James Makepeace, P.E.
Makepeace Engineering LLC
816 2nd Av S, Suite 800
Onalaska, WI 54650

August 25, 2017

Tim Acklin, Senior Planner
City of La Crosse
400 La Crosse Street
La Crosse, WI 54601

Mr. Acklin,
Enclosed are the following documents for 360 Real Estate's Campbell Street Project:

1. 7 sets of plans
   a. C101 Site Plan
   b. C102 Grading Plan
   c. C103 Construction Details
   d. WSDOT Standard Detail Sheets 8D1, 8E8, 8E9, 8E10, 8E14
2. Design Review Checklist appropriate for the civil drawings
3. Storm water modeling
4. Morphological evaluation

Please provide a copy of this letter to Yuri for his review, as it includes a storm water modeling summary.

The storm water ordinance requires 100% infiltration of the 2-year design storm.
The constructed site will include

14,750 SF Building
9,520 SF Concrete
7,620 SF Pervious
31,890 SF Total

The 7,620 square feet of pervious includes 1,050 square feet of biofilter and 2,150 square feet of porous paving.

For modeling, the project was broken into four subcatchments: Porous Pavement, East, West, and Front.

The porous paving subcatchment includes half of each building and most of the concrete parking lot. All of this area flows to the porous paving.

The East subcatchment includes a small area of roof on the east side of the buildings, as well as improvements east of the buildings.

The West subcatchment includes a small area of roof on the west side of the buildings, as well as improvements west of the buildings and some of the parking lot in the west side of the project.

The Front subcatchment includes the front half of the buildings, as well as the improvements between the building and the sidewalk. The modeling was done for just one building. As such, the resulting required biofilter area needs to be doubled.

In all cases, the requisite biofilter area was broken up and strategically placed around the site in order to ensure that all flow enters the biofilters prior to leaving the site.

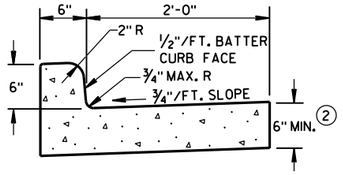
Modeling results are as follows:

BMP	Required	Provided
Porous Pavement	1,960 SF	2,150 SF
Biofilter	1,050 SF	1,100 SF

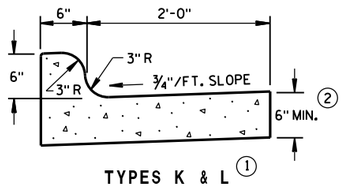
Should you have any questions while reviewing the documents, please don't hesitate to contact me directly.

Sincerely,
James Makepeace, P.E.
Makepeace Engineering LLC

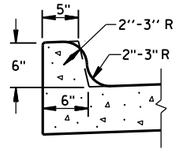
8D1: Concrete Curb, Concrete Curb & Gutter and Ties



TYPES A & D ①

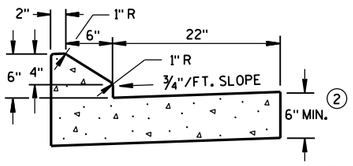


TYPES K & L ①

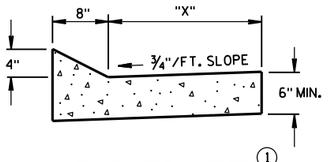


OPTIONAL CURB SHAPE FOR TYPES K & L ①

CONCRETE CURB & GUTTER 30"



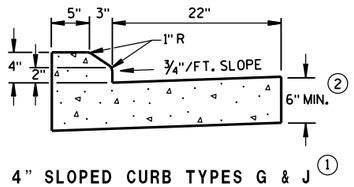
6" SLOPED CURB TYPES G & J ①



TYPES TBT & TBTT ①

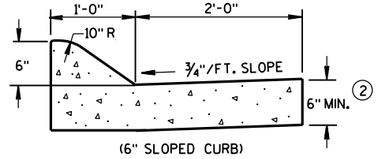
CONCRETE CURB & GUTTER

TBT & TBTT	"X"
30"	22"
36"	28"

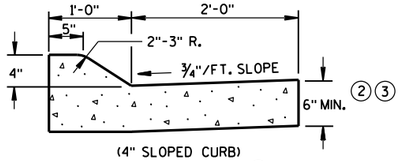


4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"

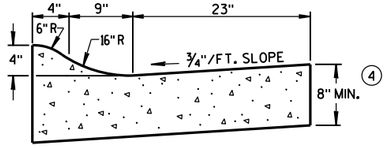


(6" SLOPED CURB)



(4" SLOPED CURB)

TYPES A & D ①



4" SLOPED CURB TYPES R & T ①⑤

CONCRETE CURB & GUTTER 36"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

INTEGRAL CURB & GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB & GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE. A LONGITUDINAL CONSTRUCTION JOINT IS NOT REQUIRED WITH INTEGRAL CURB AND GUTTER.

WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

UNLESS OTHERWISE SHOWN ON THE TYPICAL CROSS SECTIONS, THE BASE AGGREGATE AND COMMON EXCAVATION LIMITS ARE 2'-0" BEHIND THE BACK OF CURBS.

① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.

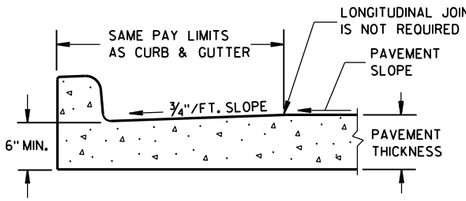
② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.

③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.

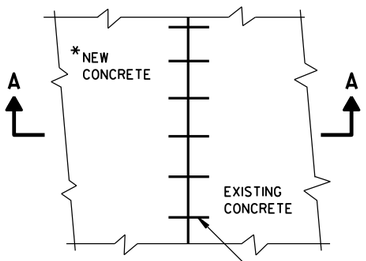
④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.

⑤ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.

⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.

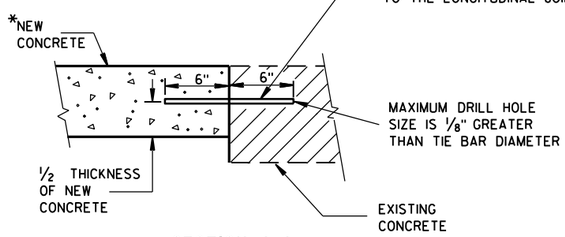


PARTIAL SECTION OF PAVEMENT WITH INTEGRAL CURB & GUTTER



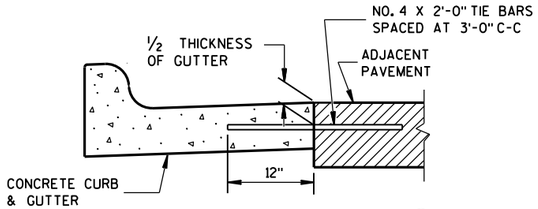
PLAN VIEW

*NEW CURB & GUTTER, SURFACE DRAINS, CONCRETE PAVEMENT OR OTHER NEW CONCRETE.

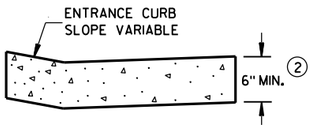


SECTION A-A

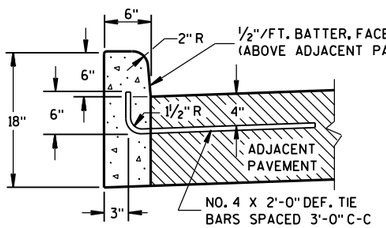
TIE BARS DRILLED INTO EXISTING PAVEMENT



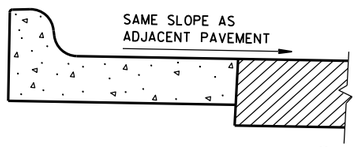
TYPICAL TIE BAR LOCATION ①



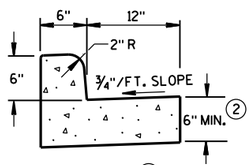
DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)



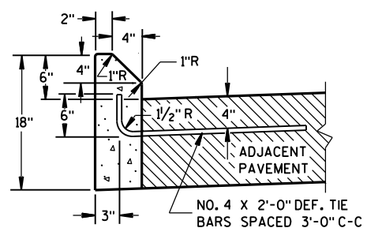
① TYPES A & D



⑥ REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)

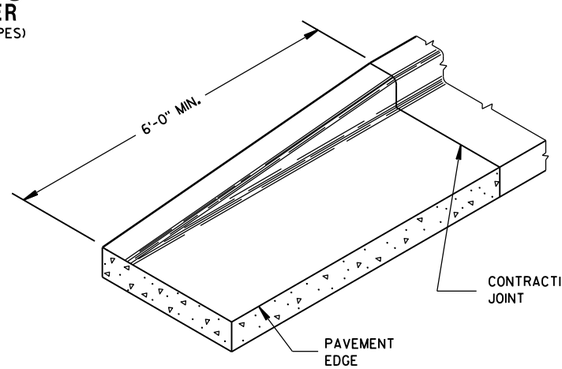


①
TYPES A & D
CONCRETE CURB & GUTTER 18"



① TYPES G & J

CONCRETE CURB



END SECTION CURB & GUTTER

CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2016 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 D 1-19

Concrete Curb, Concrete Curb & Gutter and Ties

References:

FDM 11-20-1

Bid items associated with this drawing:

ITEM NUMBER	DESCRIPTION	UNIT
416.0610	Drilled Ties Bars	EACH
601.0105	Concrete Curb Type A	LF
601.0110	Concrete Curb Type D	LF
601.0115	Concrete Curb Type G	LF
601.0120	Concrete Curb Type J	LF
601.0150	Concrete Curb Integral Type D	LF
601.0155	Concrete Curb Integral Type J	LF
601.0405	Concrete Curb & Gutter 18-Inch Type A	LF
601.0407	Concrete Curb & Gutter 18-Inch Type D	LF
601.0409	Concrete Curb & Gutter 30-Inch Type A	LF
601.0411	Concrete Curb & Gutter 30-Inch Type D	LF
601.0413	Concrete Curb & Gutter 6-Inch Sloped 30-Inch Type G	LF
601.0415	Concrete Curb & Gutter 6-Inch Sloped 30-Inch Type J	LF
601.0417	Concrete Curb & Gutter 30-Inch Type K	LF
601.0419	Concrete Curb & Gutter 30-Inch Type L	LF
601.0452	Concrete Curb & Gutter Integral 30-Inch Type D	LF
601.0454	Concrete Curb & Gutter Integral 30-Iinch Type J	LF
601.0456	Concrete Curb & Gutter Integral 30-Inch Type L	LF
601.0501	Concrete Curb & Gutter Integral 4-Inch Sloped 36-Inch	LF
601.0511	Concrete Curb & Gutter Integral 6-Inch Sloped 36-Inch	LF
601.0551	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type A	LF
601.0553	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type D	LF
601.0555	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A	LF
601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF
601.0574	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type G	LF
601.0576	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type J	LF
601.0580	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type R	LF
601.0582	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type T	LF
601.0584	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type TBT	LF
601.0586	Concrete Curb & Gutter 4-Inch Sloped 30-Inch Type TBTT	LF
601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF
601.0590	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBTT	LF

Standardized Special Provisions associated with this drawing:

STSP NUMBER	TITLE
NONE	

Other SDDs associated with this drawing:

NONE

Design Notes:

Any special curb or curb and gutter, different from those listed above, requires a SPV.0900 item number, special provision and special detail.

List in miscellaneous quantities all curb and curb and gutter types along with STA-STA limits LT and RT. Label typical finished sections with curb and curb and gutter types. Indicate on plan sheets where reverse slope gutter is required.

Any required modification to the standard 3/4” gutter slope will need to be addressed in a plan general note or by including a special detail. When modifying the gutter cross slope, adjust that inlet spacing per FDM 13-25-15.

The face of curb for the Type R and T is 6-inches from the back of curb.

Use the end section curb & gutter at railroad crossings where curb & gutter is present and at driveways where the sidewalk is adjacent to the back of curb.

Curb and gutter Type TBT (Thrie Beam Transition) and TBTT (Thrie Beam Transition Tied) can be used with thrie beam transitions to control water by the thrie beam transition. See the Thrie Beam Transition SDDs for more information. In some cases, TBT and TBTT are required for proper performance of the thrie beam transition.

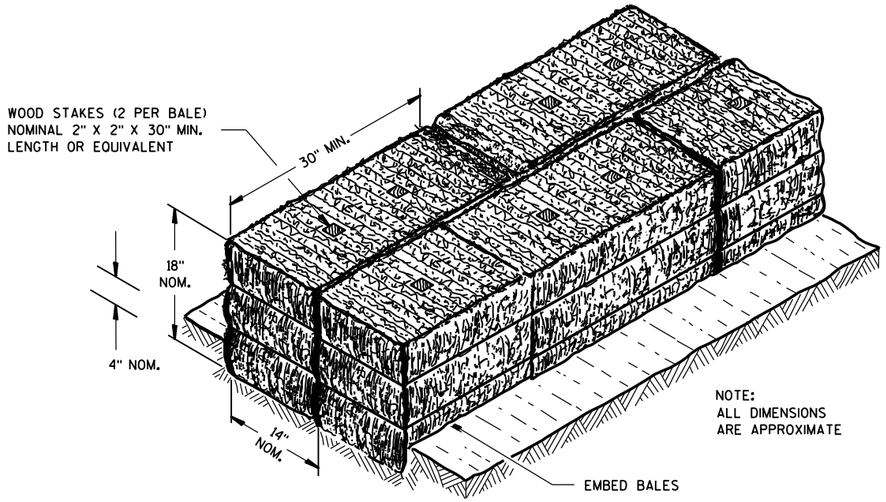
Note:

Do not use this SDD for Items 601.0199.s Concrete Curb Precast or 465.0310 Asphaltic Curb. Always include a special detail in the plan for these items. (See CADDS cell 9 or 10 in file CDCRBFTR.CEL and modify titles to match that of item 465.0310.)

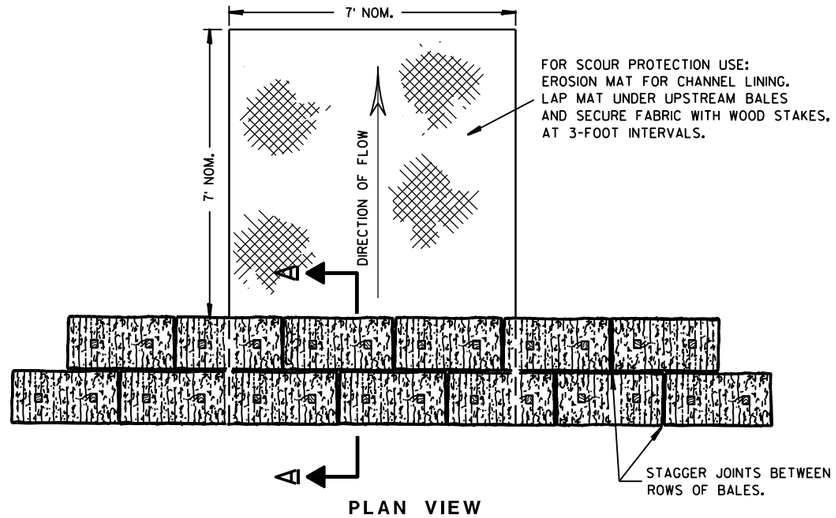
Contact Person:

Paul Vraney (608) 266-8486

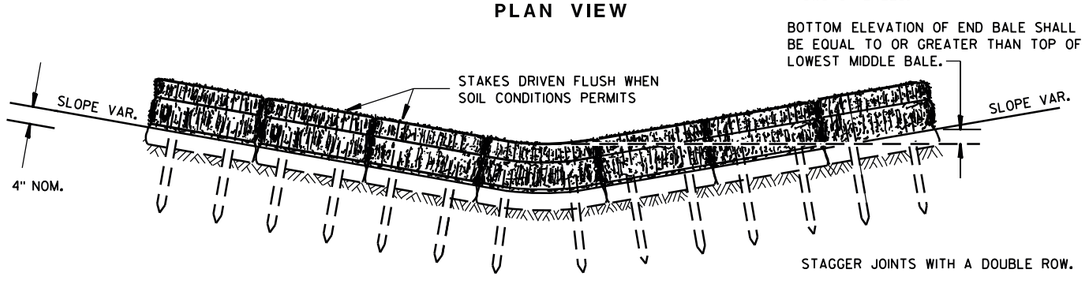
8E8: Typical Installations of Erosion Bales/Temporary Ditch Checks



SECTION A-A



PLAN VIEW



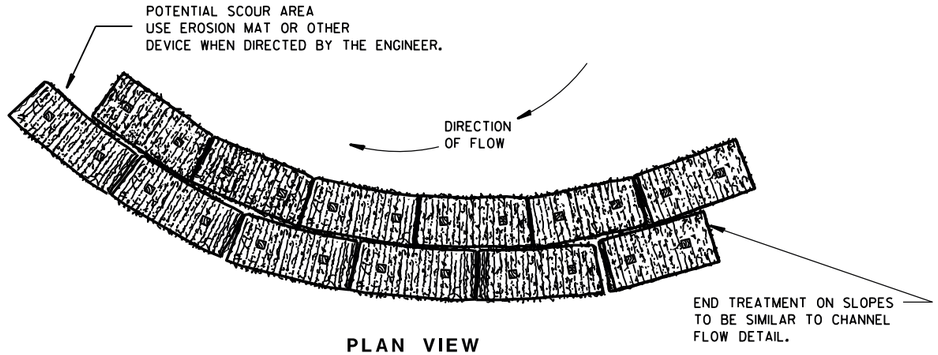
FRONT ELEVATION

TEMPORARY DITCH CHECK USING EROSION BALES (1)

GENERAL NOTES

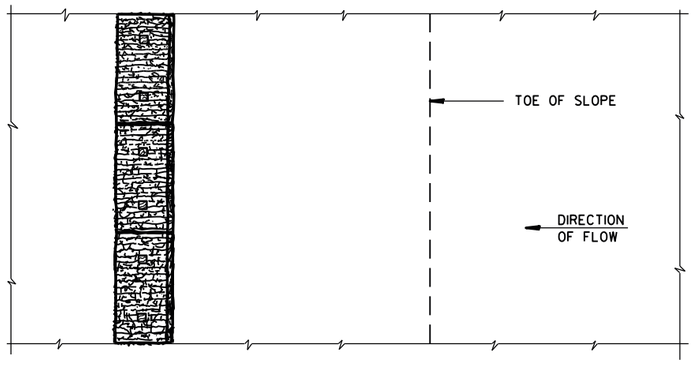
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

(1) TEMPORARY DITCH CHECKS EITHER EROSION BALES OR MANUFACTURED SHALL BE PAID FOR UNDER THE BID ITEM OF TEMPORARY DITCH CHECK. THE DEPARTMENT WILL NOT PAY FOR TEMPORARY DITCH CHECKS CONSTRUCTED OF A SINGLE ROW OF EROSION BALES.

