



Engineering Department - Phone: (651) 792-7004 Fax: (651) 792-7040

2660 Civic Center Dr. Roseville, MN 55113

RESIDENTIAL STORM WATER PERMIT & CREDIT APPLICATION WORKSHEET AND CHECKLIST

This application is a supplement to the Grading Permit specifically for low density residential projects adding impervious area. If the project causes the impervious area of a single family home lot to exceed

- 25% if the home lot is within a Shoreland or Wetland Management District, or
- 30% for all other single-family home lots,

then storm water best management practices (BMPs) are required to address the runoff from the additional impervious. Impervious surfaces include those surfaces on a property consisting of driveways, roofs, walks or other surfaces that limit infiltration as shown and described on the plan.

The application should include the following information:

- Check for fee: \$250**
- Completed Impervious Area Worksheet
- Building Permit Application
- Site Grading and Drainage Plans that show:
 - All Existing Impervious Area
 - Added (New) Impervious Area
 - Removed Impervious Area
 - Proposed Storm Water Best Management Practices (BMPs)
 - Existing Underlying Soils Data

Failure to include all items may result in rejection of application or delayed approval.

This permit also requires the execution of a maintenance agreement that requires City Council approval. A sample agreement is attached to this permit form. The agreement will be filed at Ramsey County and run with the property. Property title work and mortgage consent are needed to complete the processing of this agreement.

Tools and Ideas

Various ideas, tools, techniques and designs are available through a number of resources such as:

- Capitol Region Watershed District (capitolregionwd.org)
 - Rice Creek Watershed District (ricecreek.org)
 - The Blue Thumb program (bluethumb.org)
 - University of Minnesota Extension Office (www.extension.umn.edu/stormwater)
 - Minnesota Pollution Control Agency -- Minnesota Storm Water Manual Chapter 12 (www.pca.state.mn.us)
- Also, try Internet searches for "rain gardens", "BMP", "rain barrels", "impervious surface", and "storm water".

Stormwater Utility Fee Credit:

If a property captures a minimum of 25% of the impervious surface on their lot, a stormwater credit may be applied on the quarterly fee. See Fee Schedule Appendix A.

*If applying for the Residential Stormwater Permit, the minimum volume must exceed the required amount to be eligible for the credit.

Impervious Area Worksheet for Single-Family Residential Development

Applicants for all projects creating new impervious area must fill out this worksheet and submit it with your Grading Permit Application. If the overall impervious area of your property exceeds 30% (25% if your property is zoned within a Shoreland or Wetland Management District), you must provide stormwater management.

Property Address _____ **Date** _____

Homeowner Name _____

Applicant Name (if different) _____

Applicant Phone _____ **Email** _____

STEP 1 - Existing Lot Info

Existing Lot Area [A] _____ sq. ft.

Is the parcel within a Shoreland or Wetland Management District? **yes / no**

Existing Impervious Area

- Structures (Building Footprints) _____ sq. ft.
- Parking/Storage Areas (including on site driveways) _____ sq. ft.
- Walkways (hard surfaces) _____ sq. ft.
- Patios, Courtyards _____ sq. ft.
- Other Hard Surfaces _____ sq. ft.

Total [B] sq. ft

STEP 2 -- Proposed Impervious Surfaces

Proposed **Additional** Impervious Surface

- Structures (home additions, sheds, garages, etc.) _____ sq. ft.
- Parking/Storage Area (expansion areas only) _____ sq. ft.
- Walkways (new hard surface only) _____ sq. ft.
- Patios, Courtyards (new construction only) _____ sq. ft.
- Other Added Impervious Surface _____ sq. ft.

Total [C] sq. ft

STEP 3 - Calculate Impervious Area Percentages

Existing Lot Impervious Area % [B] / [A] x 100 = [D] %

Total Ex. Impervious Surface Total Ex. Lot Area

Proposed Lot Impervious Area % [B]+[C] / [A] x 100 = [E] %

Ex. plus add'l Impervious Surface Total Ex. Lot Area

If the "Proposed Lot Impervious Area %" is 30% or less (25% or less if in a shoreland/wetland management district), **STOP HERE.** Include this worksheet with the Grading Permit Application

If the "Proposed Lot Impervious Area %" is greater than 30% (greater than 25% if in a shoreland/wetland management district), stormwater management is required for the net new impervious surface. **YOU MUST MOVE ON TO STEP 4.**

STEP 4 - Volume Requirement Calculation

Compute your required volume of on-site storage based on the 1.1-inch of runoff from all net new impervious surfaces from the formulas as follows:

$$\boxed{} \% / \boxed{100} \times \boxed{} \text{ sq. ft.} \times 0.092 = \text{[F]} \boxed{} \text{ cu ft}$$

[E]
[A]
[F]

