

RASPLOT Version 3.0

User Guide

April 2015

Table of Contents

1.	INTRODUCTION	1
2.	SYSTEM REQUIREMENTS	1
3.	INSTALLATION AND SETUP	2
4.	OPENING FILES AND ADDING DATA	3
4.1	OPENING HEC-RAS FILES	3
4.2	OPENING EXISTING RASPLOT DATABASES.....	7
4.3	CONVERTING PREVIOUS RASPLOT DATABASE VERSIONS	8
4.4	CREATING A BLANK RASPLOT DATABASE.....	11
4.5	SELECTING PROFILES	13
4.6	ADDING A FLOOD FREQUENCY	14
5.	EXTRACTING DATA FROM HEC-RAS	18
5.1	USING NODE NAMES	20
5.2	MULTIPLE RIVER REACHES.....	22
5.3	UNDERSTANDING THE PROFILE TABLE	23
6.	EDITING FLOOD PROFILE INPUT DATA	28
6.1	ADDING BACKWATER INFORMATION.....	28
6.2	EDITING THE PROFILE TABLE.....	29
6.3	EDITING THE LANDMARK TABLE	33
6.4	VIEWING AND EDITING THE FLOODWAY TABLE.....	37
6.5	PANELING/PLOTTING.....	39
7.	CREATING, EDITING AND EXPORTING DXF FLOOD PROFILES	45
7.1	CREATING A DXF PROFILE	46
7.2	THE DXF EDITOR	48
7.3	PRINTING DXF PROFILES.....	58
7.4	EXPORTING DXF PROFILES	60
8.	CREATING, EDITING AND EXPORTING FLOODWAY DATA TABLES (FDTs)	62
8.1	CREATING FDTs	62
8.2	GENERATING AND EXPORTING FDTs	66
8.3	PRINTING FDTs	68
9.	MERGING MULTIPLE PDF PROFILE OR FDT SETS	69
10.	EXPORT TO FIRM DATABASE-COMPATIBLE FORMAT	72
11.	IMPORT DATA FROM FIRM DATABASE	78
	APPENDIX A: ACRONYMS	84

1. Introduction

RASPLOT is a computer program created by the Federal Emergency Management Agency (FEMA), originally developed to allow users to create flood profiles through the automatic extraction of data from Hydrologic Engineering Centers River Analysis System (HEC-RAS) hydraulic modeling files. Flood profiles are required for inclusion in the Flood Insurance Study (FIS) reports which usually accompany the Flood Insurance Rate Map (FIRM) for communities participating in FEMA's National Flood Insurance Program.

RASPLOT Version 3.0 includes additional features, including:

- A Floodway Data Table (FDT) Creation Tool which allows users to create FIS report FDTs.
- A Batch Portable Document Format (PDF) Generation Tool to allow for batch printing.
- Functionality to allow for the exchange of data between the program and FIRM database tables.

Note that RASPLOT is designed to be used after a HEC-RAS model has been thoroughly reviewed for quality and accuracy by a qualified engineer. The products generated by RASPLOT are only as good as the data inputted into the program.

2. System Requirements

The following system hardware requirements apply in order for RASPLOT 3.0 to be fully functional:

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor.
- 1 gigabyte (GB) Random Access Memory (RAM) (32-bit) or 2 GB RAM (64-bit).
- 16 GB available hard disk space (32-bit) or 20 GB (64-bit).
- Video Graphics Array (VGA) or above display type.
- Printer capable of printing 11"x17" sheets in black and white (in order to print profiles to scale).

The following software requirements apply in order for RASPLOT 3.0 to be fully functional:

- A Windows 7 or 8 operating system must be installed on the computer.
- The U.S. Army Corps of Engineers' HEC-RAS program, version 4.1.0 must be installed on the computer. *(Note that HEC-RAS project files created from earlier versions of HEC-RAS can be used in RASPLOT. However, in order for the program to function correctly, HEC-RAS version 4.1.0 must be installed.)*
- Adobe Reader or equivalent must be installed for viewing PDF files.

3. Installation and Setup

After insuring your computer meets the system and software requirements noted above, double click on the RASPLOT 3.0 Setup.exe file and follow the directions on the screen to install the program.

Administrative privileges will be needed in order to perform this operation. The default installation location is: C:\Program Files (x86)\FEMA\RASPLOT v3.0.