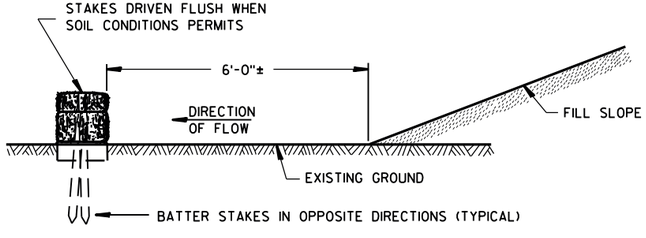


PLAN VIEW

WHEN ALTERING THE DIRECTION OF FLOW



PLAN VIEW



FRONT ELEVATION

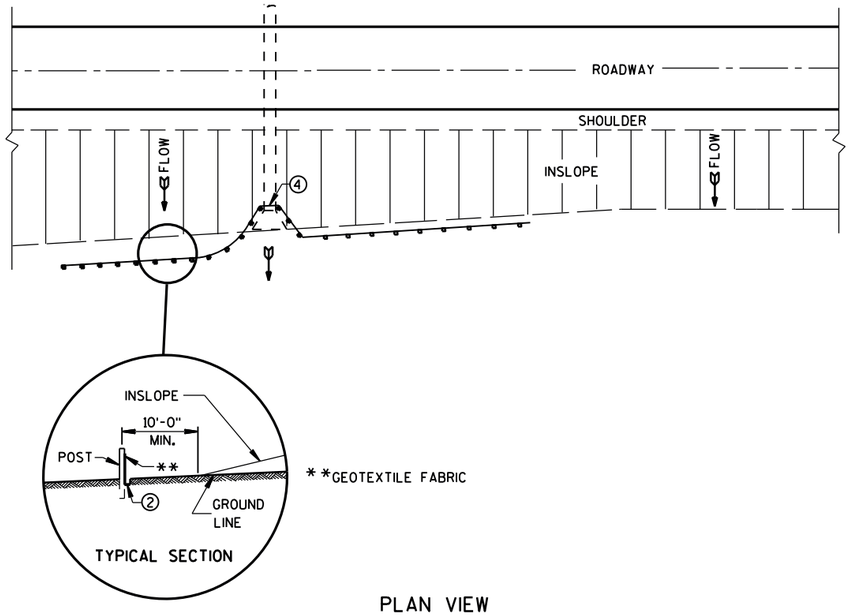
WHEN EXISTING GROUND SLOPES AWAY FROM FILL SLOPE

EROSION BALES FOR SHEET FLOW

TYPICAL INSTALLATIONS OF EROSION BALES / TEMPORARY DITCH CHECKS

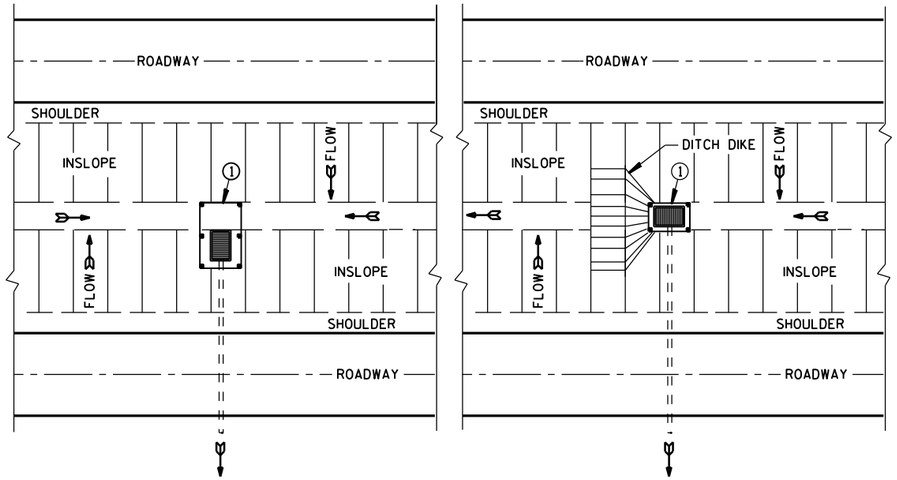
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
6/04/02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



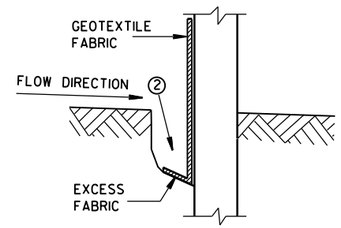
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

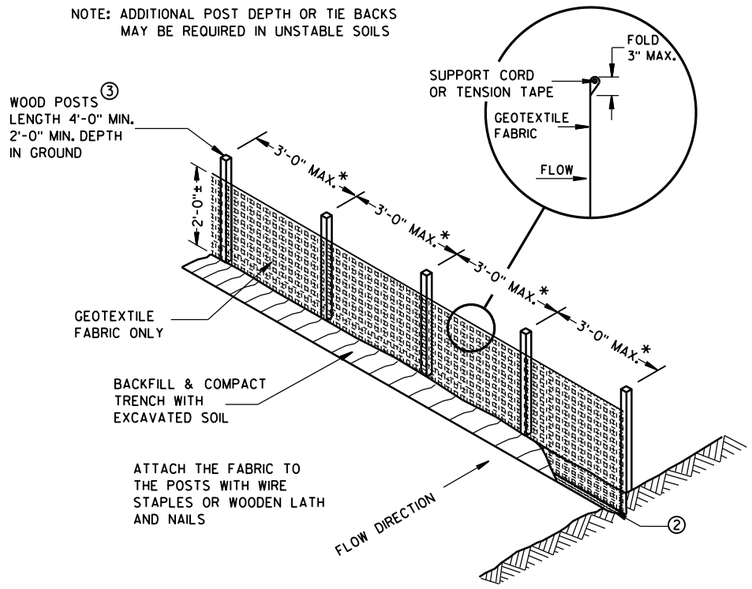
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

