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## INTRODUCTION

The following User Guide provides engineers and regulators the information necessary to develop and review pressure distribution calculations in accordance with the 2002 Title 5 Pressure Distribution Design Guidance (PDG) of the Massachusetts Department of Environmental Protection (MADEP). Engineers are also able to select Streamline<sup>TM</sup> pumps based on the calculated operating point of the system. It discusses the features and functionality of the Streamline<sup>TM</sup> pressure

distribution network design program and then provides step-by-step instructions on how to use the program.

The complete Miller Environmental Corp. approach to successful pressure distribution projects includes the Streamline<sup>TM</sup> software utility and providing system installation kits directly to contractors. These systems include all necessary components for system installation from the pump and force main to the manifold and predrilled distribution laterals. The distribution laterals are clearly marked and precisely drilled in a controlled environment for accuracy and quality control.



Miller Environmental Corp. has gone to great lengths to select and assemble high quality components for the Streamline<sup>TM</sup> system. This approach has been developed with the intention of making pressure distribution design, inspection and installation easier and more cost effective than ever before. Designers can specify Streamline<sup>TM</sup> installation kits by simply presenting the Streamline<sup>TM</sup> Design Calculate and Pump Curve forms on their plans.

All engineers using this program should be familiar with the Design Guidance for Pressure Distribution Networks, Massachusetts Department of Environmental Protection, 2002. This guidance can be accessed through the Streamline<sup>TM</sup> Help Menu. Click on MADEP Guide and the program will link to the MADEP Guidance on the web.

NOTE: You must have an internet connect to access the MADEP Guidance from Streamline<sup>TM</sup>. If you do not have an internet connection this guidance can be ordered from the State Bookstore at (617) 727-2834.

New users are encouraged to read and follow the Streamline<sup>™</sup> tips provided on the Streamline<sup>™</sup> tip bar, the blue text bar located just below the action buttons on the Streamline<sup>™</sup> data input and calculation form called the Design Calculate Form. The tip bar provides information associated with data input values and warns users when they should be checking their design against the requirements of the MADEP Guidance. There is a data input tip for each specific data input field on the Design side of the Streamline<sup>™</sup> Design/Calculation Form.





Streamline<sup>™</sup> is an engineering software program created to provide engineering professionals and regulators with a utility to make designing and reviewing pressure distribution networks quick and simple.

The program is a combination of two facilities. The first facility is the Design Calculation Form (Shown Right) where users input the critical design parameters required to design a pressure distribution network. Once data input for a specific project has been completed the user clicks on the "Calculate" button. The program then evaluates the input values for the project and presents the pressure distribution network calculations on the right side of the Design Calculate Form.

Help					
roject Information —					
Project: CS oject Engineering Firm: WV	W - SAGB VA				
Calculate	Display	Graph	Clear Calculation	Clear Proj	ect
reamline Tip: Enter the	design flo	w for the s	ystem (in accordance with 3'	10 CMR 15.0	10).
Design			Calculations		
Project Design Flow	1000	GPD	DISCHARGE RATES		_
OPIEICES	incos.	010	Orifice Flow Rate o	0.37	GPM
Distal In J ine Pressure:	4	FT	Lateral Flow Rate, Lo.	1.81	GPM
Distanti-Line Pressure.	0.125	IN IN	Suctor Flow Rote O	- 1.01 - E0	OPM
Total # of Orifices:	158	Each	System now wate, a		GPIW
Spacing:	5	FT.	HEAD LOSS	0.00	ET
Orientation:	12 and 6 C	Vele 💌	Force Mail	1. 0.09	F1.
Staggered?	Ves Yes		Fittings & Valve:	s: U.16	FT.
			Distribution Network	c 5.24	FT.
Dine Class	SCUD 90	-	Static Head	£ 14	FT.
Species:	3CHD. 00	ET	Total Dynamic Head	£ 21	FT.
Diameter:	2	EL.	SYSTEM DOSING		
Lenath (average):	48.25	FT	Delivery System Volum	e: 48	GAL.
Total # of Laterals:	32	Each	Distr. Network Volum	e: 252	GAL.
			Required Dose Volum	e: 1260	GAL.
FORCE MAIN	00110.00		Total Volume per Dos	e: 1560	GAL.
Pipe Class:	SCHD, 80		PUMP PARAMETERS		
Diameter (in inches):	4.00	▼ IN.	Flow	r: 58	GPM
Length:	43	FT.	Total Dynamic Head	* 21	FT.
			Doses / Day	e 1.10	
Pipe Class:	SCHD, 80	•	Pump Runtime / Dose	: 26.90	MIN.
Diameter (in inches):	3.00	▼ IN.	Pump Runtime / Day	/: 29.59	MIN
Length:	53	FT.	Streamline Pump	Selection	
			Pump: 2WF0732SL		
HEAD LUSSES					
90 Degree Elbows:	1				
45 Degree Elbows:	2				
Cheel: Vel	1				
Crieck Valves:	1				
Coupling / Quick Connect:					
Static Head	14	FT			
Additional Losses:	2	FT.			
		10.005			
DOSING	5.00	1021			
Hipe Volumes to Dose:	5.00				