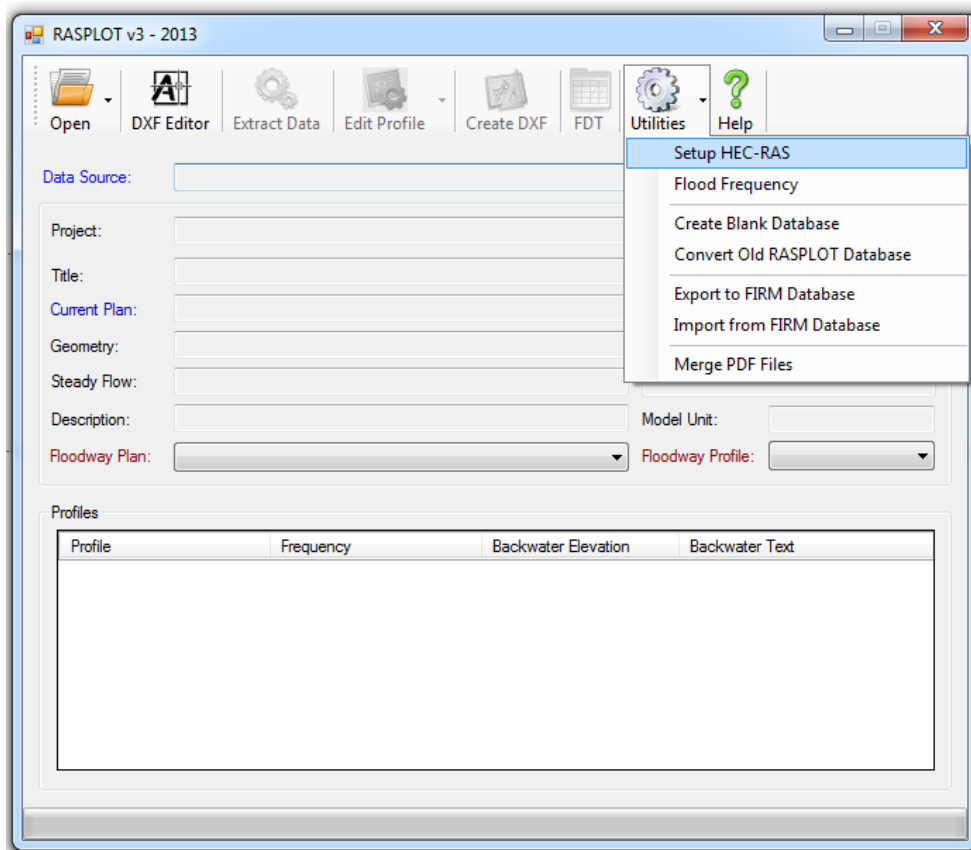
If a previous version of RASPLOT (Version 2.5 or lower) is installed on your computer it does not need to be uninstalled prior to installing RASPLOT 3.0.

After installation, RASPLOT can be accessed by navigating to the Windows Start menu and clicking on the *RASPLOT v3.0* shortcut in the list of programs.

RASPLOT 3.0 will assume the program (.exe) file for HEC-RAS 4.1.0 is installed at the following location:

C:\Program Files (x86)\HEC\HEC-RAS\4.1.0

If HEC-RAS 4.1 is installed at another location on your computer, you will need to specify it by navigating to *Utilities/Setup HEC-RAS* in RASPLOT and specifying the installation location before you can use the program:

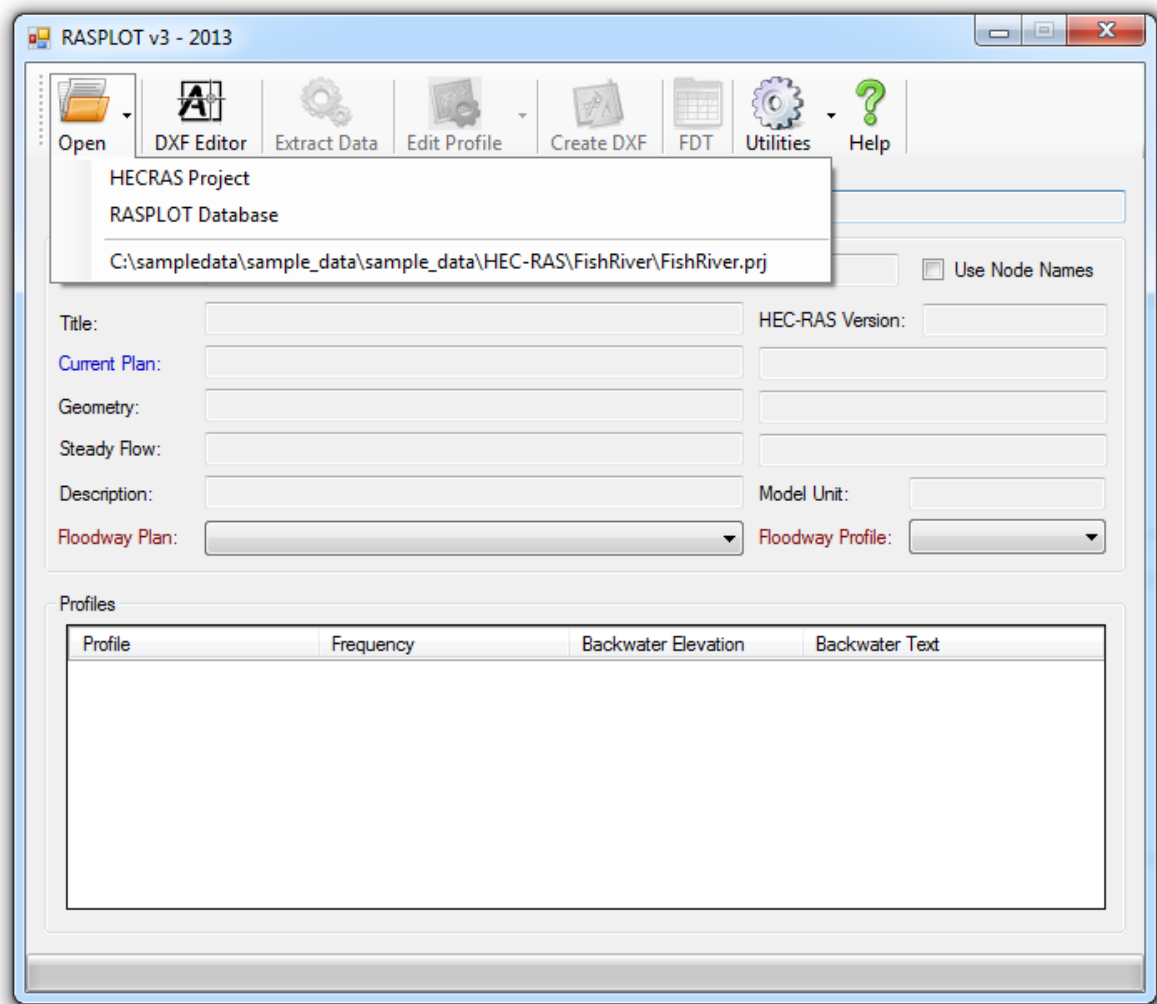


4. Opening Files and Adding Data

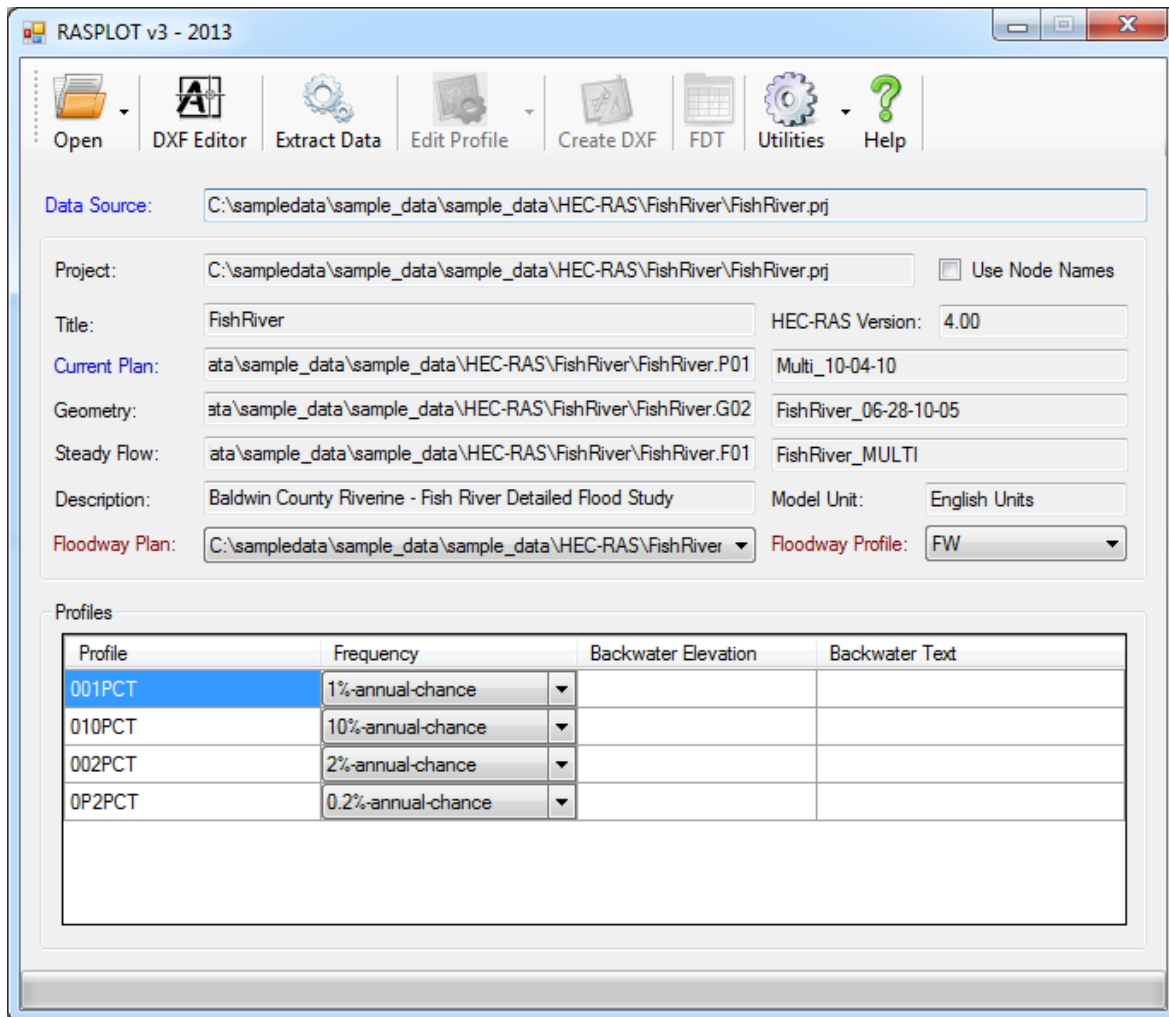
4.1 Opening HEC-RAS Files

After opening the program, click on the ‘Open’ button drop down arrow. You will see a menu with 2 options: *HEC-RAS Project* and *RASPLOT Database*. Previous files which have been accessed by the user will be shown below the two options and can be accessed directly by clicking on the text.

To create flood profiles or FDTs from an existing HEC-RAS project file, click on ‘HEC-RAS Project’ and navigate to the desired HEC-RAS .prj file to open the file. Please note that RASPLOT is compatible only with steady flow models. An unsteady flow model cannot be used in RASPLOT.



After you open a file, basic information about your data will populate on the main interface screen.