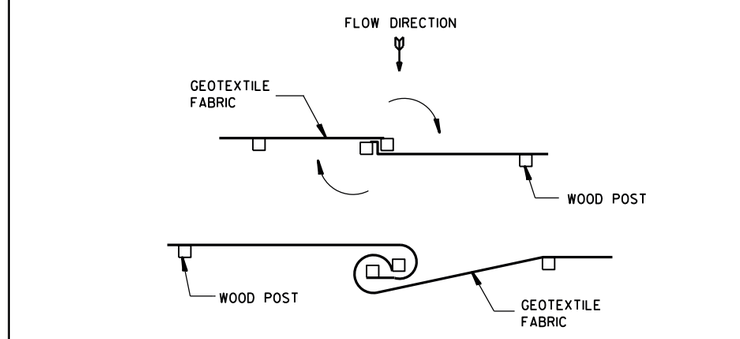


TRENCH DETAIL

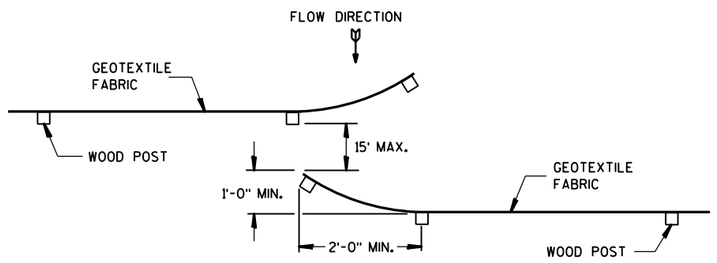


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

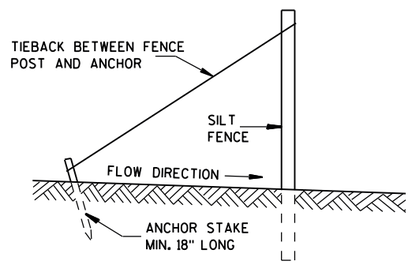


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

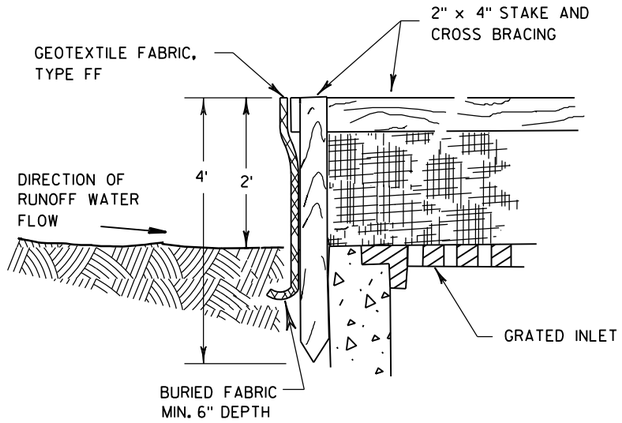
6

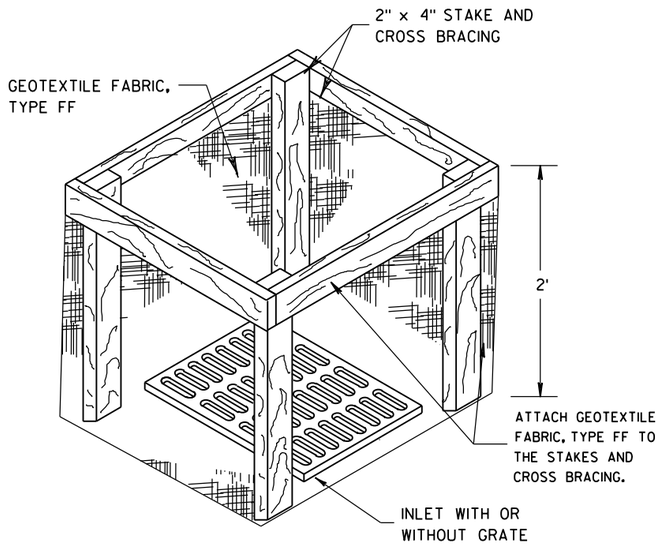
S.D.D. 8 E 9-6

6

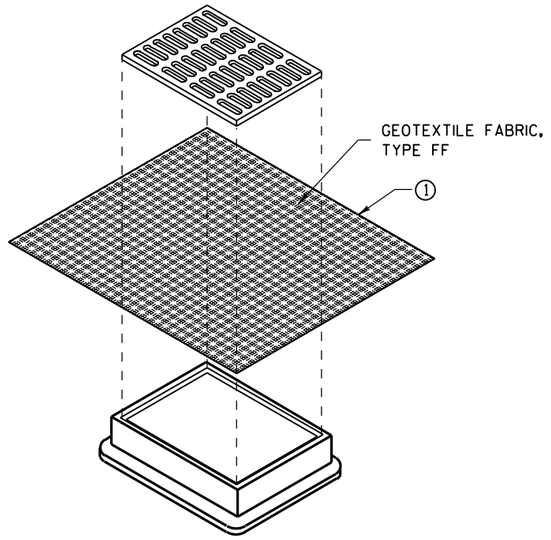
S.D.D. 8 E 9-6

8E10: Inlet Protection Type A, B, C and D



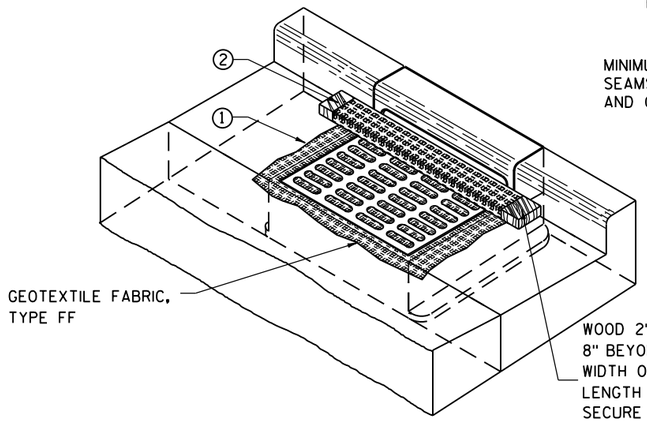


INLET PROTECTION, TYPE A

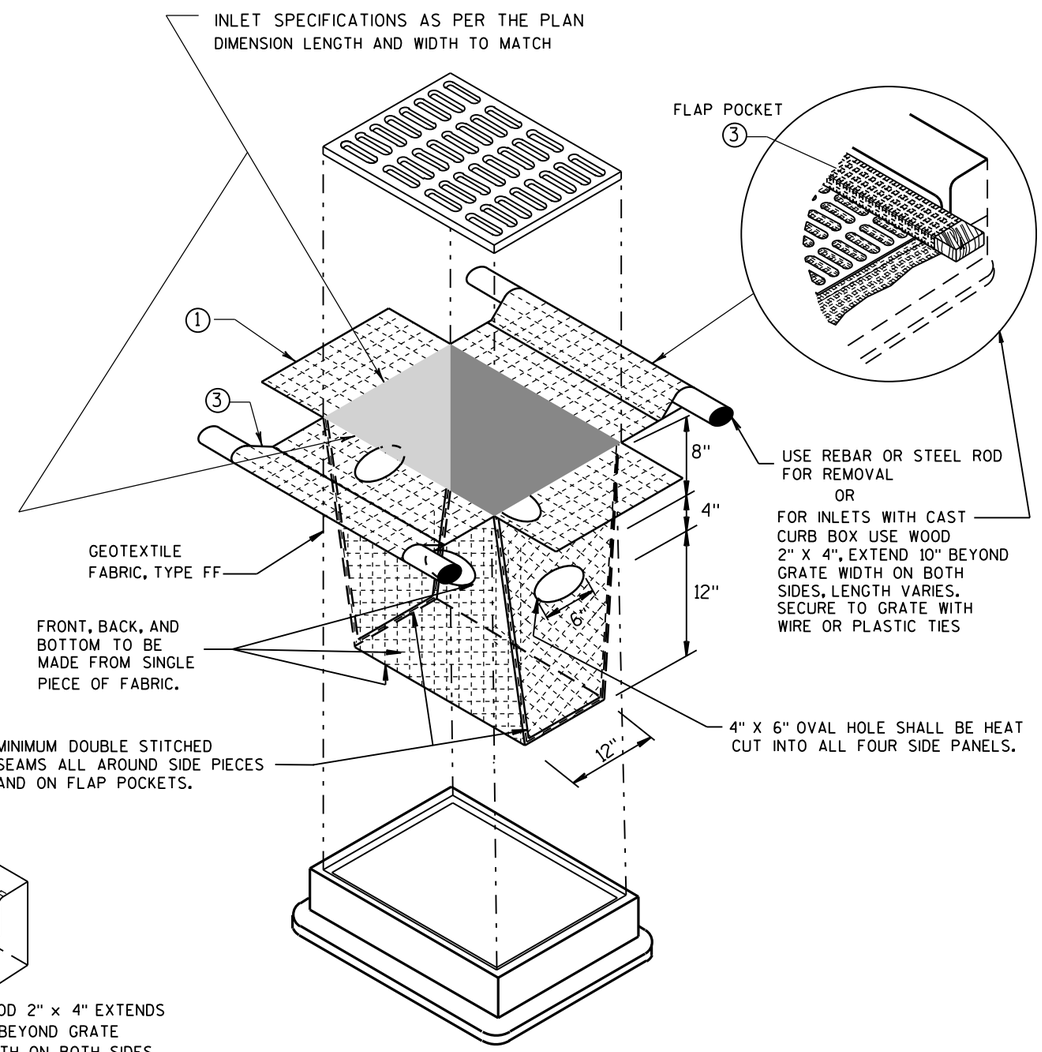


INLET PROTECTION, TYPE B (WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10-16-02 — DATE
/S/ Beth Cannestra — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 10-2

6

S.D.D. 8 E 10-2

Version 2 | **Standard Detail Drawing 8e10** | *April 18, 2003*

Inlet Protection Type A, B, C and D

References:

FDM 10-10-27

Bid items associated with this drawing:

ITEM NUMBER	DESCRIPTION	UNIT
628.7005	Inlet Protection Type A	EACH
628.7010	Inlet Protection Type B	EACH
628.7015	Inlet Protection Type C	EACH
628.7020	Inlet Protection Type D	EACH

Standardized Special Provisions associated with this drawing:

STSP NUMBER	TITLE
NONE	

Other SDDs associated with this drawing:

NONE

Design Notes:

See Wisconsin Department of Transportation's Product Acceptability List (PAL) for other inlet protection devices available. A copy of the PAL is available at http://www.dot.wisconsin.gov/business/engrserv/docs/pal.pdf.

Use inlet protection Type A where the wooden posts can be placed around the inlet box. Examples of such locations include median inlets, field inlets, yard drains, or curb inlet locations prior to the placement of curb and gutter.

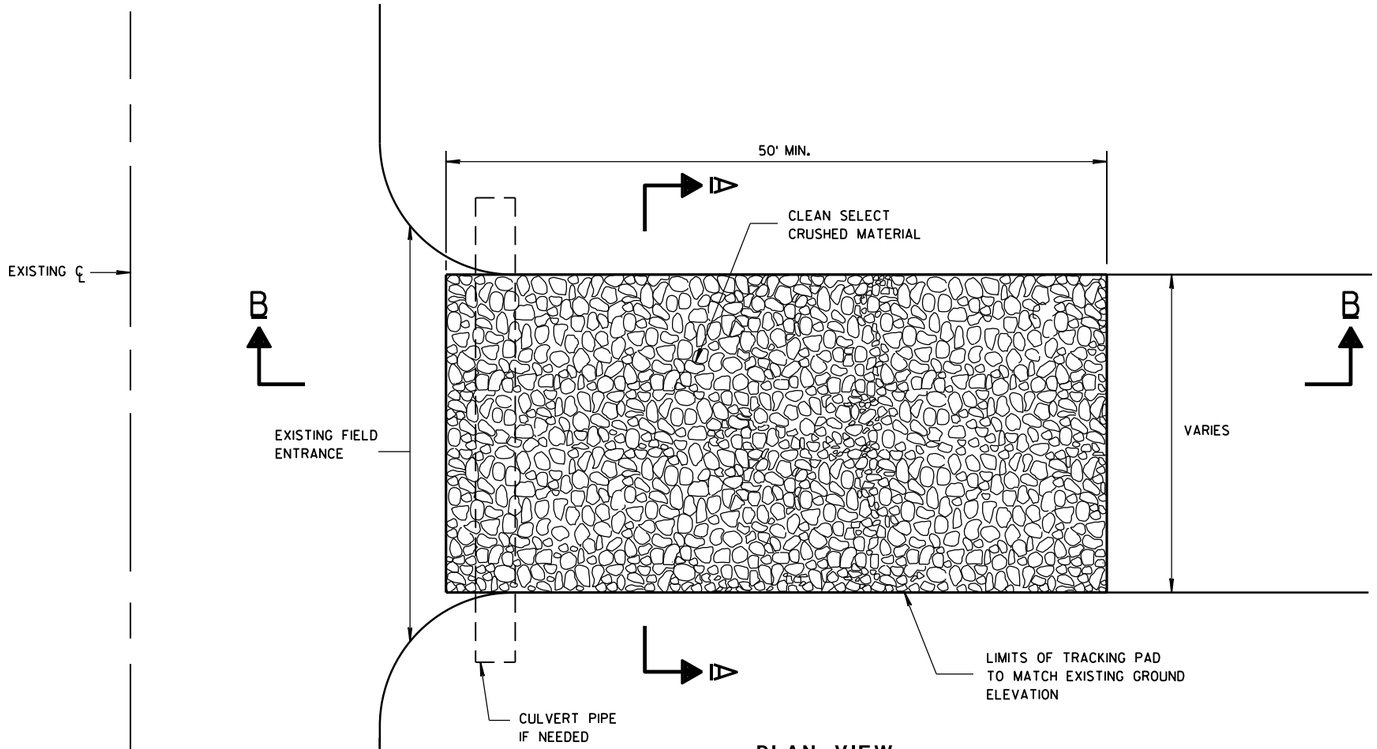
Inlet protection Type B or C may be used only after the inlet castings are in place. Most urban projects, with curb inlets will require both the bid item or inlet protection Type A and inlet protection Type C, at each inlet location, as the project progresses.