THE STREAMLINE<sup>TM</sup> DESIGN AND CALCULATION FORM





	Catalog No	(S)ingle/(D)ual Seal	HP	VOLTS	PHASE	MAX AMPS	RPM	WGT
	2WF0311SL	S	1/3	115	1	10.7	1750	63
	2wF0318SL	S	1/3	208	1	6.8	1750	63
	2WF0312SL	S	1/3	230	1	4.9	1750	63
	2WF0511SL	S	1/2	115	1	14.5	1750	65
	2WF0518SL	S	1/2	208	1	8	1750	65
IUTAL D'INAMIC HEAD (FT.	70 60 50 40 20	×:55				<u> </u>	$\begin{array}{c} 1 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\$	WF03H5L WF05H5L WF10H5L WF15H5L WF15H5L WF20H5L PD5 O.P.
	10							

The second facility takes the calculated flow and total dynamic head, the operating point for the distribution system, and displays that on a Streamline<sup>TM</sup> pump curve in a separate window. From this window the engineer can select various Streamline<sup>TM</sup> pump curves to locate the one that best fits the specific pump operating point. The scroll-down table at the top of the pump curve lists all available Streamline<sup>TM</sup> pumps within specific pump groups and allows the engineer to select the individual pump that best suits each specific project.

#### THE STREAMLINE<sup>TM</sup> PUMP CURVE FORM

Once the system has been designed with Streamline<sup>™</sup> the user can easily create raster images of both the Design Calculate Form and the Pump Curve which can then be inserted into AutoCAD drawings resulting in complete plans with all information required by regulators for project approval.

Designers should be aware that additional requirements from local approving authorities may be required and it is their responsibility to research local regulations and bylaws prior to system design. Furthermore, this program has been developed to assist design engineers with designing pressure distribution systems with the ultimate operational responsibility of pressure distribution networks belonging to the system design engineer and the installing contractor and as such no liability or warrantees of any kind are either expressed or implied by Miller Environmental Corp. and its affiliates by providing this program to designers.





## INSTALLATION

Before you install Streamline, ensure that your computer meets the minimum system requirements presented below.

### MINIMUM SYSTEM REQUIREMENTS

The table below lists the minimum resources that are required to install the Streamline program.

Hardware/Software	Requirements
Operating System	Windows 2000
	Windows XP Home/Professional
Processor	Pentium 450 or Higher
	Equivalent Processor
RAM	128 MB (minimum)
Video	The Streamline program is functional on any video
	resolution setting from 800 x 600 and above
	however the printing facilities will not work properly
	for resolution less than 1280 x 1024. Refer to
	Instructions below to change screen resolution.
CD ROM Drive	Any speed (for installation only)

### CHANGING COMPUTER SCREEN RESOLUTION

To change the computer screen resolution begin by placing the mouse over the desktop and click the right mouse button.





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This will open a small window on the desktop as shown above. Highlight "Properties" and click the left mouse button. This will open the "Display Properties" window shown below. Click on the "Settings" tab and adjust the screen resolution by sliding the slide bar until the screen resolution is indicated as 1280 x 1024 and then click "OK". The screen will go blank for an instant while the screen resolution is adjusted and then Windows may ask you if you want to keep the screen settings. If so click "yes" otherwise the screen resolution has been changed.