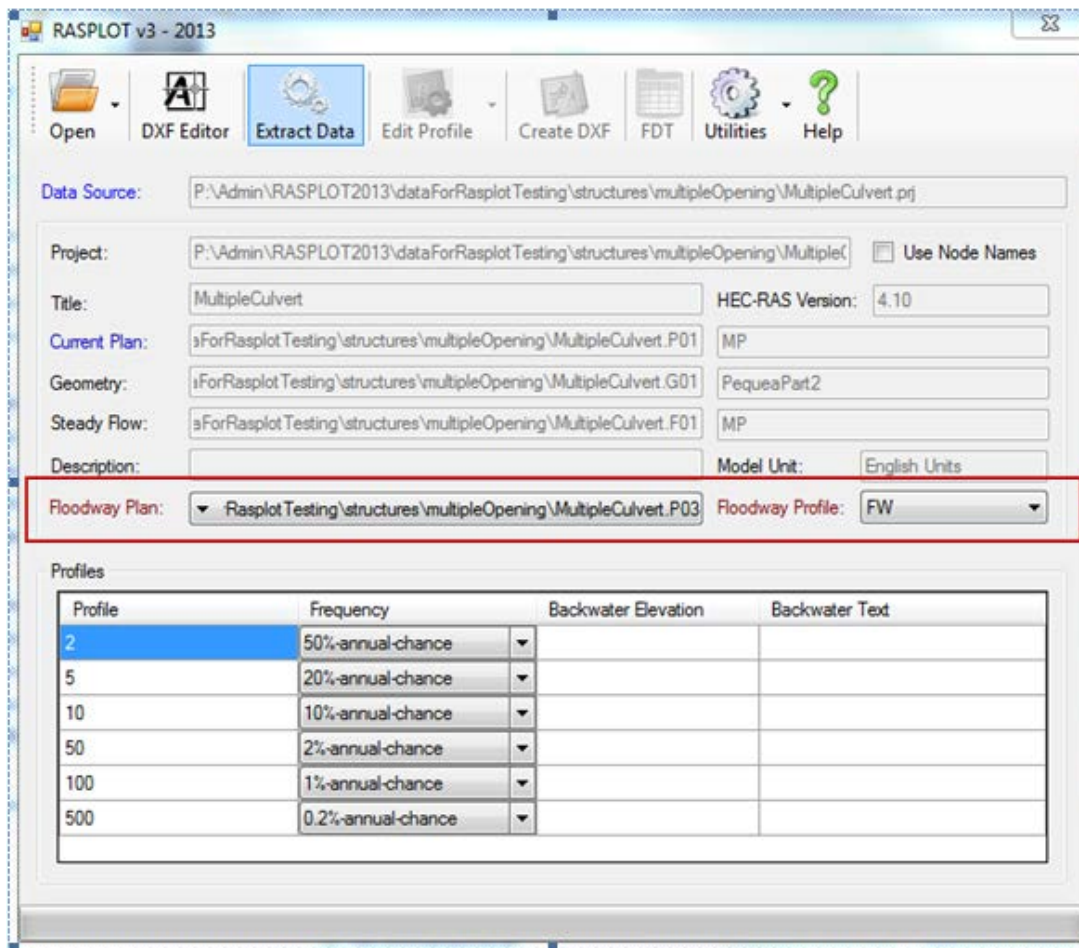
Please note that RASPLOT Version 3.0 no longer supports the U.S. Army Corps of Engineer’s Hydrologic Engineering Center (HEC) HEC-2 Hydraulic Modeling Program. Users can run the previous version of RASPLOT (Version 2.5) which supports HEC-2 models to create a RASPLOT Database and then use the “Convert Old RASPLOT Database” functionality in the current version of RASPLOT (See Section 4.3). Alternatively, users