Inlet protection Type D is intended for locations where street flooding could pose safety hazards. Projects without parking lanes and locations where the inlets are on the low side of curves or the low points of vertical profiles should be evaluated for Type D inlet protection.

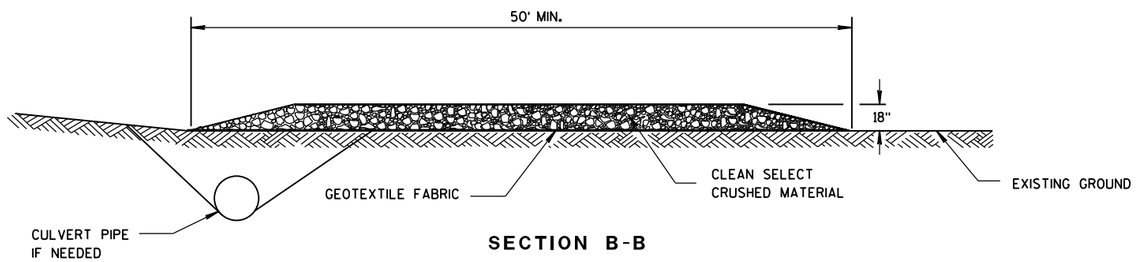
Contact Person:

Robert Armstrong (608) 267-3147

Robert Armstrong (608) 267-3147



PLAN VIEW



SECTION B-B

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

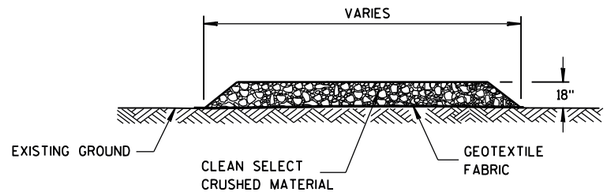
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A-A

TRACKING PAD

TRACKING PAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

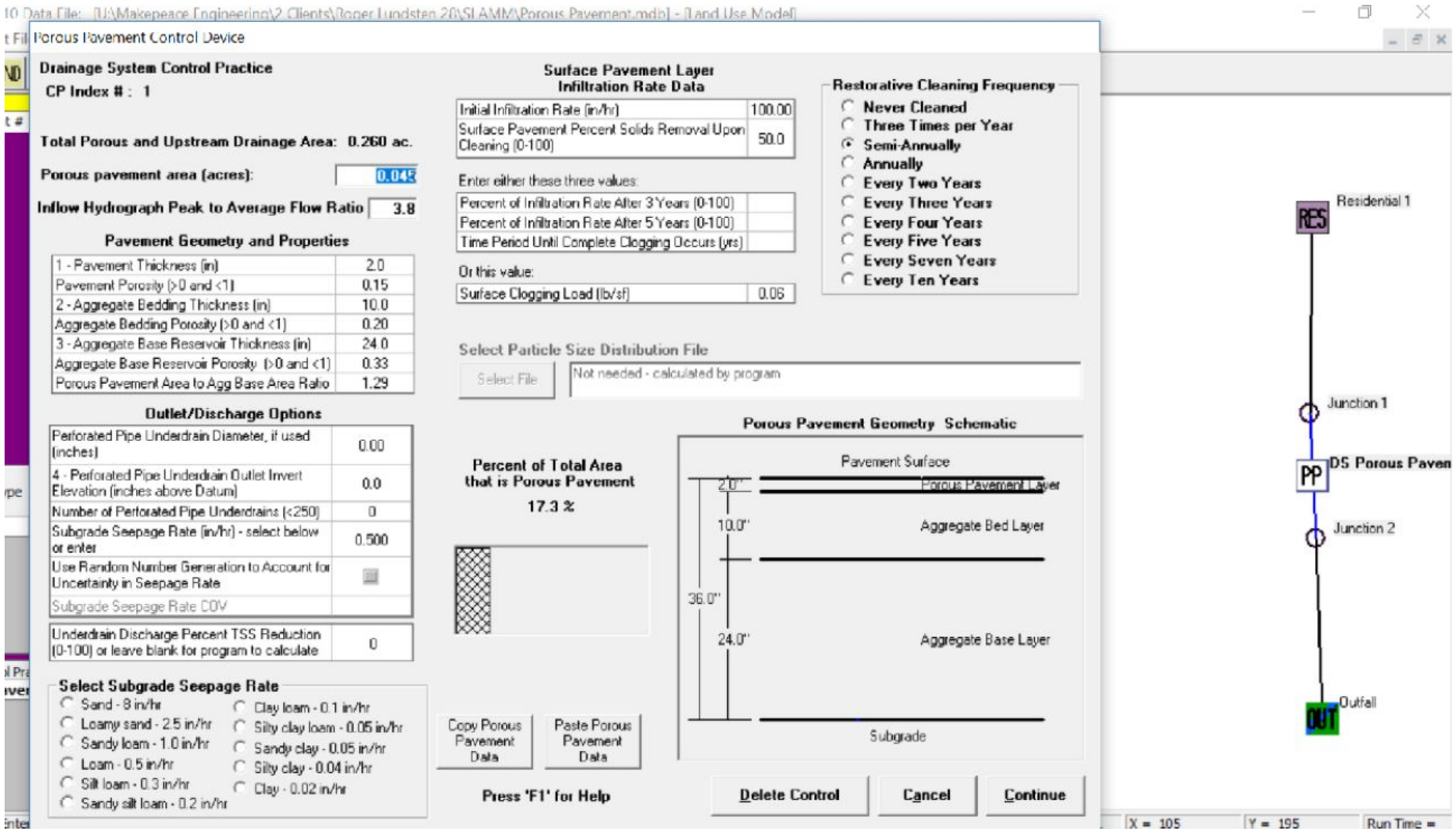
APPROVED
3-24-2011 — DATE
/S/ Jerry H. Zogg — ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA

6

S.D.D. 8 E 14-1

6

S.D.D. 8 E 14-1


Porous Pavement Control Device
Drainage System Control Practice
CP Index # : 1
Total Porous and Upstream Drainage Area: 0.260 ac.
Porous pavement area (acres): 0.045
Inflow Hydrograph Peak to Average Flow Ratio 3.8
Pavement Geometry and Properties
1 - Pavement Thickness (in) 2.0
Pavement Porosity (>0 and <1) 0.15
2 - Aggregate Bedding Thickness (in) 10.0
Aggregate Bedding Porosity (>0 and <1) 0.20
3 - Aggregate Base Reservoir Thickness (in) 24.0
Aggregate Base Reservoir Porosity (>0 and <1) 0.33
Porous Pavement Area to Agg Base Area Ratio 1.29
Outlet/Discharge Options
Perforated Pipe Underdrain Diameter, if used (inches) 0.00
4 - Perforated Pipe Underdrain Outlet Invert Elevation (inches above Datum) 0.0
Number of Perforated Pipe Underdrains (<250) 0
Subgrade Seepage Rate (in/hr) - select below or enter 0.500
Use Random Number Generation to Account for Uncertainty in Seepage Rate
Subgrade Seepage Rate COV
Underdrain Discharge Percent TSS Reduction (0-100) or leave blank for program to calculate 0
Select Subgrade Seepage Rate
Sand - 8 in/hr
Loamy sand - 2.5 in/hr
Sandy loam - 1.0 in/hr
Loam - 0.5 in/hr
Silt loam - 0.3 in/hr
Sandy silt loam - 0.2 in/hr
Clay loam - 0.1 in/hr
Silty clay loam - 0.05 in/hr
Sandy clay - 0.05 in/hr
Silty clay - 0.04 in/hr
Clay - 0.02 in/hr
Surface Pavement Layer Infiltration Rate Data
Initial Infiltration Rate (in/hr) 100.00
Surface Pavement Percent Solids Removal Upon Cleaning (0-100) 50.0
Enter either these three values:
Percent of Infiltration Rate After 3 Years (0-100)
Percent of Infiltration Rate After 5 Years (0-100)
Time Period Until Complete Clogging Occurs (yrs)
Or this value:
Surface Clogging Load (lb/sf) 0.06
Restorative Cleaning Frequency
Never Cleaned
Three Times per Year
Semi-Annually
Annually
Every Two Years
Every Three Years
Every Four Years
Every Five Years
Every Seven Years
Every Ten Years
Select Particle Size Distribution File
Select File
Not needed - calculated by program
Percent of Total Area that is Porous Pavement
17.3 %
Porous Pavement Geometry Schematic
Pavement Surface
2.0"
Porous Pavement Layer
10.0"
Aggregate Bed Layer
36.0"
24.0"
Aggregate Base Layer
Subgrade
Copy Porous Pavement Data
Paste Porous Pavement Data
Press 'F1' for Help
Delete Control
Cancel
Continue
Residential 1
RES
Junction 1
PP
DS Porous Paven
Junction 2
Outfall
OUT
X = 105
Y = 195
Run Time =