Dr Crude EastMather MVS	Display Properties
Dr Coyle Exp:WhiteR Image: NYS Report   Spini132 Image: Resultation of the spining of the	Display Properties Image: Setting Survey Appearance Survey Appearance Setting Survey Appearance Survey Appearance Setting Survey Appearance Setting Survey Appearance Setting Survey Appearance Survey Appearance Setting Survey Appeara
Envelope TR-55 SETUP acadmap MI57104EN 27 Start 49 20 0 Sent Items - Microsoft O F Autodesk Land De	ssktop [   🛐 Autodesk Land Desktop [   🖃 ] 070602 - SL Instructions





### INSTALLING THE STREAMLINE PROGRAM



Installation of the Streamline<sup>™</sup> program is quick and simple. The Setup file of Type "Application" provided with your purchase will open a Setup Wizard that will guide you through the installation process. The following instructions will guide you through the Streamline<sup>™</sup> Setup Wizard installation screens.

First locate the Setup file provided to you when you purchased Streamline<sup>TM</sup>. Double click on this file to begin the installation process.

Depending on the security software running on the computer you may see a screen similar to the one shown to the right. If you do click "Run" to open the Streamline<sup>™</sup> Setup Wizard window shown below.









Click on "Next" once you have read the copyright message provided on this window. This will open the "Select Installation Folder" window shown below

The Streamline<sup>™</sup> Setup Wizard provides a default location to install the Streamline<sup>™</sup> program. If this is not the location where you want to install the program click "Browse" and you can browse for a Windows location to install the Streamline<sup>™</sup> program. Once the program installation location has been verified Click "Next".

Streamline	
Select Installation Folder	
he installer will install Streamline to the following folder.	
o install in this folder, click "Next". To install to a different folder, e	nter it below or click "Browse".
<u>F</u> older:	
C:\Program Files\Streamline\Streamline\	Browse
	Disk Cost







This opens a window that confirms your intentions to install the program. If you decide not to install the program at this time click "Cancel" and the Streamline<sup>TM</sup> Installation Wizard will end; if you want to change the location of program installation click "Back" and you will go to the previous window where you can change the installation location for the program. If you are ready to install the program click "Next"

The Streamline<sup>TM</sup> Installation Wizard will display a new window with a progress bar that will show you the progress of installation as the program is installed on your PC.

Installing Stream	line		
Streamline is being installed.			•••
Please wait			
		1	







Once the Streamline<sup>TM</sup> Installation Wizard has completed the installation a final window with the message "Installation Complete" will appear.

Click on "Close" to complete the installation process.





## **GETTING STARTED**

The figure shown to the right shows the basic generic requirements for all designs that are to be developed using Streamline<sup>™</sup>. These requirements include lateral and orifice spacing, length and width of the Soil Absorption System (SAS) and manifold requirements as shown.

It is recommended that engineers begin with a preliminary layout of individual systems similar to that shown above. This develops a foundation for entering data into the Streamline<sup>™</sup> program.



Once data from the preliminary layout is input into the Streamline<sup>™</sup> Design Calculate Form and the design is calculated the user is presented with the calculated design results for the system including, discharge rates, system head loss, system dosing and pump parameters for the system.

This begins an iterative process where the user can revise design input values to adjust calculated system values to fit the specific project

### OPENING THE STREAMLINE<sup>TM</sup> PROGRAM

When you install Streamline<sup>TM</sup> on your computer the Setup Wizard creates a shortcut on your desktop. The Streamline<sup>TM</sup> program can be opened by either double clicking on this icon or by accessing the program file through the Windows Start Menu ["Start" "All Programs" locate the "Streamline" folder then click on the Streamline program file].

### **ENTERING PROJECT DATA**

Either of these methods of opening the Streamline<sup>TM</sup> program will open the Design Calculate Form with all data input fields blank. This is where the user enters the input values for their preliminary distribution network design; the Streamline<sup>TM</sup> Tip Bar and the table below are provided to aid program users as they go through the data input process.



