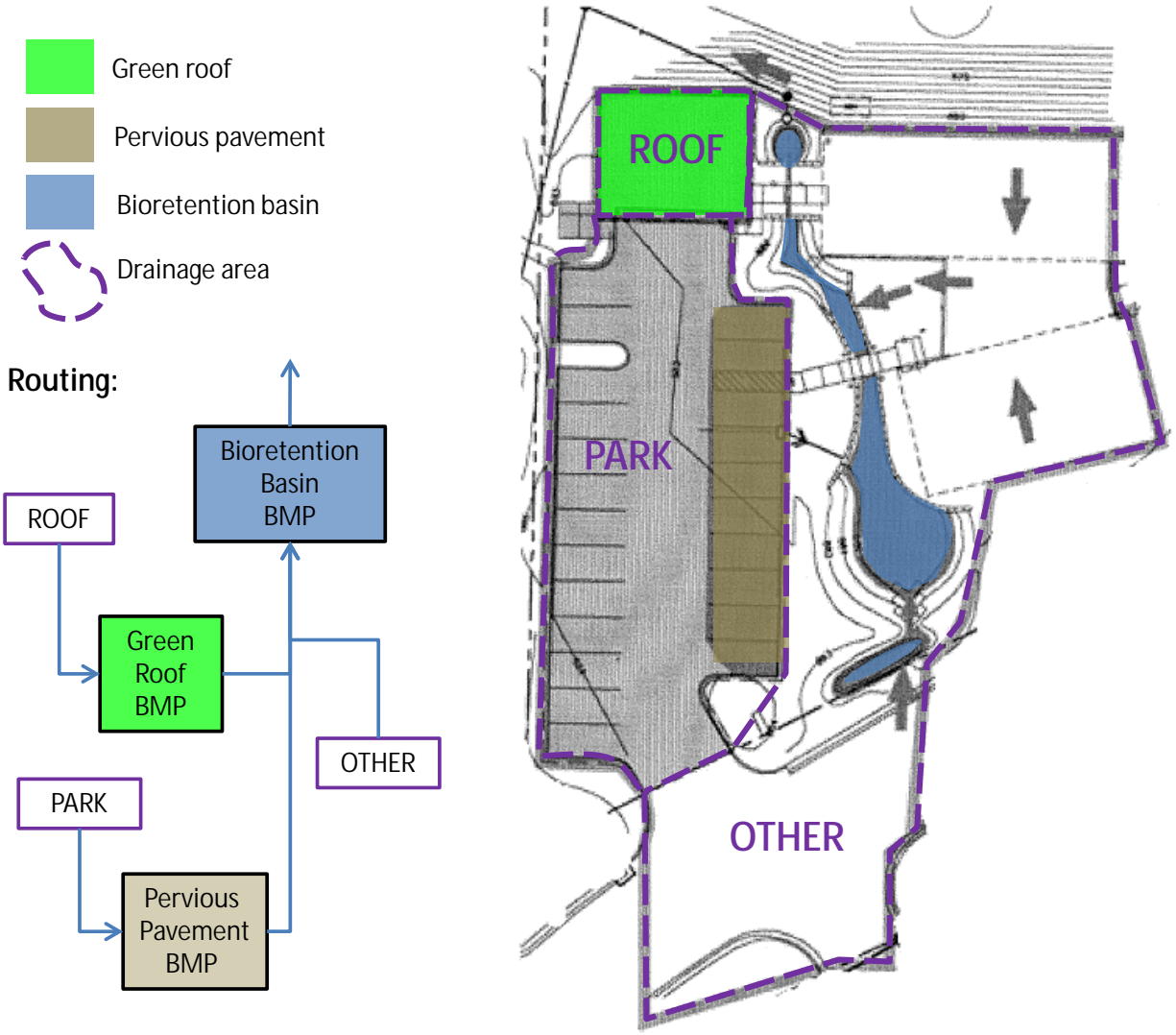
