen (TN) and temperature of runoff. Water quality treatment practices must provide treatment for 1 inch of runoff for full credit. The 1 inch of captured runoff is translated into a volume of water by multiplying it by the captured drainage area and to a flow rate by performing routing calculations.

Water Quality Treatment Credit Calculation

A property with 12,000 square feet (sf) of total IA had vegetated swale that treats 10,000 sf of IA. The SPF is $6.70 per 1,000 sf per month, the SPF Credit would be as follows:

$$SPF\ Credit\ = \left(\frac{10{,}000}{1{,}000}\right) \times 30\% \times \$6.70 = \$20.10$$

The SPF before the credit is $80.40 per month and the net SPF including the credit is $60.30.

Non-Structural Control Credit

Non-structural SMPs can be applied over an entire site and are not necessarily fixed and designed at one location. Non-structural SMPs can be designed to mitigate any number of stormwater impacts: peak rates, total runoff volumes, infiltration and recharge volumes, non-point source water quality loadings and temperature increases. Many of these practices can prevent stormwater generation and not just mitigate stormwater-related impacts once these problems have been generated. Prevention can be achieved by developing land in ways other than through use of standard or conventional development practices.

Non-Structural Control Credit Requirements

Examples of non-structural controls include tree canopy, downspout disconnection, or an environmental education/outreach program. Design and operation/maintenance requirements vary greatly based on the type of practice and will be evaluated on an individual program/practice basis by the Borough. Several major "areas" of preventive Non-Structural BMPs have been identified in this manual:

Downspout Disconnection and Tree Planting

Specific non-structural control practices eligible for credit include Downspout Disconnection and Tree Planting. Applicants should refer to the guidance found under the Residential Credit program to determine these requirements.

Environmental Education/Outreach

A third non-structural control practice eligible for credit includes the Environmental Education/Outreach program category. Education credits are available to all public and private schools or school systems (K-12) and any church or non-profit facility. To receive the education credit, the applicant must implement an educational program that educates and informs the students on the importance of preserving and restoring the source and integrity of water resources (stormwater, ground water and/or surface waters). The educational program may include educational posters, take-home materials, classroom lessons, field trips, etc. Programs may be developed by the PA DEP, the Pennsylvania Department of Conservation and Natural Resources (DCNR), the United States Environmental Protection Agency (EPA), the United States Geological Survey (USGS), or a school official. Programs developed by other organizations may be considered eligible for credit. Some resources and example materials can be found at:

- EPA NPDES Stormwater Outreach Materials and Reference Documents http://cfpub.epa.gov/npdes/stormwatermonth.cfm#materials
- EPA Teacher Resources and Lesson Plans http://www.epa.gov/students/teachers.html
- EPA Water Science and Technology for Students and Educators http://water.epa.gov/learn/resources/
- USGS Education Resources http://education.usgs.gov/

Non-Structural Control Credit Calculation Example #1

A property with 18,000 square feet (sf) of total IA disconnects downspouts that drain 12,000 sf of IA. The SPF is $6.70 per 1,000 sf per month, the SPF Credit would be as follows:

$$SPF\ Credit\ = \left(\frac{12{,}000}{1{,}000}\right) \times 15\% \times \$6.70 = \$12.06$$

The SPF before the credit is $120.60 per month and the net SPF including the credit is $108.54 per month.

Non-Structural Control Credit Calculation Example #2

A property with 18,000 square feet (sf) of total IA undertakes an educational campaign to provide stormwater outreach to the congregants. The SPF is $6.70 per 1,000 sf per month, the SPF Credit would be as follows:

$$SPF\ Credit\ = \left(\frac{18{,}000}{1{,}000}\right) \times 15\% \times \$6.70 = \$18.09$$

The SPF before the credit is $120.60 per month and the net SPF including the credit is $102.51 per month.

National Pollutant Discharge Elimination System (NPDES) Stormwater Permit Credit

The NPDES Stormwater Permit credit applies to any entity who has an existing current NPDES permit approved by PADEP. The credit applies a 15% reduction to the SPF bill.