may convert the HEC-2 model to HEC-RAS and then proceed with running RASPLOT 3.0 as noted below

Floodway Plans

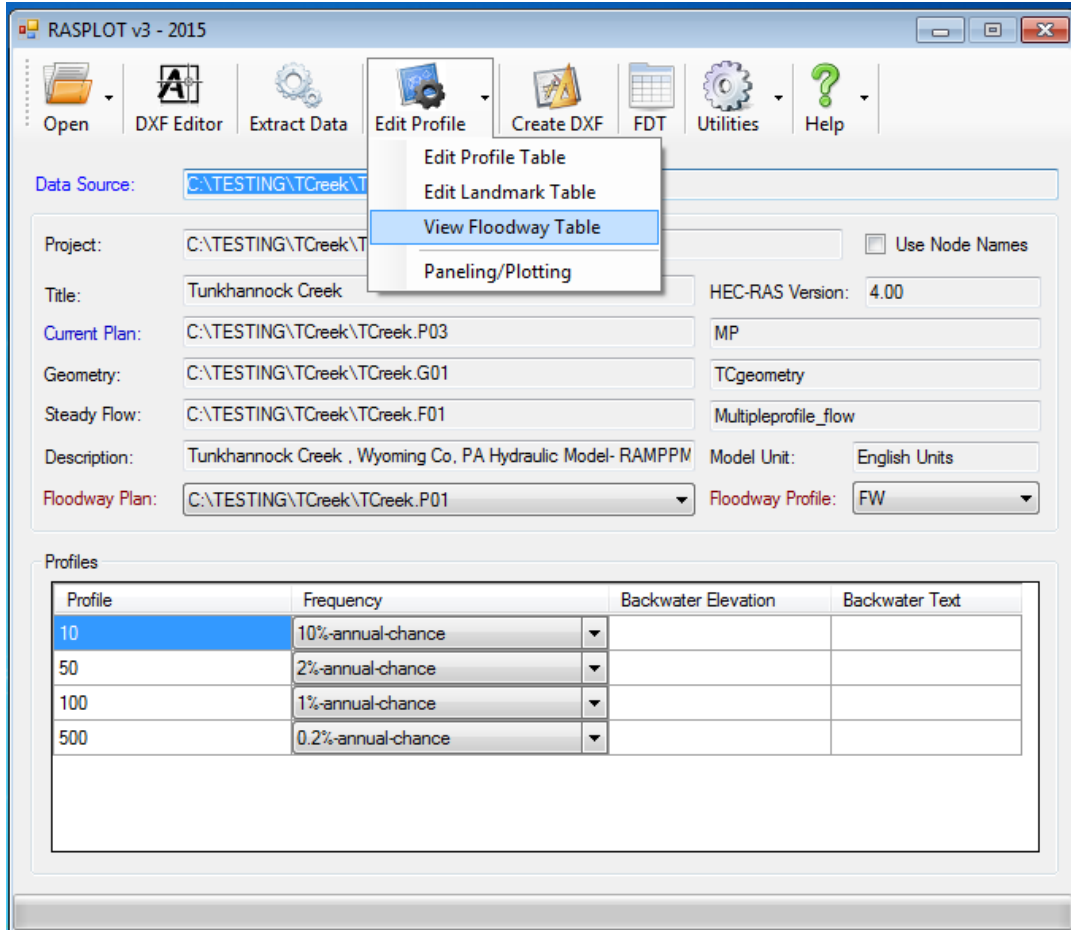
The FDT Creation Tool in RASPLOT has been set-up to expect that the Floodway Plan has 2 profiles included, the 1st being the 100-year flood profile and the 2nd being the floodway profile. This is in accordance with guidance provided in Chapter 6 of the HEC-RAS v4.1 Applications Guide (January 2010).