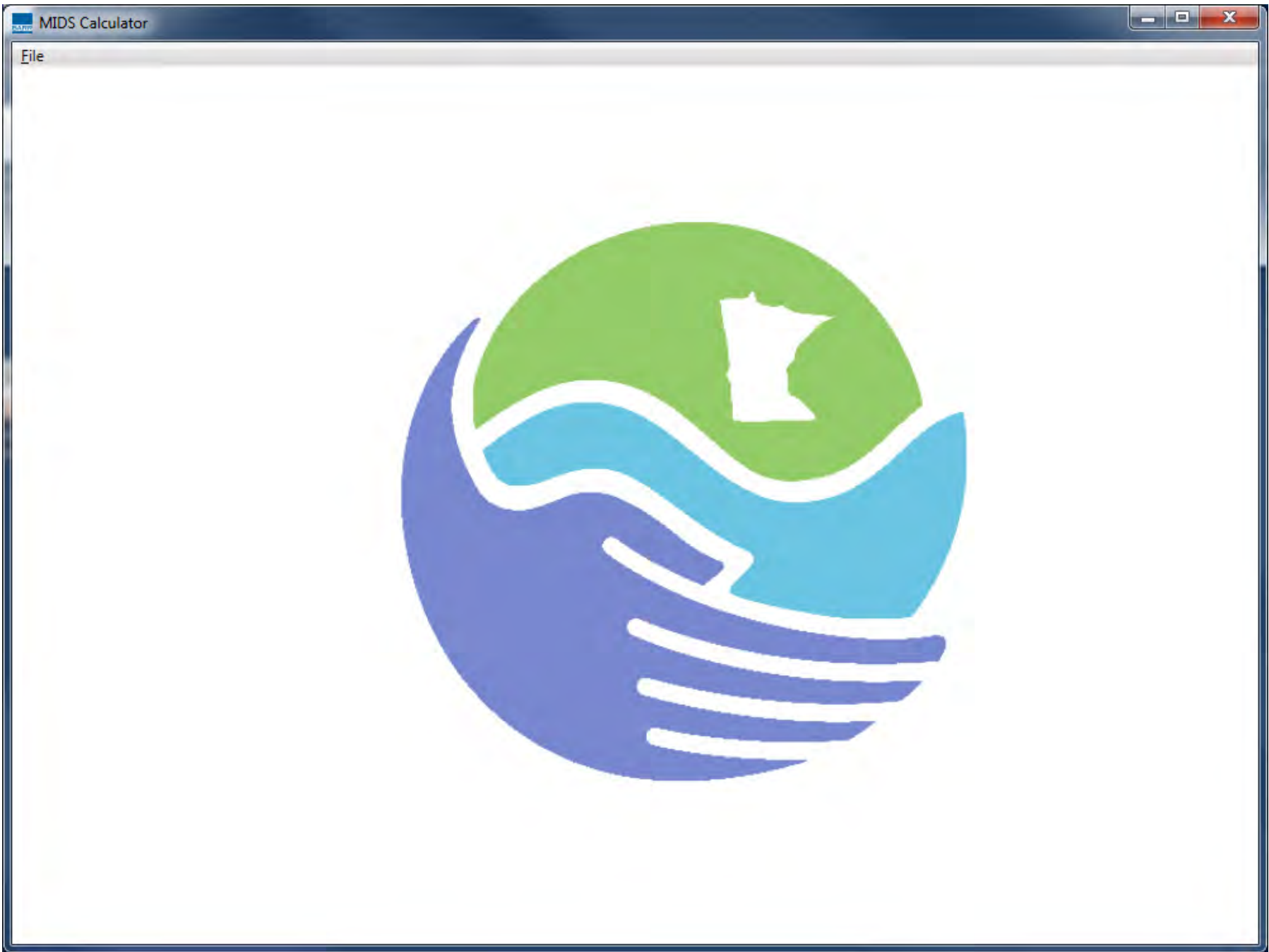