NPDES Stormwater Permit Credit Requirements

This credit applies to any property that has an active, fully-compliant NPDES Permit from PA DEP.

NPDES Stormwater Permit Credit Calculation

A property with an active, fully compliant NPDES Permit from PADEP has 10,000 square feet (sf) of total IA. The SPF is $6.70 per 1,000 sf per month, the SPF Credit would be as follows:

$$SPF\ Credit\ = 15\% \times \$6.70 \times \frac{10{,}000}{1{,}000} = \$10.05$$

The SPF before the credit is $67.00 per month and the net SPF including the credit is $56.95 per month.

Credit Program Procedures

The following procedures are common to both the Residential Credit Program and the Non-Residential Credit Program.

Application Forms

Residential and non-residential application forms are available on the Borough's website www.west-chester.com, searching Stream Protection Fee.

Application Deadline

The Borough has determined that all approved credits will be applied retroactively based on the year the application was submitted using a deadline of July 31. All rebate/credit applications will be accepted year-round on a rolling basis. If the application is received by July 31, approved credits/rebates will be applied retroactively based on the year of the application submittal date. If the application is received after July 31, then the property owner must wait one year before the credit appears.

Application Fee

Payment of a Credit Application Fee may be required for Borough review of the credit application. The fee is listed in the Borough's current fee schedule, which is available on the Borough's website. SPF credit application fees are non-refundable regardless of the outcome of the credit application. Borough Council may choose at their discretion to waive the application fee, and as of November 2017, Council has waived the application fee.

Operations and Maintenance (O&M) Agreement

A signed maintenance agreement between the Borough and the property owner is required for credit approval. Under the Operations and Maintenance (O&M) agreement, the owner must allow the Borough access to the site to view and inspect the SMP per the Borough's inspection cycle. The Agreement can be found on the Borough website.

To receive the residential or non-residential SPF credit, a property owner must be able to demonstrate the stormwater facility is being properly maintained. A property owner can demonstrate maintenance of a stormwater facility by including with the SPF Credit Application available maintenance records showing the maintenance activities and date, or the most recent invoice from a qualified maintenance vendor. If the applicant does not maintain the facility as required, the Department of Public Works will notify the property owner in writing that they have 30 days to take corrective action otherwise the credit will be discontinued.

Application Documentation Requirements

The property owner must provide the following documentation:

- Completed and signed application form.
- Photograph(s) of SMP
- A sketch (site plan, plot plan, map, aerial image or similar illustration) showing parcel lot lines, built features including all impervious areas, and location of the existing/proposed SMPs, and drainage areas to the SMP.
    - Refer to Appendix A: "How to Create a Site Plan" for instructions
    - The property owner should utilize the Borough's online mapping program which allows users to search for their property address and view their mapped parcel and impervious area. The website also allows for the user to print on a page size sheet suitable for inclusion in the application.

- Documentation of purchase and/or installation of the SMP including receipts, invoices, packing slips, or other records if available.
- Calculations or other documentation of impervious drainage area and SMP capacity estimates
- Maintenance logs noting the past inspection and maintenance records (or receipts from vendors hired to perform maintenance), or for newly constructed SMPs, a description of the proposed seasonal maintenance activities that the property owner will undertake.

In the event the credit application is missing information, Borough staff will request additional documentation to aid in review of the credit application.

Submission of Credit Application

Electronic submissions can be made to spf-program@west-chester.com. Submit a copy of the completed credit application, the checklist, all supporting documentation and the non-refundable application fee (if applicable) to:

Borough of West Chester

Attention: Stream Protection Fee Program – Credit

205 Lacey Street

West Chester, PA 19382

Determination

Borough staff will review the credit application and issue a determination no later than November 1. The applicant will be notified by letter and/or email of the decision.