When applicable, RASPLOT will show encroached plans in the Floodway Plan drop down menu. If there is more than one encroached plan, the user will need to select the correct floodway plan and the name of the encroached profile should be selected in the Floodway Profile dropdown list.

In cases where 2 separate HEC-RAS projects have been prepared, with one containing the multiple profile analysis and the other containing the floodway analysis, the user will need to combine both plans into one HEC-RAS project. In cases where one HEC-RAS project has been prepared where all recurrence intervals and the floodway have been included in one plan within the project, the user will need to create a separate plan within the project for the floodway.

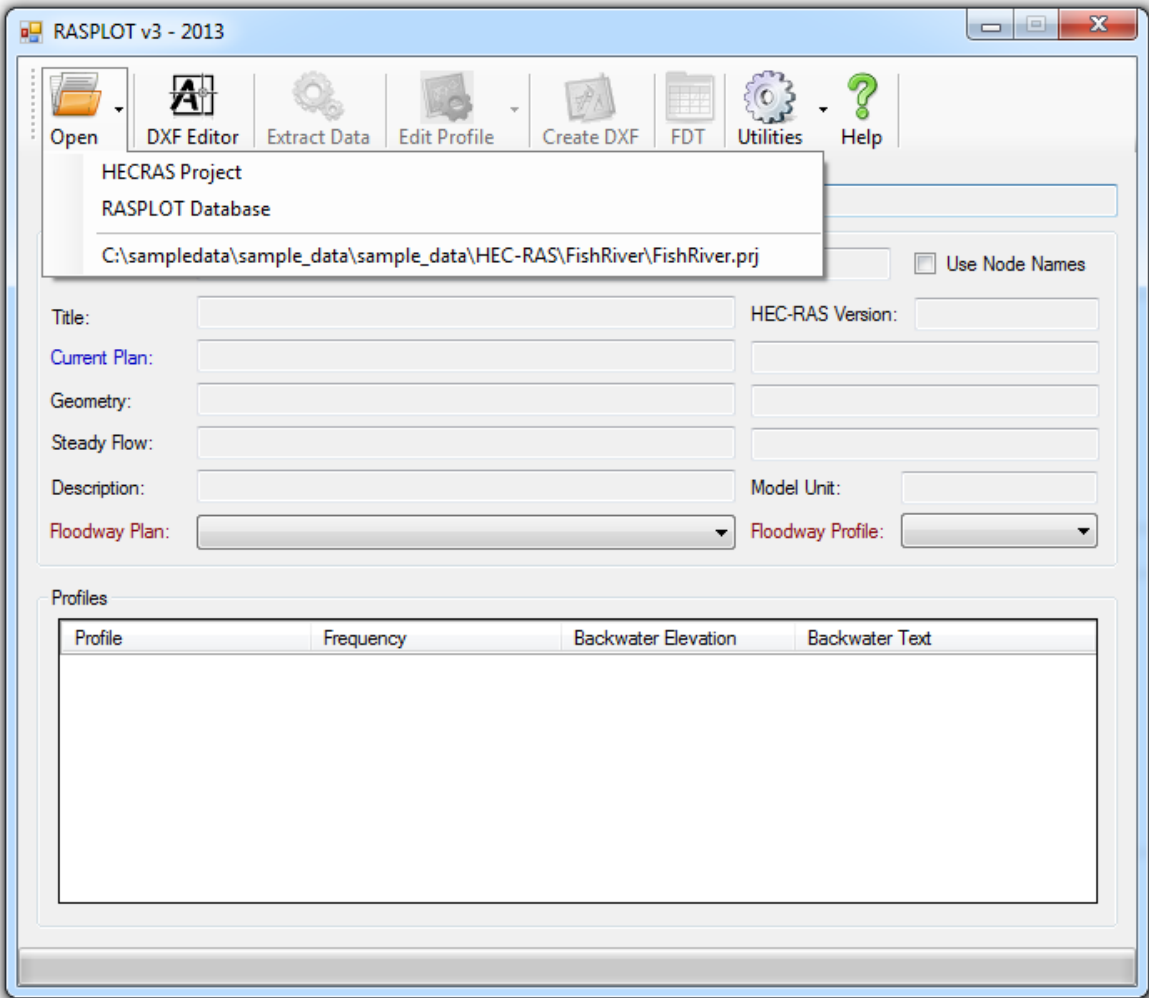


The information from the Floodway Plan will be used to create the FDT (See Section 8). After extracting the data (See Section 5), the Floodway Table can be viewed using the View Floodway Table menu item in the Edit Profile tab on the RASPLOT main window, shown below.



4.2 Opening Existing RASPLOT Databases

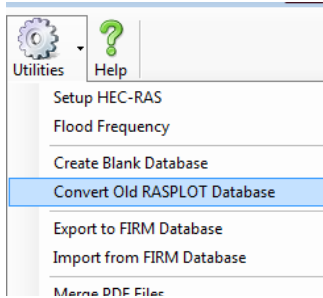
The user may also open a previously created RASPLOT database by clicking on the 'RASPLLOT Database' menu item. Note that the RASPLOT database must be in the RASPLOT 3.0 database schema. If the RASPLOT database was created using an older version of RASPLOT, you will need to first convert the database to the new schema using the 'Convert Old RASPLOT Database' option under the *Utilities* menu. See Section 4.3 for more information.



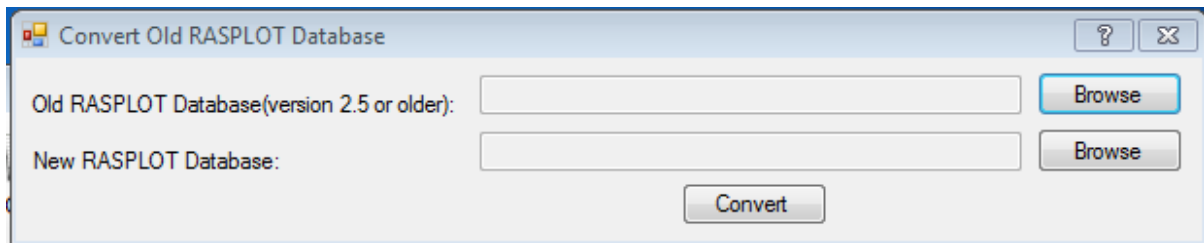
4.3 Converting Previous RASPLOT Database Versions

The user has the option to convert an older RASPLOT database to the new RASPLOT database schema, so that it can function properly with RASPLOT 3.0. It may be desirable to perform such a conversion to take advantage of RASPLOT 3.0's additional functionality available and improved structure symbology/editing capabilities in the Drawing Exchange Format (DXF) Editor.