MIDS Calculator GUI Demonstration Example



Drainage Area	Land Cover (acres) - assume all 'B' Soils			Total
	Turf	Forest/Open Space	Impervious	
ROOF	0.00	0.00	0.10	0.10
PARK	0.00	0.00	1	1
OTHER	1	0.00	0.75	1.75
Total:	1	0.00	1.85	2.85

Drainage Area	BMP Description	BMP Information							
		Top Area (ft ²)	Bottom Area (ft ²)	Depth (ft)	Underlying Soil Type	Drawdown Time (hrs)	Media Depth (ft)	Media Porosity (ft ³ /ft ³)	Outflow Depth (ft)
ROOF	Green roof	4,356					0.2	0.33	
PARK	Pervious pavement	21,780					2	0.40	2.0
OTHER	Bioretention basin (w/o underdrain)	2,136	848	1.5	SM (HSG B)	48			1.4



File

Site Information Schematic Results

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

Percent TP reduction achieved

%

Percent TSS reduction achieved

%

Project Name:

User Name/Company Name:

Date:

Project Description:

Volume Retention Requirement (inches)	<input type="text" value="1.1"/>
Site's Zip Code	<input type="text" value="55414"/>
Annual Rainfall (inches)	<input type="text" value="31.55"/>
Phosphorus EMC (mg/l)	<input type="text" value="0.30"/>
TSS EMC (mg/l)	<input type="text" value="54.50"/>

Land Cover	A soils (acres)	B soils (acres)	C soils (acres)	D soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="0"/>
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed	<input type="text"/>	<input type="text" value="1"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="1"/>
				Impervious Area	<input type="text" value="1.85"/>
				Total Area	<input type="text" value="2.85"/>