Appeal of Determination

Appeal of the credit determination can be made in accordance with Section 11 – "Appeals" of the Borough's Stream Protection Ordinance. Typically, a credit application will be primarily denied due to technical inadequacies. Should those inadequacies be addressed, the property owner may resubmit their application to the Borough.

Issuance of Credits

Credits will be applied in the form of a credit and will be applied to subsequent bills.

Credit Renewal

Non-Residential SPF credits will be valid for three years, after which they will require renewal by the property owner. To continue to receive the SPF credit, property owners are required to reapply before the credit period expires within 3 years. Should the owner fail to submit a renewal application, the credit(s) will expire. When reapplying, the property owner must update their demonstration of stormwater facility maintenance by including sufficient documentation in the application package.

Site Inspections

Upon receipt of a credit application, the Borough or its designated appointee, may inspect the parcel to verify all information and supporting documentation. Efforts will be made to notify the property owner in advance. If the Borough's site inspection determines that the SMP is not being maintained appropriately, the credit could be denied. The Borough may choose to withhold the credit until the property owner demonstrates that the SMP is being appropriately maintained.

Termination of Credits

Approved credits may be terminated at any time if the SMPs are found to be not functional, improperly maintained, or if the owner fails to restore the SMPs per Borough notification.

Change in Property Ownership

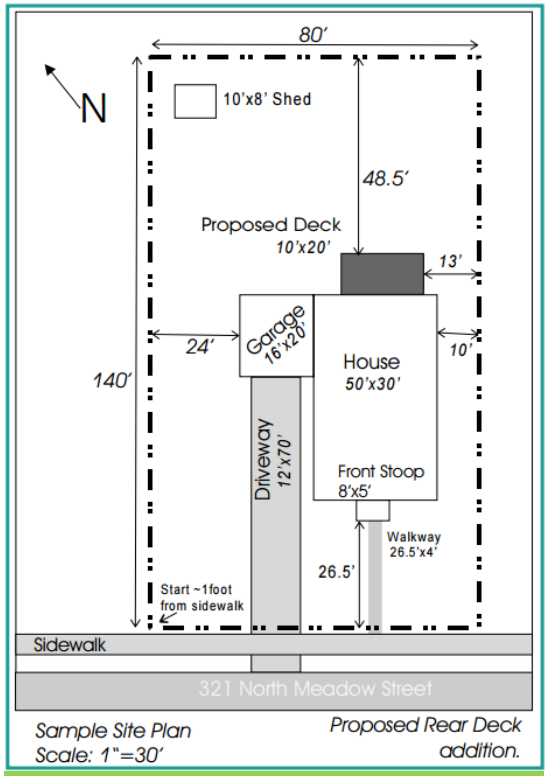
If a property is sold and there is a change in ownership, the credit (residential or non-residential) will remain in place until the three-year credit term is completed. The new property owner will be required to resubmit the credit application in accordance with the Credit Renewal policy described in this Manual.

Appendix A: How to Create a Site Plan

A site plan is a scaled map/diagram that graphically depicts a property's existing and/or proposed physical structures and landscape features. Site plans are drawn showing a bird's eye view of your property as if you were looking down at it from above. A site plan shows significant things that are on your property currently, such as the footprint of any buildings (home, garage, storage shed, or decks) and any other features such as driveways, patios, walkways, fences, swimming pools, etc. on the property.

Dimensions should be included for significant items and be used to show distances between existing items. The drawing should be done to a scale (e.g., 1 inch on the plan is equal to 30 feet on the ground). Site plans also should indicate the orientation of the plan using a North Arrow symbol that indicates which direction North is.

The following steps will help you in preparing your site plan.



Example of a Site Plan

Step 1: Determine your property boundaries and lot dimensions (choose from one listed below).

Option 1 – Use Online Tax Assessor's Map

Using an address or property owner name, you can look up your property on the Chester County Tax Assessor's Map website (accessible through "ChescoViews" application). Assessor's maps are regularly updated maps drawn to scale and based on the latest recorded surveys and plats of the area. The maps have an aerial photography background and they offer a measuring tool so you can measure the dimensions for all sides of your property.