Simplifying Design and Installation of Pressure Distribution Networks for Onsite Wastewater Treatment Systems

Page 10



## DATA INPUT REFERENCE TABLE

Input Prompt	Input Value
Project Information	
Project:	Enter project title or identification
Engineer:	Enter name of engineer or engineering firm
Orifices	
Distal In-line Pressure:	This is the desired squirt height that the system will generate when charged by the pump specified in Streamline <sup>™</sup> . The Title 5 design guidance minimum is 2.5-feet. A minimum of 4-feet is recommended to provide adequate blow-out pressure at the perforation although the designer can select any distal in-line pressure provided it is at least 2.5-feet.
Diameter:	This is the desired orifice diameter. Input this value as a decimal reflecting orifice diameters within the MADEP allowable range of 0.125 (1/8") and 0.625 (5/8"). Smaller diameters result in lower orifices discharge rates; larger diameters result in higher orifice discharge rates.
Total # of Orifices:	Enter the total number of orifices for the pressure distribution network.
Spacing:	Enter orifice spacing up to the MADEP allowable maximum of 5-feet.
Orientation:	This is the desired orientation for orifices. Select 5 & 7 O'clock, 10 & 2 O'clock or 12 & 6 O'clock. Note that only an orientation of 5 & 7 O'clock can be installed without orifice shields.
Staggered?	Click the check box if the orifice locations will be staggered between laterals, as recommended by MADEP. Engineers may choose to not stagger orifice locations for designs that include trenches where staggering orifice locations between laterals does not affect system performance.





Input Value
Here the designer selects between Schedule 40 and
Schedule 80 PVC piping for the distribution
network laterals.
Enter the desired lateral separation distance. This
must be in compliance with 310 CMR 15.000.
Enter the diameter of the distribution laterals in
inches. The designer should refer to Figures 8A –
8G in the MADEP PDG.
Enter the lateral length. If the length of laterals
varies enter the average length of all laterals as this
value is used to calculate system volume for system
dosing parameters.
Enter the total number of laterals in the complete
distribution network.
Here the designer selects between Schedule 40 and
Schedule 80 PVC piping for the system force main.
Select the force main diameter from the drop down
menu.
Enter the full length of the force main.
Here the designer selects between Schedule 40 and
Schedule 80 PVC piping for the system manifold.
Select the manifold diameter from the drop down
menu. The designer should refer to Table 2 in the
MADELTDO.
Enter the length of the distribution manifold, the
distance between the first and fast distribution





Input Prompt	Input Value
Head Losses	
90 Degree Elbows:	Enter the quantity of 90° Elbows in the force main
45 Degree Elbows:	Enter the quantity of 45° Elbows in the force main
Tees:	Enter the quantity of Tees in the force main
Check Valves:	Enter the quantity of Check Valves in the force
	main
Coupling/Quick Connect:	Enter the quantity of Couplings in the force main
Gate Valves:	Enter the quantity of Gate Valves in the force main
Static Head:	Enter the static head for the pressure distribution
	net work. This will be equal to the distribution
	lateral invert elevation minus the elevation of the
	pump off switch.
Additional Losses:	Here the engineer can specify additional head for
	the system when all head losses for a system are not
	captured by head losses presented above.
Dosing	
Pipe Vol. to Dose:	Select the number of pipe volumes to dose from
	the drop down menu. This menu allows selection
	of pump volumes as recommended in the MADEP
	PDG.
Is system designed to drain back?	Click on the check box if the system is designed to
	drain back to the pump chamber. This allows for
	accurate dosing volume calculations.

## CALCULATE THE DESIGN

Once all of the data input values have been entered click the "Calculate" button at the top of the Streamline<sup>™</sup> Design Calculate Form. Streamline<sup>™</sup> uses the data input values to calculate the design parameters of the pressure distribution network and displays them on the right side of the Streamline<sup>™</sup> Design Calculate Form (See Streamline<sup>™</sup> Design Calculate Form below). Calculated values are shown in blue data fields that can not be edited by the user. These change only when design input values are changed and the "Calculate" button is clicked. Notice that a pump has not been selected for this design yet.