Prop. % Impervious
(from page 2)
Existing Lot Area
(from page 2)
Proposed Runoff Volume

$$\boxed{} \% / \boxed{100} \times \boxed{} \text{ sq. ft.} \times 0.092 = \text{[G]} \boxed{} \text{ cu ft}$$

[A]
[G]

Allowed Max %
Impervious*
Existing Lot Area
(from page 2)
Maximum Allowable
Runoff

*Enter 25% if your lot is within a shoreland or wetland management district. For all others, enter 30%.

$$\boxed{} \text{ cu ft} - \boxed{} \text{ cu ft} = \text{[H]} \boxed{} \text{ cu ft}$$

[F]
[G]
[H]

Proposed Runoff
Volume
Maximum Allowable
Runoff
**Volume of on-site
storage required**

STEP 5 - Storm Water Treatment Volume/Measures Provided

<u>Treatment Measures</u>	<u>Formula</u>	<u>Provided Storage Volume</u>
Rain Garden ¹	_____ ft (L) x _____ ft (W) x _____ ft (D) =	_____ cu ft
Rain Barrel/Cistern ²	_____ gallons x 0.13369 =	_____ cu ft
Rain Barrel (Rectangular) ²	_____ ft (L) x _____ ft (W) x _____ ft (D) =	_____ cu ft
Rock Trench/Drywell ¹	_____ ft (L) x _____ ft (W) x _____ ft (D) x 0.40 =	_____ cu ft
Infiltration Swale ¹	_____ ft (L) x _____ ft (W) x _____ ft (D) =	_____ cu ft
Porous Pavement ^{1,3}	_____ ft (L) x _____ ft (W) x _____ ft (D) x 0.40 =	_____ cu ft
Other		_____ cu ft
<i>L=Length W=Width D=Average Depth</i>		
Total Storage Volume Provided		[J]

Notes:

- ¹ These are measures which rely on the infiltration rate of the underlying soils and must be capable of drawdown within 48 hours of a rainfall event. The total average ponding depth cannot exceed 24 inches. An infiltration test, such as a double-ring infiltrometer test (used for septic system drain fields) and certification of infiltration rate is required
- ² These measures are intended for rainwater reuse (ex. garden and lawn watering) and slow release of overflow during rainfall events.
- ³ The measurable volume is within the open-graded rock base material under the porous pavement or pavers.

STEP 6 - Comparison

Is [J]-(storage provided) greater than or equal to [H]-(storage required)? **yes / no**

- If "yes," then your overall design meets the treatment requirement. **MOVE ON TO STEP 7.**
- If "no," then re-evaluate your design: Decrease proposed impervious surface (STEPS 3 and 4) or increase your storage volume (STEP 5).

STEP 7 - Soils and Infiltration Drawdown Information

Storm water treatment measures that provide volume control through infiltration (i.e. rain gardens, infiltration basins/swales, dry wells) rely on underlying soils for efficient drawdown.

Infiltration practices must draw down completely within 48 hours of a storm event. The maximum ponding depth of these measures cannot exceed 24 inches.

Select the infiltration rate from the table below that corresponds to the soils present at the site. Use site-specific soils information from soil borings (if taken) or you may utilize the National Resource Conservation Service Web Soil Survey at <http://websoilsurvey.nrcs.usda.gov>.

Minnesota Stormwater Manual Infiltration Rates

Soil Hydrologic Group	Infiltration Rate (inches/hr)	Soil Textures
A	1.63	gravel, sandy gravel, silty gravel
	0.80	sand, loamy sand, sandy loam
B	0.45	silty sands, silty gravelly sands
	0.3	loam, silt loam
C	0.20	sandy clay loam
D	0.06	clay loam, silty clay loam, sandy clay, silty clay, clay

Attach soil survey data.

In lieu of using the above table for infiltration rates, you may have an expert soil testing consultant determine the infiltration capability of your underlying soils. Enter the Soil Infiltration Rate based on a split-ring infiltrometer test or other professional assessment of your underlying soils.

Depth of Treatment Measure [K] inches
 Soil Infiltration Rate [L] inches/hr

Drawdown Time = [K] / [L] = hours

Is the design drawdown time greater than 48 hours? **yes** / **no**

If the design drawdown time is greater than 48 hours you may:

1. Reduce the depth of the measure by increasing the overall surface dimensions.
2. Install an underdrain. Underdrains are not allowed for Type A (sandy) soils.

STEP 8- Stormwater Utility Fee Credit

If your project captures the volume from a 1" rainfall you may be eligible for a stormwater credit.

Volume captured by BMP(s) cu-ft
 Required Volume (if applying for ReSWP): cu-ft
 Volume of stormwater over requirement: cu-ft

What percentage of your impervious surface is treated by the BMP? **25%, 50%, 75%, 100%**

Would you like to apply for the Stormwater Utility Credit? **Yes** / **No**

*Note: Maintenance agreement and 5 year certifications are required to be eligible for the credit.