Option 2 – Use Subdivision Plat Information or Deed Records

Like the Tax Assessor's map, you may also look up your lot on the recorded plat that your property is within. The legal description of your property, which should be included on the deed, usually contains your property's lot or parcel number and the subdivision name in which your lot is located. In cases where the property is not within a subdivision plat, the legal description will likely be a 'metes and bounds' description that describes the perimeter of the property in greater detail, without reference to a plat. To find a copy of your deed, you can contact the Chester County Historical Society, which has inventories of deeds dating back to 1688. Note – this option is not likely to be the most efficient option, however, it is included here in the even that applicants choose to use it.

Option 3 – Use Recent Building Records

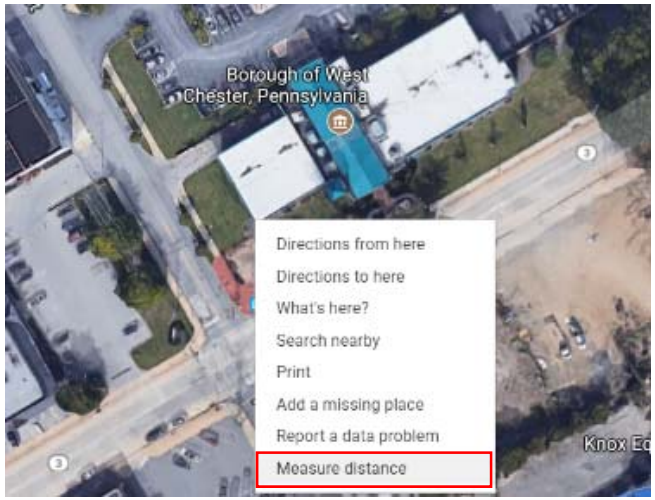
For newer constructed properties, using a previously approved site plan can save time when preparing your documentation. If there is a new structure on the property which required building permits, there is a possibility that the Borough may have an archived copy of the original building plans on file, including a site plan. You should make a request through the Borough's Department of Building, Housing, and Code Enforcement to obtain record site plans.

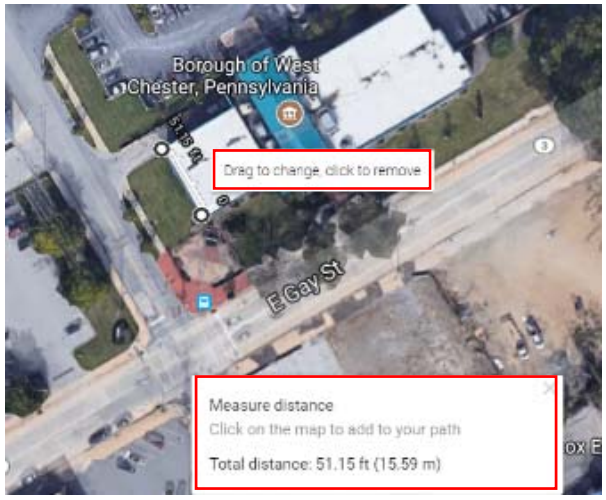
Option 4 – Measure Your Property Yourself

You can do this either by going outside with a tape measure and taking down measurements, or you can use an online program such as Google Maps' Measuring Tool on your computer.

Directions to Use Measuring Tool in Google Maps:

1. Open Google Maps in your internet browser.
2. Enter your address to zoom into your property.
3. Make sure you are in Satellite (aerial photography) mode so you can see your property's features.
4. Right-click on your starting point.
5. Choose **Measure distance**.
6. Click anywhere on the map to create and point and measure the distances between the two points. To add another point, click anywhere on the map. Drag the points to change/adjust your measurement or click any of the points to remove.





7. At the bottom of the Measure Distance dialogue box, you'll see the total distance in feet (ft) and/or total area in square feet (sf).
8. Right-click to find the Measuring Tool Menu and select **Print**. Print to a printer or Print to Save to a PDF if your computer has that option.