aisst Information —					
Oject Information	D				
Project: 🔐	Russell St etwater IA	reet, Plym Iternatives	outh, MA		
Joet Engineering rinn. 14	istrater p	icernative.	, riyinoudi, ma		
Calculate	Display	Graph	Clear Calculation	Clear Proj	ect
reamline Tip					
)esign			Calculations		
Project Design Flow:	220	GPD	DISCHARGE RATES		
ORIFICES			Orifice Flow Rate, c	1.: 1.47	GPM
Distal In-Line Pressure:	4	FT.	Lateral Flow Rate, Lo	17.5	GPM
Diameter:	.25	IN.	System Flow Rate, 0	a: 35	GPM
Total # of Orifices:	24	Each			
Spacing:	2	FT.	HEAD LOSS	in: 0.40	ET
Orientation:	5 and 7 0%	cloc 💌	Fittings 9 Vehic	0.40	г., ст
Staggered?	🔽 Yes		Fillings & valve	rs. U.36	F1.
LATERALS			Distribution Networ	ж. <u>5.24</u>	F1.
Pine Class	SCHD 80	+	Static Hea	id: 3.5	FT.
Spacing:	0	FT	Total Dynamic Hea	id: 10	FT.
Diameter:	15	гı. İN	SYSTEM DOSING		
Lenath (average):	25	FT	Delivery System Volur	ne: 15	GAL.
Total # of Laterals:	20	Each	Distr. Network Volur	ne: 5	GAL.
	-		Required Dose Volur	ne: 50	GAL.
FORCE MAIN		100	Total Volume per Do	se: 70	GAL.
Pipe Class:	SCHD, 80		PUMP PARAMETERS		
Diameter (in inches):	2.50	▼ IN.	Flow	w: 35	GPM
Length:	58.5	FT.	Total Dynamic Hea	id: 10	FT.
			Doses / Da	iy: 4.4	
Pipe Class:	SCHD. 80	-	Pump Runtime / Dos	e: 2.00	MIN.
Diameter (in inches)	2.00	▼ IN	Pump Runtime / Da	y: 8.80	MIN
Length:	2.00	FT.	Streamline Pumr	Selection	-
		00000	Pump:	, ociocion	
00 Deerse Eller	-				
45 Degree Elbows:	2		Notice: Pumr	) Not Selec	ted A
Tees	1				
Check Valves	1				
Coupling / Quick Connect:	2				
Gate Valves	1				
Static Head	35	ET.			
Additional Losses:	0	FT.			
DOSING					
	1912/12/27	1000			





## PUMP CURVES

Once the design has been calculated pump curves for various Streamline<sup>TM</sup> Pumps can be displayed by clicking the "Display Graph" button at the top of the Streamline<sup>TM</sup> Design Calculate Form.

This opens the Streamline<sup>™</sup> Pump Curve & Selection screen shown here. In this case, the default pump curve is suitable for the project design. If this had not been the case; i.e. the pumps could not support the calculated flow or head parameters another pump curve must be selected. This is done by clicking the drop down "Pump Group" menu arrow at the top of this form. From this Engineers can select different pump groups to find the one that best fits the calculated pump



operating point. If none of the curves provide a suitable pump option for the project, the designer should go back to the Design Calculate Form and change design parameters that will result in a calculated pump operating point that fits on one of the Streamline<sup>TM</sup> pump curves. This is an iterative process and designers should repeat the data input, design calculate, pump curve evaluation process until the design results in a pump selection that best fits the project.

	Catalog No	(S)ingle/(D)ual Seal	HP	VOLTS	PHASE	MAX AMPS	RPM	WGT =
•	2EC0311LSL	S	1/3	115	1	10.7	1750	56
	2EC0318LSL	S	1/3	208	1	6.8	1750	56
	2EC0312LSL	S	1/3	230	1	4.9	1750	56
	2EC0311SL	S	1/3	115	1	10.7	1750	56
	2EC0318SL	S	1/3	208	1	6.8	1750	56

Once a suitable pump curve has been established the designer can select a Streamline<sup>TM</sup>





pump for the project using the pump catalog table located directly above the pump curve. From the pump curve the designer identifies the appropriate pump that best fits the project. This is done using the color code of the pump curve and matching it to a pump model in the pump curve legend. Using that model number the designer can then go to the scroll down pump selection table and select a pump with a catalog number that matches the pump model number and pump specifications (Seal, HP, Volts, Phase, Amps and RPM) that best fit the project.

When the designer locates an appropriate pump they can select it for the project by double clicking that catalog item in the scroll down pump selection table. This pump selection now shows in the Streamline<sup>TM</sup> Pump Selection field located at the bottom of the Calculations side of th Design Calculate Form as shown here.

This completes the design process and the pressure distribution network calculation and pump curves are ready for regulatory approval and project construction.

