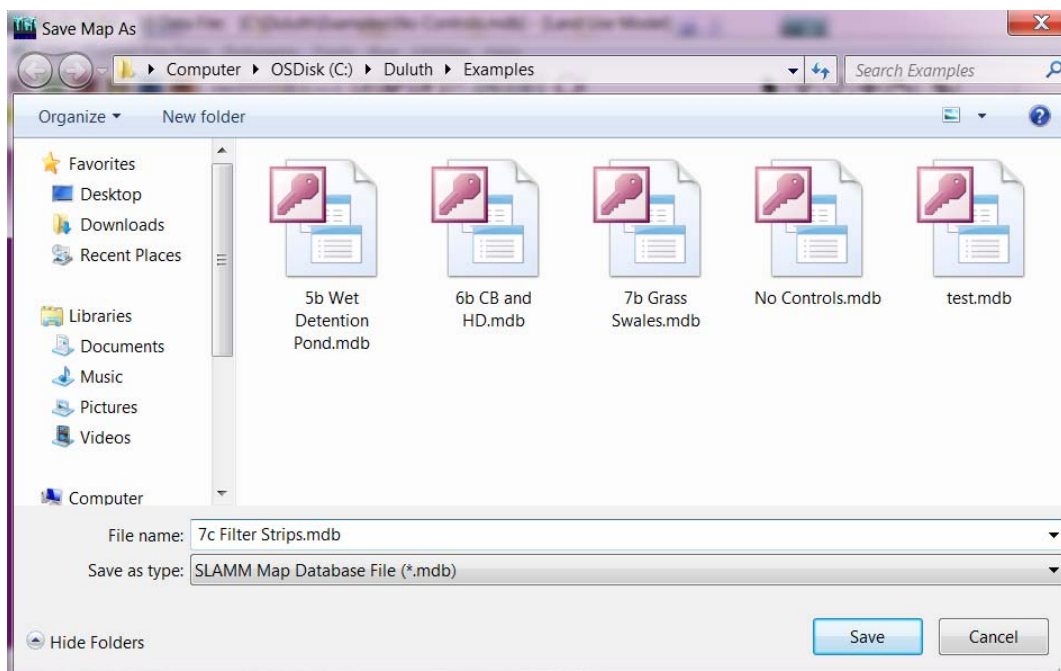


Filter Strip Example

Filter Strip Example

For this example, we will start with the model file we created for No Controls and add Filter Strips. Only the Parking Lot Source Area will be treated by the Filter Strips. A diagram showing the Filter Strips can be found at the end of this document.

Open the No Controls model file and Save the File with a new name.



Change the Site Description in the Current File Data to reflect the Filter Strips.

Current File Data

SLAMM Data File Name:
C:\WinSLAMM\Training Courses\Madison 2012\Model Files\1c Filter Strips.mdb

Site Descript.: Filter Strips, Commercial Development

Edit Seed: -42

Edit Rain File: C:\Program Files\WinSLAMM v10\Rain Files\WisReg - Madison\WI 1981.RAN

Edit Start Date: 01/01/81 ☒ Winter Season Range
Edit End Date: 12/31/81 Start of Winter (mm/dd) 12/02 End of Winter (mm/dd) 03/12

Edit Pollutant Probability Distribution File: C:\Program Files\WinSLAMM v10\WI_GEO01.ppd

Edit Runoff Coefficient File: C:\Program Files\WinSLAMM v10\WI_SL06 Dec06.rsv

Filter Strip Example

Use the Pull Down menu next to the Parking Lot Source Area to select the Filter Strip control measure.

The screenshot displays the WinSLAMM v.10 software interface. The title bar indicates the file path: [L:\group\WaterResources\Ppresentations and Papers\WinSLAMM\2012 November Madison\Examples\1c Filter Strips.mdb] - [Land Use Model]. The menu bar includes File, Current File Data, Pollutants, Tools, Run, Utilities, and Help. The toolbar contains various icons for file operations and modeling.

The **Land Use** table is visible, showing a list of source areas. The **Parking** section is highlighted, and the row for **Paved Parking 1** (Source Area # 13) is selected. The **First Control** dropdown menu is open, showing the **Filter Strip** option selected.

Source Area #	Source Area	Area (acres)	Source Area (mmeters)	First Control	Second Control
6	Roofs 6				
7	Roofs 7				
8	Roofs 8				
9	Roofs 9				
10	Roofs 10				
11	Roofs 11				
12	Roofs 12				
Parking					
13	Paved Parking 1	2.000	Entered	Filter Strip	
14	Paved Parking 2				
15	Paved Parking 3				
16	Paved Parking 4				
17	Paved Parking 5				
18	Paved Parking 6				
19	Unpaved Parking 1				
20	Unpaved Parking 2				
21	Unpaved Parking 3				
22	Unpaved Parking 4				
23	Unpaved Parking 5				
24	Unpaved Parking 6				
Unpaved/Sidewalks					
0.400					

The **Land Use** table also shows a summary for **Commercial 1** with a total area of 7.290 acres. The **Control** table is also visible, showing the **Filter Strip** control measure selected for the **Paved Parking 1** source area.

The diagram on the right shows a water flow path starting from **Commercial 1**, passing through **junction 1**, and ending at **Outfall**.

The status bar at the bottom displays the following information: Current File Data Entered, Total Area = 7.290 acres, No Upstream Source Areas, LU# = 1, Index Number = 1, Remaining Icons = 253, Start Date: 01/01/81, End Date: 12/31/81, X = 12.