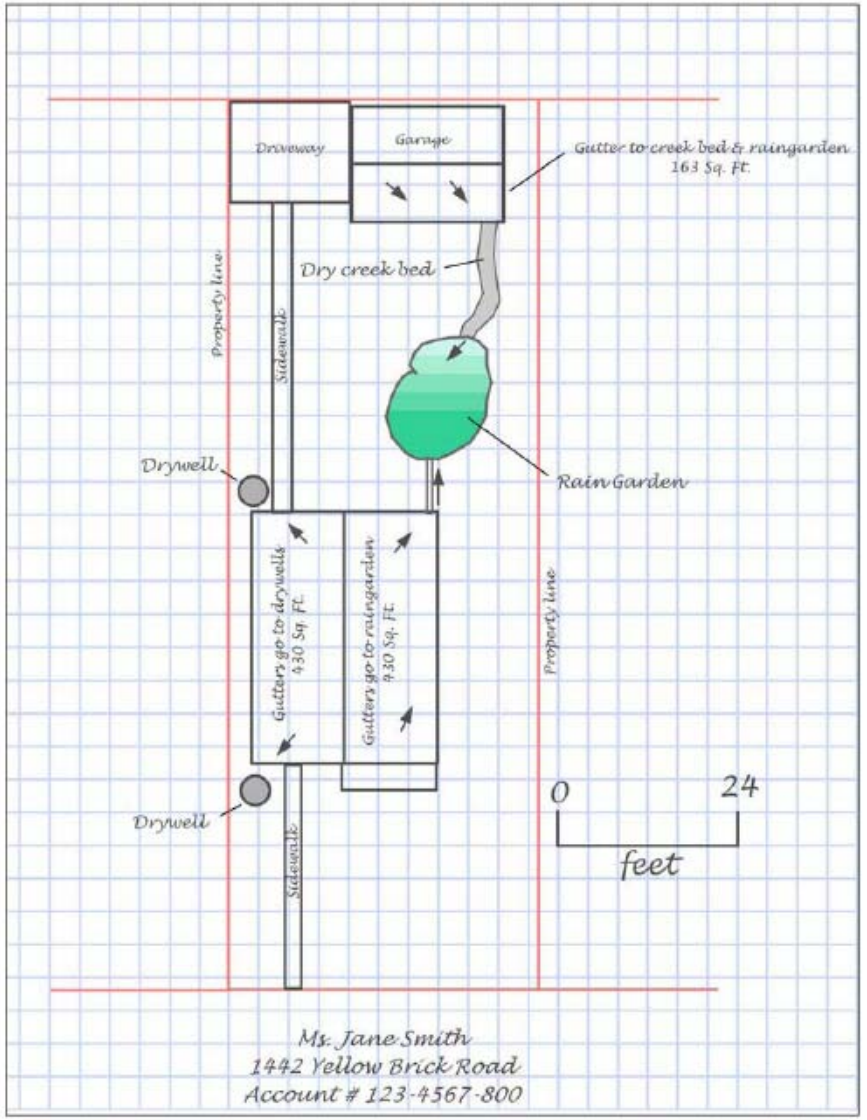
Step 2: Determine the location of structures and other site features in relation to the property boundaries.

Using the property boundary location and dimension information gathered in Step 1, you must next determine the location of applicable existing buildings, streets, driveways, sidewalks, trees, and other site features in relation to the property boundaries. Measure the distance from these site features to the surrounding property lines. You can do this either with a tape measure or you can use an online program such as Google Maps' Measuring Tool on your computer.

Step 3: Draw the plan.

Use the information gathered in Steps 1 and 2 to prepare your site plan. You may draw your site plan by hand or use a computer graphics or drafting program. An example site plan template is provided in this Appendix for you to print and use if desired.