Porous Pavement - InputData

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\Porous Pavement.mdb
WinSLAMM Version 10.2.1
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 07/01/81 Study period ending date: 08/01/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 08-25-2017 Time: 13:50:33
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 0.260
  1 - Roofs 1: 0.148 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  13 - Paved Parking 1: 0.112 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Porous Pavement CP# 1 (DS) - DS Porous Pavement # 1
Porous pavement area (ac): 0.045
Inflow hydrograph peak to average flow ratio: 3.8
Porous pavement thickness (in): 2
Porous pavement porosity: 0.15
Aggregate bedding thickness (in): 10
Aggregate bedding porosity: 0.2
Aggregate base reservoir thickness (in): 24
Aggregate base reservoir porosity: 0.33
Porous pavement surface area to aggregate base area ratio: 1.29
Underdrain diameter (in): 0

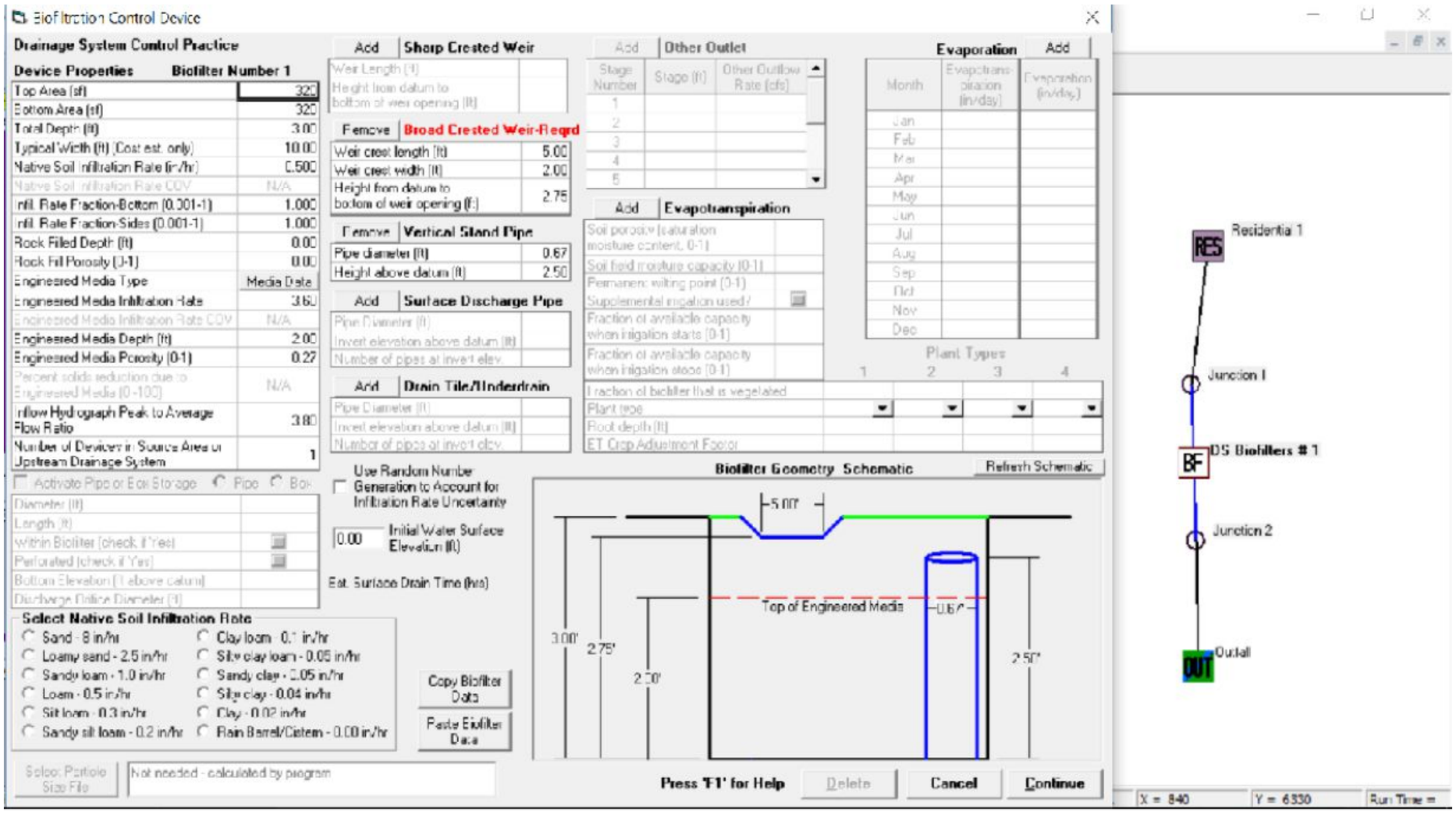
Porous Pavement - InputData

Underdrain outlet invert elevation (ft above datum): 0
Number of underdrains: 0
Subgrade seepage rate (in/hr): 0.5
Use random number generation to account for uncertainty in seepage rate: 0
Subgrade seepage rate COV: 0
Surface pavement initial infiltration rate (in/hr): 100
Surface Pavement Percent Solids Removal Upon Cleaning: 50
Porous pavement surface clogging load (lbs/sf): 0.06
Porous pavement restorative cleaning frequency: Semi-annually
TSS concentration reduction percentage through underdrain: 0
Porous pavement particle size distribution file name: Not needed - calculated by program

Porous Pavement - Output Summary

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\Porous Pavement.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 07/01/81 Model Run End Date: 08/01/81
Date of run: 08-25-2017 Time of run: 13:50:20
Total Area Modeled (acres): 0.260
Years in Model Run: 0.08

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	2632	-	75.49	12.40	-
Outfall Total with Controls:	0	100.00%	0	0	100.00%
Annualized Total After Outfall Controls:	0			0	


Biofiltration Control Device
Drainage System Control Practice
Device Properties Biofilter Number 1
Top Area (sf) 320
Bottom Area (sf) 320
Total Depth (ft) 3.00
Typical Width (ft) (Cost est. only) 10.00
Native Soil Infiltration Rate (in/hr) 0.500
Native Soil Infiltration Rate COV N/A
Infil. Rate Fraction-Bottom (0.001-1) 1.000
Infil. Rate Fraction-Sides (0.001-1) 1.000
Rock Filled Depth (ft) 0.00
Rock Fill Porosity (0-1) 0.00
Engineered Media Type Media Data
Engineered Media Infiltration Rate 3.60
Engineered Media Infiltration Rate COV N/A
Engineered Media Depth (ft) 2.00
Engineered Media Porosity (0-1) 0.27
Percent solids reduction due to Engineered Media (0-100) N/A
Inflow Hydrograph Peak to Average Flow Ratio 3.80
Number of Devices in Source Area or Upstream Drainage System 1
Activate Pipe or Box Storage Pipe Box
Diameter (ft)
Length (ft)
Within Biofilter (check if Yes)
Perforated (check if Yes)
Bottom Elevation (ft above datum)
Discharge Orifice Diameter (ft)
Select Native Soil Infiltration Rate
Sand - 8 in/hr
Loamy sand - 2.5 in/hr
Sandy loam - 1.0 in/hr
Loam - 0.5 in/hr
Silt loam - 0.3 in/hr
Sandy silt loam - 0.2 in/hr
Clay loam - 0.1 in/hr
Silty clay loam - 0.05 in/hr
Sandy clay - 0.05 in/hr
Silty clay - 0.04 in/hr
Clay - 0.02 in/hr
Rain Barrel/Cistern - 0.00 in/hr
Select Particle Size File
Not needed - calculated by program
Add Sharp Crested Weir
Weir Length (ft)
Height from datum to bottom of weir opening (ft)
Remove Broad Crested Weir-Reqrd
Weir crest length (ft) 5.00
Weir crest width (ft) 2.00
Height from datum to bottom of weir opening (ft) 2.75
Remove Vertical Stand Pipe
Pipe diameter (ft) 0.67
Height above datum (ft) 2.50
Add Surface Discharge Pipe
Pipe Diameter (ft)
Invert elevation above datum (ft)
Number of pipes at invert elev.
Add Drain Tile/Underdrain
Pipe Diameter (ft)
Invert elevation above datum (ft)
Number of pipes at invert elev.
Use Random Number Generation to Account for Infiltration Rate Uncertainty
0.00 Initial Water Surface Elevation (ft)
Est. Surface Drain Time (hrs)
Copy Biofilter Data
Paste Biofilter Data
Add Other Outlet
Stage Number
Stage (ft)
Other Outflow Rate (cfs)
Add Evapotranspiration
Soil porosity (saturation moisture content, 0-1)
Soil field moisture capacity (0-1)
Permanent wilting point (0-1)
Supplemental irrigation used?
Fraction of available capacity when irrigation starts (0-1)
Fraction of available capacity when irrigation stops (0-1)
Plant Types
1 2 3 4
Fraction of biofilter that is vegetated
Plant type
Root depth (ft)
ET Crop Adjustment Factor
Evaporation Add
Month
Evapotranspiration (in/day)
Evaporation (in/day)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Biofilter Geometry Schematic
Refresh Schematic
5.00'
Top of Engineered Media
0.67'
3.00'
2.75'
2.50'
2.50'
Press 'F1' for Help
Delete
Cancel
Continue
Residential 1
RES
Junction 1
DS Biofilters # 1
BF
Junction 2
Outfall
OUT
X = 840
Y = 6330
Run Time =