Filter Strip Example

Enter the data shown below. Only a portion of the parking lot (1.17 acres) shown on the attached map is going to be treated by the Filter Strips.

Note: when moving through the Filter Strip form, press the "Enter" key to move to the next cell, not the "Tab" key.

Filter Strip Control Device

Land Use: Commercial 1

Total Area: 2.850

Source Area: Paved Parking 1

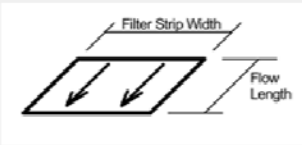
Filter Strip No. 1

First Source Area Control Practice

Device Properties

Total Area in Source Area (ac)	2.850
Area Fraction Served by Filter Strips (0-1)	0.41
Total Filter Strip Width (ft)	664
Flow Length (ft)	50
Dynamic Infiltration Rate (in/hr)	0.025
Typical Longitudinal Slope (Fraction)	0.010
Typical Grass Height (in)	4.0
Grass Retardance Factor	D
Use Stochastic Analysis to account for Infiltration Rate Uncertainty	<input type="checkbox"/>
Native Soil Infiltration Rate COV	
Surface Clogging Load (lbs/sf)	3.50

Filter Strip Area to Drainage Area Ratio = 0.652.
This ratio must be greater than 0.05 to activate the filter strip.



View Retardance Table

Select Particle Size File

C:\WinSLAMM Files\NURP.CPZ

Select Native Soil Dynamic Infiltration Rate

☐ Sand - 4 in/hr

☐ Clay loam - 0.05 in/hr

☐ Loamy sand - 1.25 in/hr

☐ Silty clay loam - 0.025 in/hr

☐ Sandy loam - 0.5 in/hr

☒ Sandy clay - 0.025 in/hr

☐ Loam - 0.25 in/hr

☐ Silty clay - 0.02 in/hr

☐ Silt loam - 0.15 in/hr

☐ Clay - 0.01 in/hr

☐ Sandy silt loam - 0.1 in/hr

Copy Filter Strip Data

Paste Filter Strip Data

Delete

Cancel

Continue

Control Practice #: 1

Land Use #: 1

Source Area #: 13

Filter Strip Example

Run the model.

Results

Runoff Volume: 296,964 cu ft
Runoff Volume Percent Reduction: 10.83 %
Particulate Solids Concentration: 99.07 mg/L
Particulate Solids Yield: 1,837 lbs
Particulate Solids Percent Reduction: 25.81 %
Rv (with controls): 0.35
Approx. Urban Stream Classification: Poor
Total Phosphorus: 6.14 lbs
Total Phosphorus Percent Reduction: 13.7 %

Land Uses	Junctions	Control Practices	Outfall	Output Summary			
File Name: C:\2012 November Madison\Examples\1c Filter Strips.mdb							
Outfall Output Summary							
	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction	
Total of All Land Uses without Controls	333043		0.39	119.1	2476		
Outfall Total with Controls	296964	10.83 %	0.35	99.07	1837	25.81 %	
Current File Output: Annualized Total After Outfall Controls		297780	Years in Model Run:	1.00	1842		
Pollutant	Concentration - No Controls	Concentration - With Controls	Concentration Units	Pollutant Yield - No Controls	Pollutant Yield - With Controls	Pollutant Yield Units	Percent Yield Reduction
Total Phosphorus	0.3423	0.3312	mg/L	7.117	6.141	lbs	13.72 %
<div>Print Output Summary to Text File Print Output Summary to .csv File Total Area Modeled: 7.290</div>							
Total Control Practice Costs				Receiving Water Impacts Due To Stormwater Runoff (CWP Impervious Cover Model)			
Capital Cost	N/A			Calculated Rv	Approximate Urban Stream Classification		
Land Cost	N/A			Without Controls	0.39	Poor	
Annual Maintenance Cost	N/A			With Controls	0.35	Poor	
Present Value of All Costs	N/A			Perform Outfall Flow Duration Curve Calculations			
Annualized Value of All	N/A						

The pollution reduction reported at the outfall is the overall pollution reduction for the entire site.


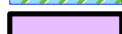

To see the pollution reduction from just the Filter Strips, select the "Control Practices" tab.

Filter Strip Example

Land Uses		Junctions		Control Practices		Outfall		Output Summary			
Runoff Volume		Part. Solids Yield (lbs)		Part. Solids Conc. (mg/L)		Summary Table					
Data File: C:\2012 November Ma											
Rain File: WisReg - Madison WI 1											
Date: 11-12-12 Time: 9:05:52 AM											
Site Description: Filter Strips											
Control Practice No.	Control Practice Type	Total Inflow Volume (cf)	Total Outflow Volume (cf)	Percent Volume Reduction	Total Influent Load (lbs)	Total Effluent Load (lbs)	Percent Load Reduction	Flow Weighted Influent Conc (mg/L)	Flow Weighted Effluent Conc (mg/L)	Percent Conc. Reduction	I M P (n)
1	Filter Strips	216331	180252	16.68	1756	1117	36.39	130.0	99.25	23.652	

The Filter Strips are reducing the runoff volume by 16.7% and the TSS load by 36.4% from the portion of the Parking Lot source area they are treating.

Legend

-  Filter Strip Area
-  Filter Strip Treatment Area
-  Drainage Area

**WinSLAMM Model Example
Project Area**