1. Determine Your Site Plan Scale and Orientation
    a. Using graph paper, choose a scale of measurement for the plan drawing so that one square = X feet. To ensure all information will fit on the page and be easy to read, a good example would be to have each block of the graph paper equal five (5) feet (or 1 inch = 25 feet). After choosing your scale of measurement, draw lines to show the house, driveway and any sidewalks on the plan. Write in the closest distances in feet of the lot lines to the house (i.e. building setbacks), and draw an arrow pointing north.
2. Add other Items that must be on the Plan such as the Property Owner Name and Address.
3. Draw Property Lines and Label all dimensions in feet.
4. Draw all Existing Buildings and Structures on the Plan (i.e., House, Garages, Sheds, etc.). These are your property's impervious areas (IA). Show distances between buildings and property lines. Label all dimensions in feet.
5. Draw Driveways, Parking Areas, Patios, Decks, and Sidewalks on the Plan. These are your property's additional impervious areas. Label all dimensions in feet.
6. Locate Existing Trees and Significant Landscape Elements
    a. Use a dot to indicate the approximate location of the tree and a circle to indicate the canopy coverage
    b. Landscape areas and planting beds can be drawn as solitary masses rather than individual plants/shrubs
7. Identify and draw the area of the site that will contain the existing or proposed SMP (i.e., rain garden, downspout disconnection, permeable pavement/drywell).
8. Then draw arrows depicting the flow direction of water as it runs off the property. The arrows should point downhill in the direction of the storm water flow.



Example Site Plan

Aerial Site Sketch

Draw a bird's-eye-view of your property including all impervious surfaces and existing structures. Draw arrows depicting the flow of water on the property and the proposed site of the rain garden.

Scale: 1 square = _____ feet

KEY

Flow of Runoff

Structures/Surfaces

Rain Garden

Appendix B: How to Perform a Drainage Test

1. Know the exact location(s) on your property where you are planning to install your potential SMP(s) such as a rain garden. This potential SMP location will be where you conduct your drainage test. Drainage tests are done to test how fast your soil drains and determine suitability for stormwater SMPs.

2. **Do a PA One-Call at least three (3) business days prior to conducting your drainage test** so they can mark out all buried underground utilities, to reduce the risk of striking a utility line when digging.

   For more information: http://www.pa1call.org/pa811/Public/POCS_Content/About_Us/FAQS/FAQ.aspx or Dial 8-1-1 (or 1-800-242-1776).

3. Gather the following tools near the test location:
   a. Shovel or post-hole digger
   b. Hose and/or bucket (and water source)
   c. Yardstick, tape measure, or ruler
   d. Notepad and pen

Drainage Testing Process

Note: More elaborate testing procedures per the Pennsylvania Stormwater Manual or other approved guidance documents are also acceptable):

1. Use the shovel or post-hole digger to dig a hole and remove soil from the hole. Place the excavated soil nearby so the hole can be refilled after the test. Block off or otherwise prominently mark the hole location to prevent people from tripping/falling.

2. Dig a hole that is at least 12 inches deep and at least 4 inches in diameter. If desired, place 2 inches of clean sand or gravel in the bottom of the hole to prevent scour in the bottom when being filled.

3. Using your water source, gently fill the hole with water and let it sit overnight. This saturates the soil and helps give a more accurate test reading.

4. The next day, gently refill the hole to the top with water. Measure the water level by laying a stick, pipe, or other straight edge across the top of the hole, then use a tape measure or yardstick to determine the starting water level. Check what time it is.

5. After an hour has passed, return to your test location to measure and record the depth of the water in the hole. Ideally, continue taking measurements at hourly increments for a few more hours or until all they water has drained.

6. Check the hole to watch how long it takes to become empty. When it is empty, record the time.
    - If the hole took more than 48 hours to drain completely, this typically indicates the site is not suitable for a stormwater SMP that relies on infiltration. Another site will need to be chosen (and another drainage test conducted).
7. When the testing process is complete, the hole should be immediately backfilled with the excavated soil.