Front - InputData

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\Front.mdb
WinSLAMM Version 10.2.1
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 07/01/81 Study period ending date: 08/01/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 08-25-2017 Time: 14:05:04
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 0.088
  1 - Roofs 1: 0.062 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  31 - Sidewalks 1: 0.009 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  51 - Small Landscaped Areas 1: 0.017 ac. Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 320
2. Bottom aea (square feet) = 320
3. Depth (ft): 3
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1

9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 5
2. Weir crest width (ft): 2
3. Height of datum to bottom of weir opening: 2.75

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 0.67
2. Stand pipe height above datum (ft): 2.5

Front - Output Summary

SLAMM for Windows Version 10.2.1

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\Front.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 07/01/81 Model Run End Date: 08/01/81
Date of run: 08-25-2017 Time of run: 13:29:50
Total Area Modeled (acres): 0.088
Years in Model Run: 0.08

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	737.5	-	42.45	1.954	-
Outfall Total with Controls:	0	100.00%	0	0	100.00%
Annualized Total After Outfall Controls:	0			0	

WinSLAMM v 10 Data File: [U:\Makepeace Engineering\2 Clients\Roger Lundsten 2\SLAMM\West Side.mdb] - [Land Use Model]

Biofiltration Control Device

Drainage System Control Practice

Device Properties	Biofilter Number 1
Top Area (sf)	280
Bottom Area (sf)	280
Total Depth (ft)	3.50
Typical Width (ft) (Cost est. only)	10.00
Native Soil Infiltration Rate (in/hr)	0.500
Native Soil Infiltration Rate COV	N/A
Infil. Rate Fraction-Bottom (0.001-1)	1.000
Infil. Rate Fraction-Sides (0.001-1)	1.000
Rock Filled Depth (ft)	0.00
Rock Fill Porosity (0-1)	0.00
Engineered Media Type	Media Data
Engineered Media Infiltration Rate	3.60
Engineered Media Infiltration Rate COV	N/A
Engineered Media Depth (ft)	2.00
Engineered Media Porosity (0-1)	0.27
Percent solids reduction due to Engineered Media (0-100)	N/A
Inflow Hydrograph Peak to Average Flow Ratio	3.80
Number of Devices in Source Area or Upstream Drainage System	1

Activate Pipe or Box Storage Pipe Box

Diameter (ft)	
Length (ft)	
Within Biofilter (check if Yes)	
Perforated (check if Yes)	
Bottom Elevation (ft above datum)	
Discharge Orifice Diameter (ft)	

Select Native Soil Infiltration Rate

- Sand - 8 in/hr
- Loamy sand - 2.5 in/hr
- Sandy loam - 1.0 in/hr
- Loam - 0.5 in/hr
- Silt loam - 0.3 in/hr
- Sandy silt loam - 0.2 in/hr
- Clay loam - 0.1 in/hr
- Silty clay loam - 0.05 in/hr
- Sandy clay - 0.05 in/hr
- Silty clay - 0.04 in/hr
- Clay - 0.02 in/hr
- Rain Barrel/Cistern - 0.00 in/hr

Add **Sharp Crested Weir**

Weir Length (ft)	
Height from datum to bottom of weir opening (ft)	

Remove **Broad Crested Weir-Reqrd**

Weir crest length (ft)	5.00
Weir crest width (ft)	2.00
Height from datum to bottom of weir opening (ft)	2.50

Add **Vertical Stand Pipe**

Pipe diameter (ft)	
Height above datum (ft)	

Add **Surface Discharge Pipe**

Pipe Diameter (ft)	
Invert elevation above datum (ft)	
Number of pipes at invert elev.	

Add **Drain Tile/Underdrain**

Pipe Diameter (ft)	
Invert elevation above datum (ft)	
Number of pipes at invert elev.	

Use Random Number Generation to Account for Infiltration Rate Uncertainty

0.00 Initial Water Surface Elevation (ft)

Est. Surface Drain Time (hrs)

Copy Biofilter Data

Paste Biofilter Data

Add **Other Outlet**

Stage Number	Stage (ft)	Other Outflow Rate (cfs)
1		
2		
3		
4		
5		

Add **Evapotranspiration**

Soil porosity (saturation moisture content, 0-1)	
Soil field moisture capacity (0-1)	
Permanent wilting point (0-1)	
Supplemental irrigation used?	
Fraction of available capacity when irrigation starts (0-1)	
Fraction of available capacity when irrigation stops (0-1)	

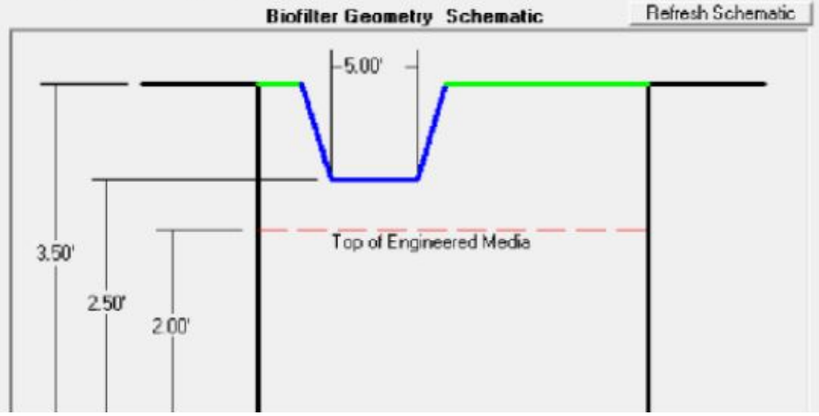
Evaporation Add

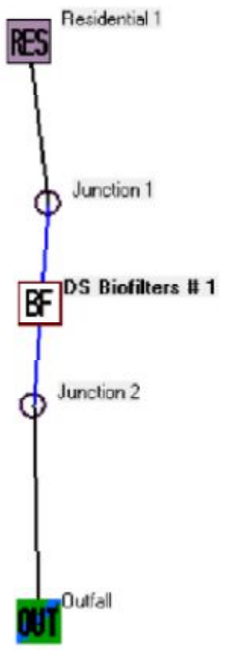
Month	Evapotranspiration (in/day)	Evaporation (in/day)
Jan		
Feb		
Mar		
Apr		
May		
Jun		
Jul		
Aug		
Sep		
Oct		
Nov		
Dec		

Plant Types

	1	2	3	4
Fraction of biofilter that is vegetated				
Plant type				
Root depth (ft)				
ET Crop Adjustment Factor				

Biofilter Geometry Schematic Refresh Schematic





Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\West Side.mdb
WinSLAMM Version 10.2.1
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 07/01/81 Study period ending date: 08/01/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 08-25-2017 Time: 13:45:13
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 0.113
  1 - Roofs 1: 0.038 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  13 - Paved Parking 1: 0.024 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  51 - Small Landscaped Areas 1: 0.051 ac. Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 280
2. Bottom aea (square feet) = 280
3. Depth (ft): 3.5
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1

9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

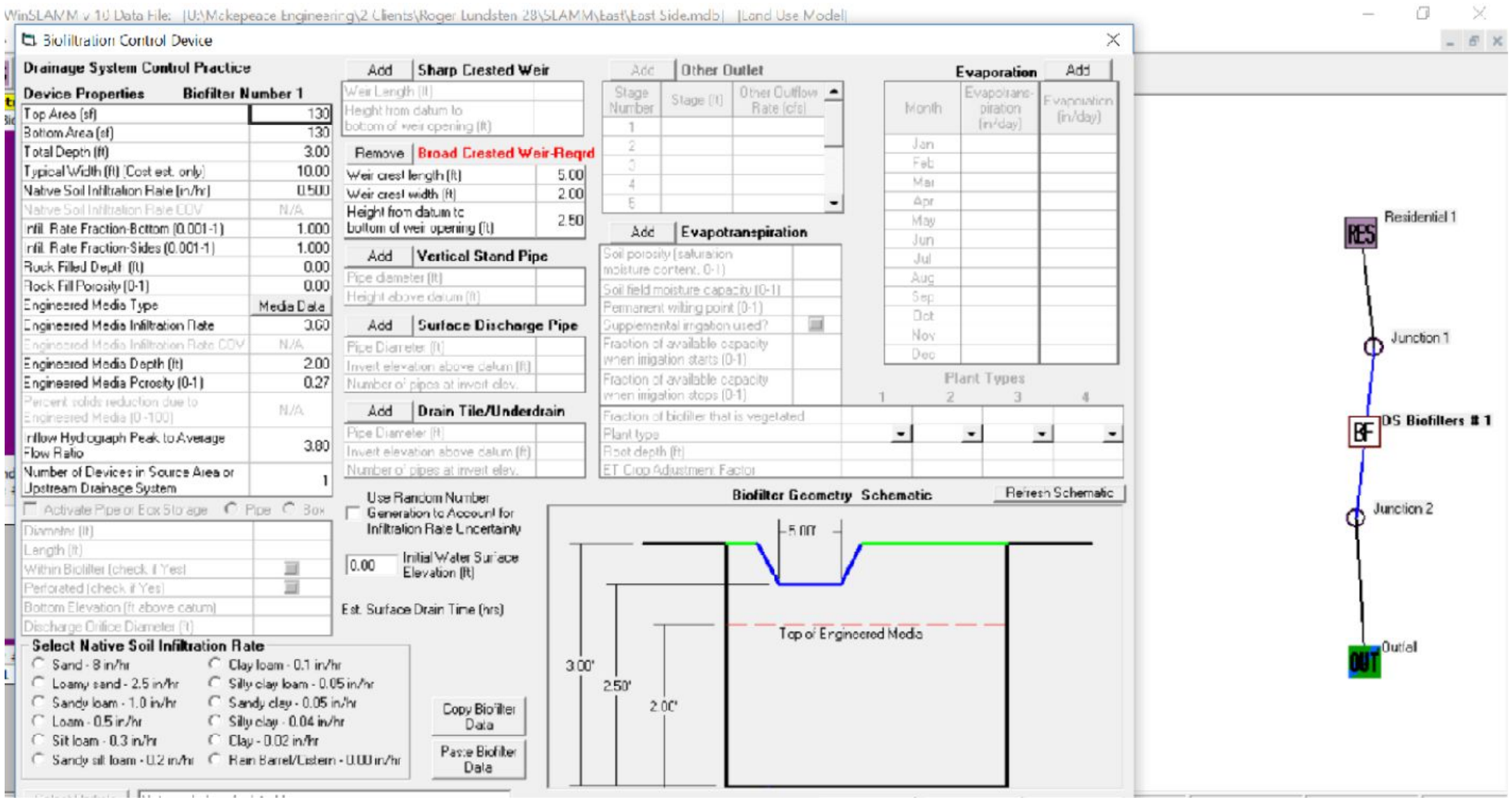
1. Weir crest length (ft): 5
2. Weir crest width (ft): 2
3. Height of datum to bottom of weir opening: 2.5