STEP 9 -- Applicant Signature

The applicant/homeowner understands this Residential Storm Water Permit is required, and will remain in effect for the life of the Storm Water Treatment practices installed on the property. The applicant/homeowner agrees that all site storm water BMP's implemented as part of this permit are subject to annual inspection and design re-certification every 5 years.

The applicant/homeowner must submit Residential BMP Inspection (provided by the City) by May 31st of each year to fulfill the requirement of annual documentation of ongoing maintenance of the site storm water BMP's. The applicant/homeowner must also demonstrate and have certified by a certified rain garden designer or licensed professional engineer every 5 years that the storm water BMP's are operational on site, maintain their original volume and design intent when first constructed, and, if dependent on infiltration, properly drawdown within 48 hours of a previous rainfall event.

Applicant Signature _____ **Date** _____

Homeowner Signature _____ **Date** _____

For City Staff Use Only

- Upon review of your permit submittal, your permit was determined incomplete or non-compliant.

We cannot process your permit for the following reasons:

- Volume of storm water treatment storage on site is less than required.
- BMP design does not meet requirements.
- Adequate underlying soils information is not provided.
- Please submit _____
- _____

- Upon initial review of your site plan and storm water permit submittal, the following information is required before we can further process your permit.

- BMP Maintenance Agreement (to be recorded against the property)
- Please submit further information on _____
- _____

Roseville

Engineering Department - Phone: (651) 792-7003 Fax: (651) 792-7040
2660 Civic Center Dr. Roseville, MN 55113

RESIDENTIAL STORM WATER PERMIT BEST MANAGEMENT PRACTICE INSPECTION AND CERTIFICATION FORM

Property Address _____ **Date** _____
Homeowner Name _____
Phone Number _____
Date of Inspection _____ **Current Temperature** _____
Current Weather _____
Location of BMP _____
Type of BMP _____
Did it rain within the last 72 hours? yes no

Inspection Items

	Is standing water present?	yes	no	N/A
	Is there evidence of mosquitoes breeding?	yes	no	N/A
	Is drainage able to reach your BMP?	yes	no	N/A
	Is there accumulated sediment in the bottom?	yes	no	N/A
	Are weeds or invasive plants present?	yes	no	N/A
	Is there evidence of dying or dead plant material?	yes	no	N/A
	Are there areas of bare soil or erosion?	yes	no	N/A
	Are inlets to or outlets from the BMP blocked?	yes	no	N/A

If you answered yes to any questions above, your BMP needs maintenance. In order to correct the above

Homeowner Initials _____

If this is a 5-year inspection, you must have a third party sign-off on your report to verify that your BMP is functioning properly. This individual must be, at a minimum, have expertise in best management practice design.

Third-Party Inspector Name: _____

Third-Party Inspector Initials: _____

Appendix A

LOT BASED PROPERTIES (SINGLE FAMILY & DUPLEX RESIDENTIAL)

Lot based uses receive up to a 50% credit to their annual stormwater fee based on the percentage of their impervious surface they disconnect from the city infrastructure based on the volume from a 1” rainfall. Only the drainage area that is treated will be eligible for credit. This program does not provide credits for practices that are required by a permit. Practices that go above and beyond the permit are eligible for stormwater credits. Property owners that receive cost share funding from a watershed district, state agency, etc., are eligible for the stormwater credit program.

Below is a partial list of stormwater BMPs approved for use in the Stormwater Credits Program:

Raingardens, pervious pavers, wet ponds, dry wells, sand filters, filter strips, infiltration trenches, green roofs

The installed BMP’s will be certified by the property owner, or agent of the property owner, to show that the BMP is still functioning as designed. Certification will need to be provided, at a minimum, every 5 years after the city has approved the project.

The following credit will be applied to the area treated:

STORM WATER UTILITY CREDIT FOR LOT BASED USES	
Impervious Area Treated (% of lot)	Credit %
25%	12.50%
50%	25%
75%	37.50%
100%	50%

Example: In 2014, a single family residential property has an annual stormwater fee of \$46.80. The property owner adds a raingarden sized to capture the volume from a 1” rainfall. The amount of impervious area they treat as a percentage of their property will dictate the stormwater credit they will receive annually. Below is the breakdown based on the percent of impervious area they capture:

Annual Stormwater Fee		\$46.80	
Impervious Area Treated	Credit %	Annual Fee Reduction	New Annual Stormwater Fee
25%	12.50%	\$5.85	\$40.95
50%	25%	\$11.70	\$35.10
75%	37.50%	\$17.55	\$29.25
100%	50%	\$23.40	\$23.40