File

Site Information Schematic Results

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

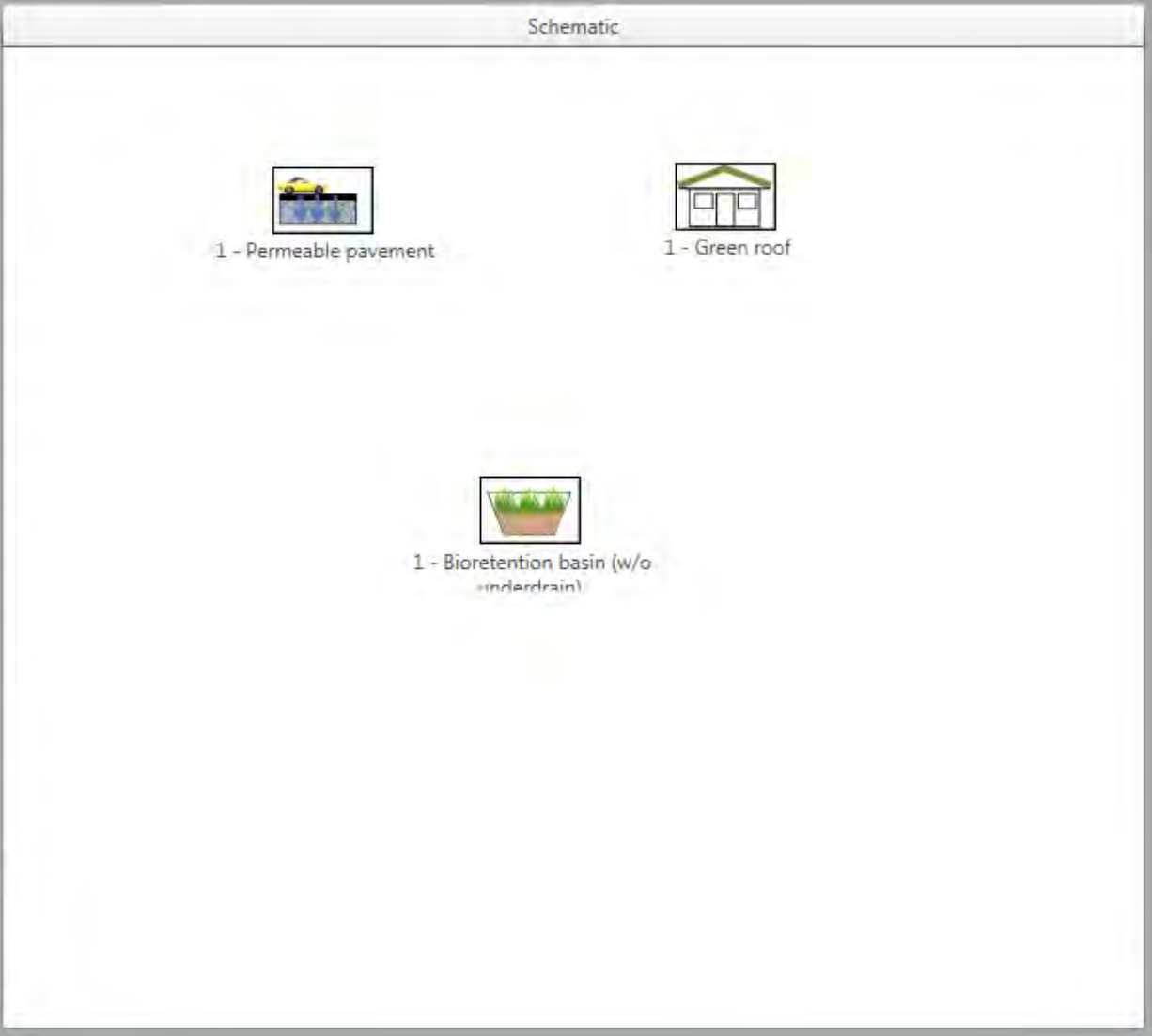
Percent TP reduction achieved

%

Percent TSS reduction achieved

%

- BMPs
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- Other



BMP Properties

BMP Properties: Example Green Roof

[Watershed](#) | [BMP Parameters](#) | [BMP Summary](#)

BMP Name:

Routing/downstream BMP:

[Minnesota Stormwater Manual Wiki](#)

BMP Watershed Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed					0
Impervious Cover (acres)					0.1
Total Area (acres)					0.1

OK

BMP Properties: Example Green Roof

Watershed **BMP Parameters** | BMP Summary

Green Roof

$$V = A_s * D_M * n$$

Top surface area (A_s)



Media depth (D_M)

Required treatment volume (RV) [ft³]

399

Media Depth (DM)[ft]

0.2

Top Surface Area (AS)[ft²]

4356

Media porosity (n)[ft³/ft³](typical values 0.25-0.50)

0.33

Volume reduction capacity of BMP (V)[ft³]

287

Volume of retention provided by BMP (BMPV)[ft³]