Project Information Project: 11 roject Engineering Firm: Wa	Russell Stree astwater Alter	et, Plymo matives	outh, MA , Plymouth, MA		
Calculate	Display Gr	aph	Clear Calculation	Clear Proj	ect
Streamline Tip					
Design			Calculations		
Project Design Flow:	220 GF	PD	DISCHARGE RATES		
ORIFICES			Orifice Flow Rate, q.	: 1.47	GP
Distal In-Line Pressure:	4 FT		Lateral Flow Rate, Lq.	17.5	GP
Diameter:	.25 IN.		System Flow Rate, Q	: 35	GP
Total # of Orifices:	24 Ea	ch	HEAD LOSS		
Spacing:	2 FT		Force Main	. 0.48	FT
Orientation:	5 and 7 O'cloc	*	Fittings & Valves	0.38	FT
Staggered?	I✔ Yes		Distribution Network	5.24	FT
LATERALS			Static Head	35	FT
Pipe Class:	SCHD. 80 🍷		Total Dynamic Head	10	FT
Spacing:	0 FT				
Diameter:	1.5 IN.		Delivery System Value	. 15	~
Length (average):	25 FT	ł	Delivery System Volume	s. 10	0
Total # of Laterals:	2 Ea	ich	Beguired Dose Volume	s. 0	GA
FORCE MAIN			Totel Volume per Dose	s. 30	GP
Pipe Class:	SCHD. 80 -			. 10	- Vr
Diamater (in inches):	250 *	IN	PUMP PARAMETERS	25	~
Length:	EO E ET		Total Dypamic Head	. 30	FT
Lengin.	00.0 FT	<u>×</u>	Dores (Day	. 10	
MANIFOLD			Pump Runtime / Dose	2.00	Mi
Pipe Class:	SCHD. 80 *		Pump Runtime / Day	8.80	MI
Diameter (in inches):	2.00 *	IN.		<u>( 7.45</u>	
Length:	0 FT	÷.	Streamline Pump	Selection	-
HEAD LOSSES		- i	Pump: 2EC0311LSL		
90 Degree Elbows:	2				
45 Degree Elbows:	2		Notice: Pump	Selected	d A
Tees:	1				
Check Valves:	1				
Coupling / Quick Connect:	2				
Gate Valves:	1				
Static Head:	3.5 FT	2			
Additional Losses:	0 FT	ł.			
DOSING					
Pipe Volumes to Dose:	10.00 💌				
Is system designed to dr	ain back?	Yes	Copyright (c) 2006 - 2	007, Streamline	





## SAVE YOUR PROJECT

Once the design is complete the project should be saved for future retrieval and use. This is done by clicking the "File" menu, highlighting the "Save" menu and then clicking on the "Save Project" facility.

ile <u>H</u> elp						
Open	tion					
Save		Save Project				
Print		Save <u>G</u> raph a	as "Raster"			
	- 3	Save <u>D</u> esign	& Calc as "Ra	aster"	Class Desi	-
Project De	sign Flow:	220	GPD	DISCHARGE RATES	: 1.47	GPM
ORIFICES -						
ORIFICES Distal In-Line	Pressure:	4	FT.	Lateral Flow Rate, Lq.	17.5	GPM
ORIFICES Distal In-Line	Pressure: Diameter:	4	FT. IN.	Lateral Flow Rate, Lq. System Flow Rate, Q	17.5 35	GPM GPM
ORIFICES Distal In-Line Total # (	Pressure: Diameter: of Orifices: Spacing: Drientation:	4 .25 24 2 5 and 7 0'	FT. IN. Each FT.	Lateral Flow Rate, Lq. System Flow Rate, Q HEAD LOSS Force Main Fittings & Valves	17.5 35 0.48	GPM GPM FT.



This opens the "save File" screen. Select the location where you want to save the file, enter a unique filename for the project file in the "Filename" field and click "Save".







Now this project can be opened by selecting "Open" from the "File" menu, selecting the file and clicking the "Open" button. It can also be accessed directly by double clicking on that file from the My Computer or Windows Explorer file browsers.







# **PRINT YOUR PROJECT**

Streamline<sup>TM</sup> offers two facilities to print the Design Calculation Form and Pump Curve.