West Side - Output Summary

SLAMM for Windows Version 10.2.1

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\West Side.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 07/01/81 Model Run End Date: 08/01/81
Date of run: 08-25-2017 Time of run: 13:44:59
Total Area Modeled (acres): 0.113
Years in Model Run: 0.08

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	640.5	-	74.14	2.964	-
Outfall Total with Controls:	0	100.00%	0	0	100.00%
Annualized Total After Outfall Controls:	0			0	


WinSLAMM v 10 Data File: |U:\Mckepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\East\East Side.mdb| |Land Use Model|
Biofiltration Control Device
Drainage System Control Practice
Device Properties
Biofilter Number 1
Top Area (sf) 130
Bottom Area (sf) 130
Total Depth (ft) 3.00
Typical Width (ft) (Cost est. only) 10.00
Native Soil Infiltration Rate (in/hr) 0.500
Native Soil Infiltration Rate COV N/A
nfil. Rate Fraction-Bottom (0.001-1) 1.000
nfil. Rate Fraction-Sides (0.001-1) 1.000
Rock Filled Depth (ft) 0.00
Rock Fill Porosity (0-1) 0.00
Engineered Media Type Media Data
Engineered Media Infiltration Rate 3.00
Engineered Media Infiltration Rate COV N/A
Engineered Media Depth (ft) 2.00
Engineered Media Porosity (0-1) 0.27
Percent solids reduction due to Engineered Media (0-100) N/A
nflow Hydrograph Peak to Average Flow Ratio 3.80
Number of Devices in Source Area or Upstream Drainage System 1
Activate Pipe or Box Storage
Pipe
Box
Diameter (ft)
Length (ft)
Within Biofilter (check if Yes)
Perforated (check if Yes)
Bottom Elevation (ft above datum)
Discharge Orifice Diameter (")
Select Native Soil Infiltration Rate
Sand - 8 in/hr
Loamy sand - 2.5 in/hr
Sandy loam - 1.0 in/hr
Loam - 0.5 in/hr
Silt loam - 0.3 in/hr
Sandy silt loam - 0.2 in/hr
Clay loam - 0.1 in/hr
Silty clay loam - 0.05 in/hr
Sandy clay - 0.05 in/hr
Silty clay - 0.04 in/hr
Clay - 0.02 in/hr
Rain Barrel/Cistern - 0.00 in/hr
Copy Biofilter Data
Paste Biofilter Data
Add
Sharp Crested Weir
Weir Length (ft)
Height from datum to bottom of weir opening (ft)
Remove
Broad Crested Weir-Reqrd
Weir crest length (ft) 5.00
Weir crest width (ft) 2.00
Height from datum to bottom of weir opening (ft) 2.50
Add
Vertical Stand Pipe
Pipe diameter (ft)
Height above datum (ft)
Add
Surface Discharge Pipe
Pipe Diameter (ft)
Invert elevation above datum (ft)
Number of pipes at invert elev.
Add
Drain Tile/Underdrain
Pipe Diameter (ft)
Invert elevation above datum (ft)
Number of pipes at invert elev.
Use Random Number Generation to Account for Infiltration Rate Uncertainty
0.00
Initial Water Surface Elevation (ft)
Est. Surface Drain Time (hrs)
Add
Other Outlet
Stage Number
Stage (ft)
Other Outflow Rate (cfs)
1
2
3
4
5
Add
Evapotranspiration
Soil porosity (saturation moisture content, 0-1)
Soil field moisture capacity (0-1)
Permanent wilting point (0-1)
Supplemental irrigation used?
Fraction of available capacity when irrigation starts (0-1)
Fraction of available capacity when irrigation stops (0-1)
Fraction of biofilter that is vegetated
Plant type
Root depth (ft)
ET Crop Adjustment Factor
Plant Types
1
2
3
4
Evaporation
Add
Month
Evapotranspiration (in/day)
Evaporation (in/day)
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Biofilter Geometry Schematic
Refresh Schematic
5.00'
Top of Engineered Media
3.00'
2.50'
2.00'
Residential 1
RES
Junction 1
BF
DS Biofilters # 1
Junction 2
OUT
Outfall

East Side - InputData

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\East\East Side.mdb
WinSLAMM Version 10.2.1
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 07/01/81 Study period ending date: 08/01/81
Start of Winter Season: 12/02 End of Winter Season: 03/12
Date: 08-25-2017 Time: 13:47:29
Site information:

LU# 1 - Residential: Residential 1 Total area (ac): 0.066
  1 - Roofs 1: 0.028 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
  51 - Small Landscaped Areas 1: 0.038 ac. Normal Sandy Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 130
2. Bottom aea (square feet) = 130
3. Depth (ft): 3
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0

East Side - InputData

11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 2
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 5
2. Weir crest width (ft): 2
3. Height of datum to bottom of weir opening: 2.5

East Side - Output Summary

SLAMM for Windows Version 10.2.1

Data file name: U:\Makepeace Engineering\2 Clients\Roger Lundsten 28\SLAMM\East\East Side.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\Wisconsin 2 year 24 hour.ran
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Start of Winter Season: 12/02 End of Winter Season: 03/12
Model Run Start Date: 07/01/81 Model Run End Date: 08/01/81
Date of run: 08-25-2017 Time of run: 13:47:18
Total Area Modeled (acres): 0.066
Years in Model Run: 0.08

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	300.0	-	42.16	0.7896	-
Outfall Total with Controls:	0	100.00%	0	0	100.00%
Annualized Total After Outfall Controls:	0			0	

SOIL EVALUATION – STORM

in accordance with Comm. 82.365 & 85, Wis. Adm. Code

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direct and percent slope, scale or dimensions, north arrow, and BM referenced to nearest road.

County	
Parcel I.D.	
Reviewed by	Date

Please print all information

Personal information you provide may be used for secondary purposes (Privacy Law, s. 15.04 (1) (m)).

Property Owner				Property Location Gov. Lot 1/4 1/4 S T N R		
ThreeSixty Real Estate, LLC						
Property Owner's Mailing Address				Lot #	Block #	Subd. Name or CSM#
1243 Badger Street						
City	State	Zip Code	Phone Number	☒ City ☐ Village ☐ Town		Nearest Road
La Crosse	WI	54601	608-782-7368	La Crosse		

Drainage Area _____ ☐ sq. ft. ☐ acres

Optional:

Test Site Suitable for (Check all that apply)

☐ Irrigation ☐ Bio-retention trench ☐ Trench(es)

☐ Rain Garden ☐ Grassed swale ☐ Reuse

☐ Infiltration Trench ☐ SDS (>15' wide) ☒ Other

Hydraulic Application Test Method:

☒ Morphological Evaluation

☐ Double-Ring Infiltrometer

☐ Other (specify)

TP-1 Obs. # ☐ Boring ☒ Test Pit Ground Surface Elev. 674 Ft. Depth to limiting factor _____ in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
A	0-5	10YR 3/3	NONE	F.SL.	0.F.GR.	DL	GS	0	0.5
B	5-48	10YR 3/3	NONE	F.SL.	0.F.GR.	ML	GS	0	0.5
E	48-54	10YR 5/4	NONE	F.S.	0.F.GR.	ML	GS	0	0.5

TP-2 Obs. # ☐ Boring ☒ Test Pit Ground Surface Elev. 673 Ft. Depth to limiting factor _____ in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
B	0-37	10YR 3/3	NONE	F.SL.	0.F.GR.	ML	GS	0	0.5
E	37-67	10YR 5/4	NONE	F.S.	0.F.GR.	ML	GS	0	0.5

CST/PSS Name (Please Print)	Signature	CST/PSS Number
Brandon K. Wright	Brandon K Wright	1158379
Address	**Date Evaluation Conducted**	**Telephone Number**
2309 Palace Street, La Crosse, Wisconsin 54601	8/7/2017	608.781.7277

TP-3 Obs. #

☐ Boring
☒ Test Pit

Ground Surface Elev. 673.5 Ft. Depth to limiting factor _____ in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.
B	0-16	10YR 3/3	NONE	F.LS.	0.F.GR.	ML	GS	0	0.5
B	16-65	10YR 4/4	NONE	F.S.	0.F.GR.	ML	GS	0	0.5

Obs. #

☐ Boring
☐ Test Pit

Ground Surface Elev. _____ Ft. Depth to limiting factor _____ in.

Horizon	Depth (in.)	Dominate Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	Hydraulic App. Rate Inches/Hr.

Test Results and/or Summary Comments