287

OK

File

Site Information Schematic Results

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

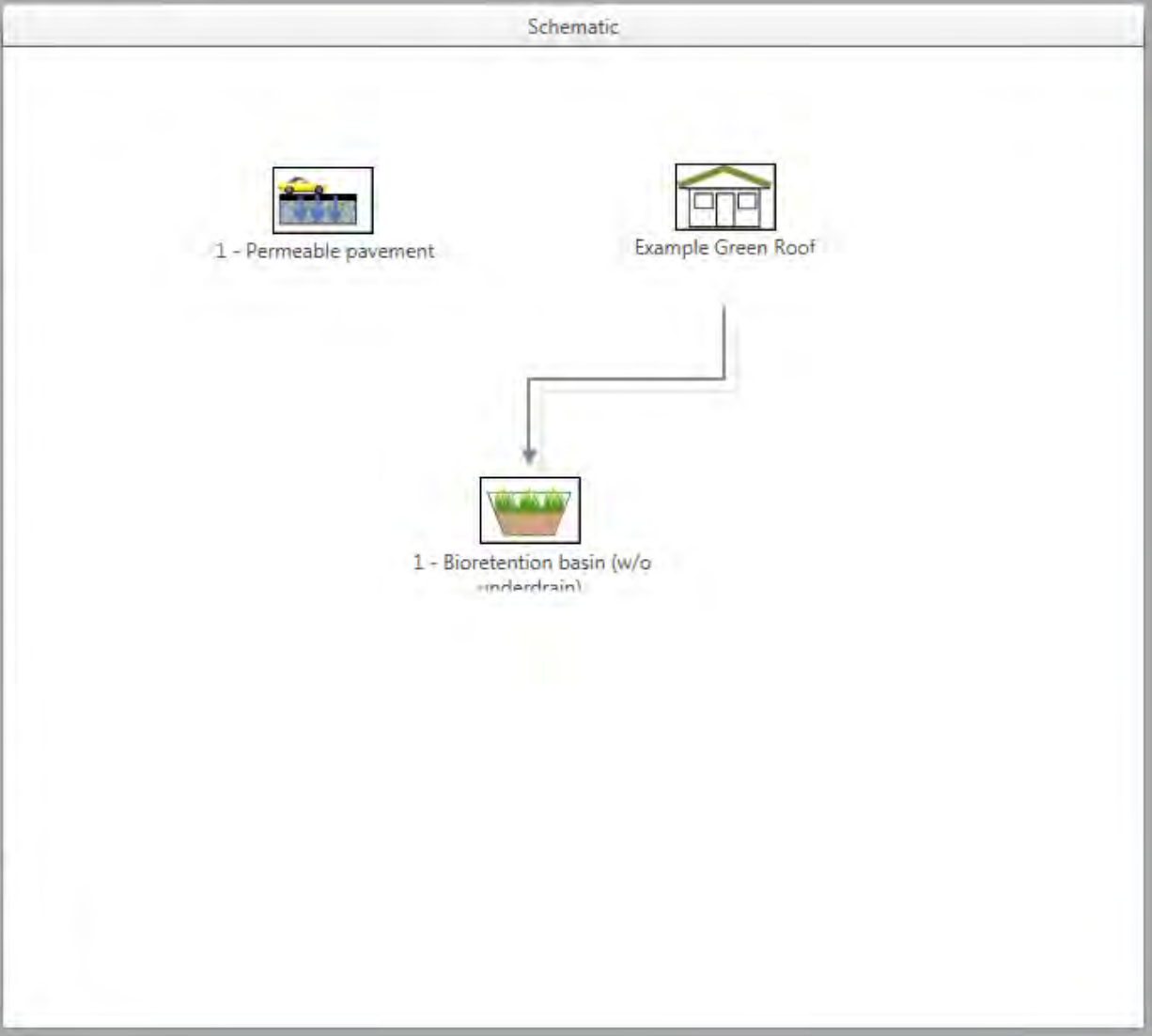
Percent TP reduction achieved

%

Percent TSS reduction achieved

%

- BMPs
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- Other

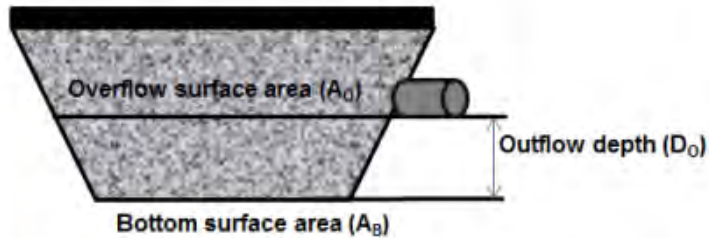


BMP Properties: 1 - Permeable pavement

Watershed **BMP Parameters** | BMP Summary

Permeable pavement

$$V = \left[\frac{A_O + A_B}{2} * D * n \right]$$



Required treatment volume (RV) [ft ³]	3993
Top surface area (A _O)[ft ²]	21780
Bottom surface area (A _B)[ft ²]	21780
Depth below underdrain (D _O)[ft]	2
Media porosity (n)[ft ³ /ft ³](typical values 0.25-0.50)	0.4
Underlying soil - Hydrologic Soil Group	6 SM (HSG B, 0.6 in/hr ▾)
Will subsoil require compaction [yes/no]	No ▾
Infiltration rate of underlying soils (IR)[in/hr]	0.6
User defined infiltration rate (in/hr)	
Required drawdown time (hrs)	48 ▾
Volume reduction capacity of BMP (V)[ft ³]	17424
Volume of retention provided by BMP (BMPV)[ft ³]	3993

OK

BMP Properties: 1 - Bioretention basin

Watershed | **BMP Parameters** | BMP Summary

BMP Name: 1 - Bioretention basin

Routing/downstream BMP:

[Minnesota Stormwater Manual Wiki](#)

BMP Watershed Area

Land Cover	A Soils (acres)	B Soils (acres)	C Soils (acres)	D Soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed		1			1
Impervious Cover (acres)					0.75
Total Area (acres)					1.75

