RESIDENTIAL STORMWATER PERMIT (ReSWP)
APPLICATION WORKSHEET AND CHECKLIST

This application is a supplement to the Grading and Erosion & Sediment Control 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 stormwater best management practices (BMPs) are required to address the runoff from the additional impervious surfaces. 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 Stormwater Best Management Practices (BMPs)
  - ❑ Existing Underlying Soils Data (NRCS Web Soil Survey)
- ❑ Property Owner and Applicant signatures

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 (www.capitolregionwd.org)
- Rice Creek Watershed District (www.ricecreek.org)
- Ramsey-Washington Metro Watershed District (www.rwmwd.org)
- The Blue Thumb program (www.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 "stormwater".

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 the Stormwater Utility Fee Credit Application for additional details.

*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 and Erosion & Sediment Control 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.

Date _____

Property Owner(s) _____

Property Address _____

Owner Phone _____ **Email** _____

Applicant Name (if different) _____

Applicant Company _____

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]** (Total Ex. Impervious Surface) / **[A]** (Total Ex. Lot Area) x 100 = **[D]** _____ **%**

Proposed Lot Impervious Area % **[B]+[C]** (Ex. plus add'l Impervious Surface) / **[A]** (Total Ex. Lot Area) x 100 = **[E]** _____ **%**

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 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:

	% /	100	x		sq. ft x 0.092	=	**[F]**		cu ft
[E]				**[A]**						
Prop. % Impervious (from page 2)				Existing Lot Area (from page 2)				Proposed Runoff Volume		
	% /	100	x		sq. ft. x 0.092	=	**[G]**		cu ft
				[A]						
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%.*

	cu ft	-		cu ft	=	**[H]**		cu ft
[F]			**[G]**						
Proposed Runoff Volume			Maximum Allowable Runoff				**Volume of on-site storage required**		

STEP 5 - Storm Water Treatment Volume/Measures Provided

Treatment Measures	**Formula**	**Provided Storage Volume**	
Raingarden[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

L=Length W=Width D=Average Depth

Total Storage Volume Provided **[J]** cu ft

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-evalutate your design: Decrease proposed impervious surface (STEPS 3 and 4) or increase your storage volume (STEP 5).

STEP 7 - Soils and Infiltration Drawdown Information

Stormwater treatment measures that provide volume control through infiltration (i.e. raingardens, 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 gravely 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 - Applicant & Owner Signatures

The applicant & homeowner understands this Residential Storm Water Permit (ReSWP) is required, and will remain in effect for the life of the Stormwater Treatment practices installed on the property. The applicant & property owner 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 & property owner 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 & property owner must also demonstrate and have certified by a certified rain garden designer or licensed professional engineer every 5 years that the stormwater 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** _____

Property Owner 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 stormwater 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 _____
  - ❑ _____