The first facility allows users to print the forms directly to a system printer. To do this, click on "Print" under the "File" menu. This drops down a menu that allows the designer to print the

Design 💲 Streamline - Pressure Distribution Calculation Utility Calculation \_ 8 × File Help Form, the Open tion Pump Curve Save ject: 11 Russell Street, Plymouth, MA . or both the th. MA Design Print . Print All Calculation Print Graph Form Exit Calculation **Clear Project** Print Design & Calc Form Form and Streamline Tip Pump Curve Design Calculations by selecting DISCHARGE RATES Project Design Flow: 220 GPD "Print All". Orifice Flow Rate, q. : 1.47 GPM ORIFICES Lateral Flow Rate, Lq. : 4 FT. 17.5 GPM Distal In-Line Pressure: 25 IN. Diameter System Flow Rate, Q : 35 GPM 24 Each Total # of Orifices: HEAD LOSS 2 FT. Spacing: 0.48 FT. Force Main: Orientation: 5 and 7 O'cloc -Fittings & Valves; 0.38 FT. Staggered? 🔽 Yes Distribution Network 5.24

The other Streamline<sup>™</sup> reproduction option allows designers to create raster images of the Design Calculation Form and Pump Curve for insertion into AutoCAD drawings. To do this, click on

ile <u>H</u> elp							
Open	tion				- 1.e		
Save 🕨	Save Project						
Print 🕨	S	Save <u>G</u> raph as "Raster"			1		
Exit	Save <u>D</u> esign & Calc as "Ras			aster"	ter"ulation Cle		
Streamline Tip .	27			Colou	lations		
Design				Calcu	auons		
Project Des	ign Flow:	220	GPD	DISCHA	ARGE RATES		_
ORIFICES				] Ori	fice Flow Rate, i	q.: 1.4	C GPM
	Distal In-Line Pressure:		FT.	Late	ral Flow Rate, L	<mark>पःः १</mark> ७.	5 GPM
Distal In-Line F	ressure.				System Flow Rate, Q :		A CONTRACTOR OF STREET
Distal In-Line F	Diameter:	.25	IN.	Sys	tem Flow Rate,	Q: 3	5 GPM
Distal In-Line F	Diameter: Orifices:	.25 24	IN. Each	Sys	tem Flow Rate,	Q: 3	5 GPM
Distal In-Line F	Diameter: Orifices: Spacing:	.25 24 2	IN. Each FT.	Sys	tem Flow Rate,	Q: 3	5 GPM
Distal In-Line F Total # of Or	Diameter: Orifices: Spacing: ientation:	.25 24 2 5 and 7 O	IN. Each FT.	Sys	tem Flow Rate, OSS Force Ma	Q: 3	5 GPM 8 FT.
Distal In-Line F Total # of Or St	Diameter: Orifices: Spacing: ientation: aggered?	.25 24 2 5 and 7 O' Ves	IN. Each FT. cloc *	Sys HEAD L	tem Flow Rate, LOSS Force Ma Fittings & Valv	Q: 3 ain: 0.4 es: 0.3	5 GPM 8 FT. 8 FT.

"Save" under the "File" menu. This opens a drop down list that allows the designer to save the project to disk or save the Design Calculation Form and/or the Pump Curve to a raster image. These images

are saved to disk as jpeg files which can be inserted into AutoCAD drawings through the AutoCAD image manager. Designers can specify Streamline<sup>TM</sup> installation kits by simply presenting the Streamline<sup>TM</sup> Design Calculate and Pump Curve forms on their plans.







### STREAMLINE<sup>™</sup> HELP & SUPPORT

Designers will find the following facilities under the Streamline<sup>™</sup> Help menu:

MADEP Guide	Selecting this option will open the 2002 Title 5 Pressure Distribution Design Guidance on the Massachusetts Department of Environmental Protection website provided the computer has an internet connection.
	Engineers and designers are encouraged to reference this document frequently and especially to verify the diameters of Distribution network manifolds and laterals.
Streamline <sup>™</sup> Home Page	Selecting this option will link the user to the home web page of Miller Environmental Corp. a Streamline <sup>TM</sup> program developer and distributor.
About	Selecting this option opens an informational window with Streamline <sup>TM</sup> copyright and development information.

For additional Streamline<sup>TM</sup> support or to order Streamline<sup>TM</sup> installation kits call Miller Environmental Corp.; they can be reached by phone, fax or e-mail:

Miller Environmental Corp. 608 Spring Street, East Bridgewater, MA 02333 p. 508-378-3800 f. 508-378-2411 info@millerenvironmentalinc.com