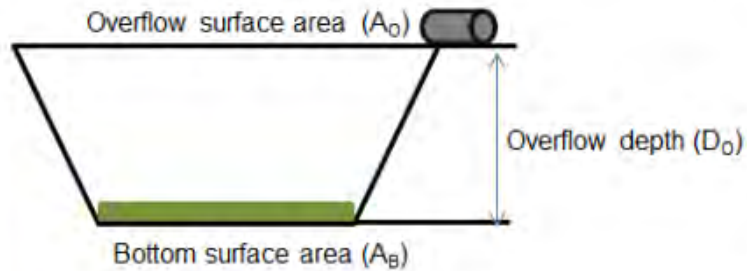
OK

BMP Properties: 1 - Bioretention basin

Watershed | **BMP Parameters** | BMP Summary

Bioretention basin (w/o underdrain)

$$V = \left[\frac{A_o + A_B}{2} * (D_o) \right]$$



Required treatment volume (RV) [ft3]	2995
Outflow surface area (A _o)[ft2]	2136
Bottom surface area (A _B)[ft2]	848
Outflow depth (D _o)[ft]	1.5
Underlying soil - Hydrologic Soil Group	6 SM (HSG B, 0.6 in/hr) ▾
Infiltration rate of underlying soils (IR)[in/hr]	0.6
User defined infiltration rate (in/hr)	
Required drawdown time (hrs)	48 ▾
Volume reduction capacity of BMP (V)[ft3]	2238
Volume of retention provided by BMP (BMPV)[ft3]	2238

OK

BMP Properties: 1 - Bioretention basin

Watershed | BMP Parameters | **BMP Summary****Performance Goal Summary**

Water volume from direct watershed:	2995 ft3
Water volume from upstream BMPs:	112 ft3
Total water volume routed to BMP:	3107 ft3
Retention volume provided by BMP:	2238 ft3
Outflow volume:	869 ft3

Annual Pollutant Loads Summary

Percent Annual runoff volume retained:	84 %
Particulate P load from direct watershed:	0.97 lbs
Particulate P load from upstream BMPs:	0.05 lbs
Particulate P load reduction:	0.86 lbs
Particulate P load outflow:	0.16 lbs
Dissolved P load from watershed:	0.79 lbs
Dissolved P load from upstream BMPs:	0.04 lbs
Dissolved P load reduction:	0.7 lbs
Dissolved P load outflow:	0.13 lbs
TSS load from watershed:	320 lbs

OK

File

Site Information Schematic Results

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

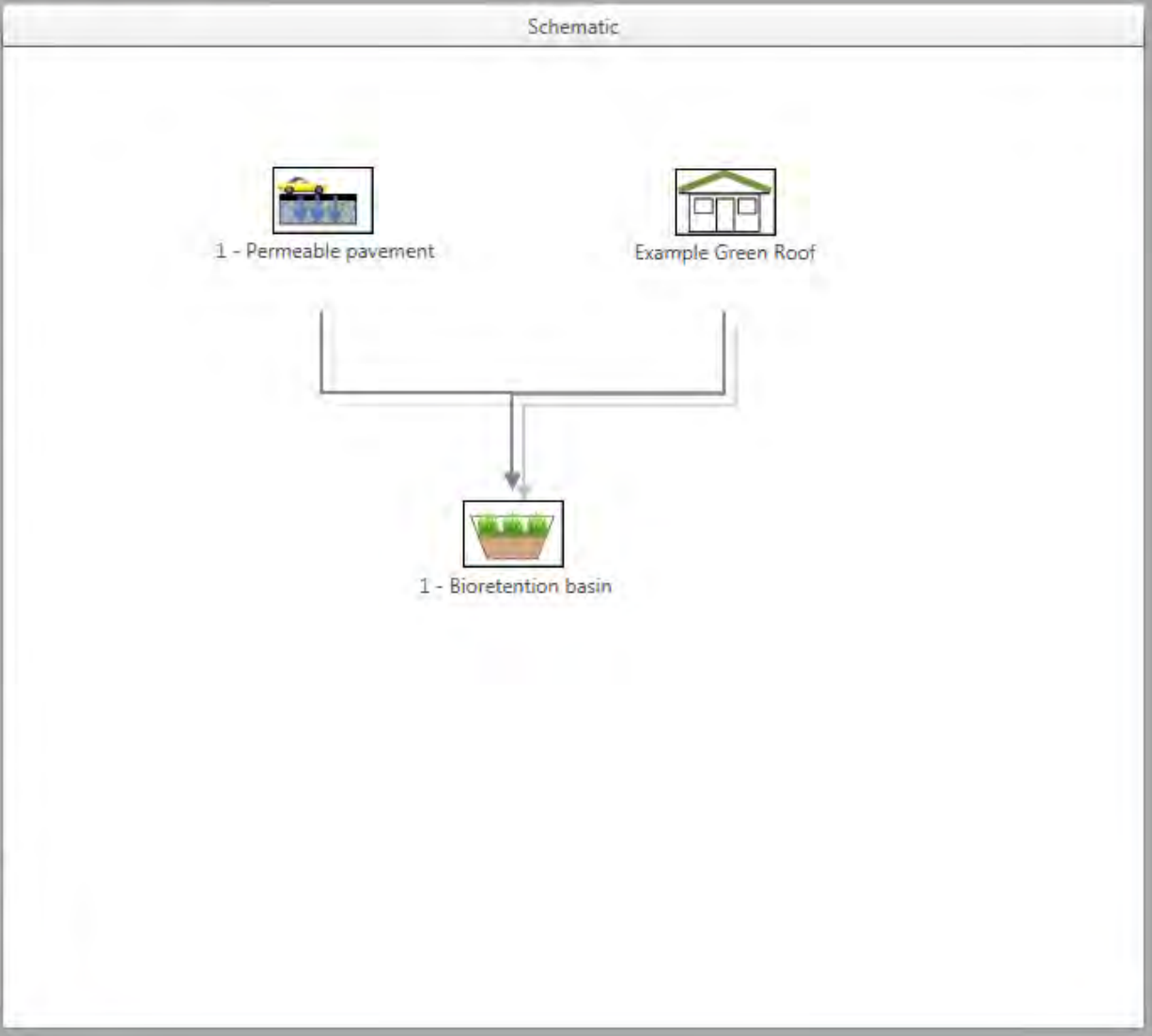
Percent TP reduction achieved

%

Percent TSS reduction achieved

%

- BMPs
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-
-
-
- Other



File

Site Information Schematic Results

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

Percent TP reduction achieved

%

Percent TSS reduction achieved

%

Results

Site Information

Volume Retention Requireme	1.1
Site's Zip Code	55414
Annual Rainfall (inches)	31.55
Phosphorus EMC (mg/l)	0.30
TSS EMC (mg/l)	54.50

Total Watershed Area

Land Cover	A soils (acres)	B soils (acres)	C soils (acres)	D soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/ open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed		1			1
				Impervious Area	1.85
				Total Area	2.85

Watershed Areas Routed to BMPs

Land Cover	A soils (acres)	B soils (acres)	C soils (acres)	D soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/					0

File

Site Information Schematic **Results**

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

Percent TP reduction achieved

%

Percent TSS reduction achieved

%

Watershed Areas Routed to BMPs

Land Cover	A soils (acres)	B soils (acres)	C soils (acres)	D soils (acres)	Total (acres)
Forest/Open Space - Undisturbed, protected forest/open space or reforested land					0
Managed Turf - disturbed, graded for yards or other turf to be mowed/managed		1			1
				Impervious Area	1.85
				Total Area	2.85

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	7387
Volume removed by BMPs:	6518
Percent volume removed:	88

Annual Pollutant Load Reduction:

Post development annual particulate P load:	2.08
Annual particulate P removed by BMPs:	1.92
Post development annual dissolved P load:	1.7

File

Site Information Schematic Results

Summary Information:

Impervious area not routed to a BMP

acres

Pervious area not routed to a BMP

acres

Performance goal requirement

ft³

Performance goal reduction achieved

ft³

Percent TP reduction achieved

%

Percent TSS reduction achieved

%

Summary Information

Performance Goal Requirement

Performance goal volume retention requirement:	7387
Volume removed by BMPs:	6518
Percent volume removed:	88

Annual Pollutant Load Reduction:

Post development annual particulate P load:	2.08
Annual particulate P removed by BMPs:	1.92
Post development annual dissolved P load:	1.7
Annual dissolved P removed by BMPs:	1.57
Percent annual total phosphorus removed:	92
Post development annual TSS load:	687
Annual TSS removed by BMPs:	635
Percent annual TSS removed:	92