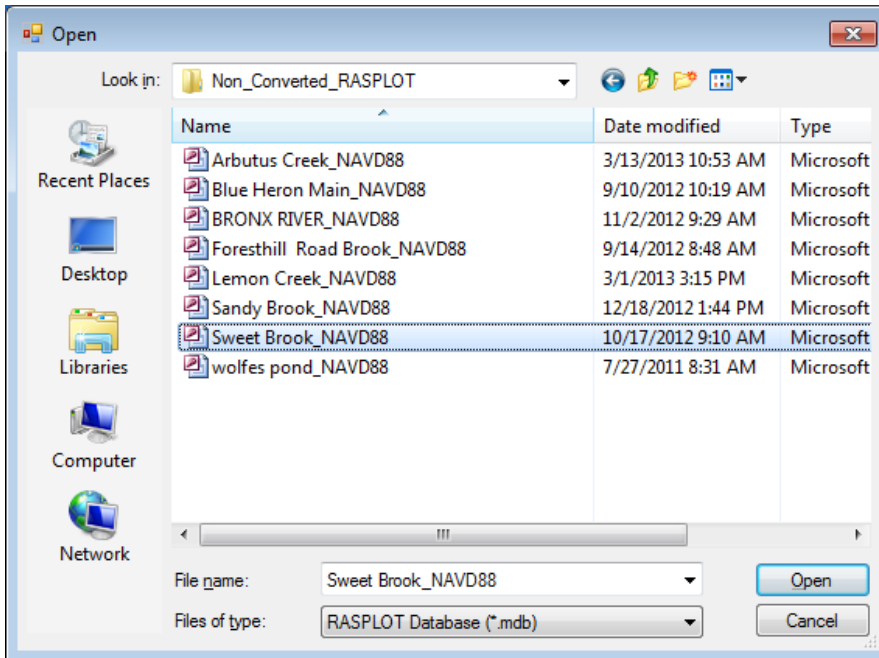
- From the main interface window click the *Utilities* drop down menu and select “Convert Old RASPLOT Database.”



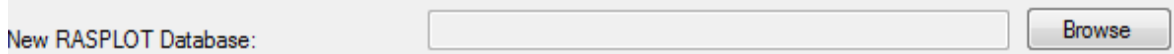
- The “Convert Old RASPLOT Database” dialogue window will appear.



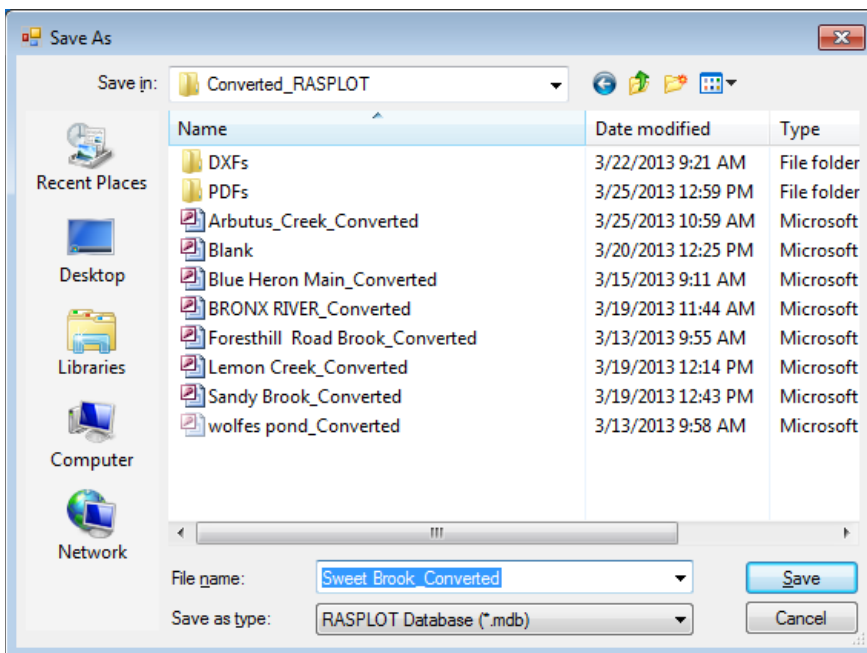
- The user must browse to the database that will be converted by clicking the “Browse” button from the first row.
- From the Open dialogue window, navigate to the old RASPLOT database, select it and then click the “Open” button.



- Now the user must choose where to save the new converted RASPLOT database by clicking the second “Browse” button from the “Convert Old RASPLOT Database” dialogue box.



- From the Save As dialogue window, the user must navigate to the location of where the database will be saved, give the new database a name, and then click the “Save” button.

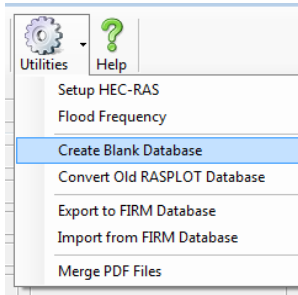


- From the Convert dialogue window click “Convert” to convert the old database into the new database format.
- Then click “OK” once the conversion is done.

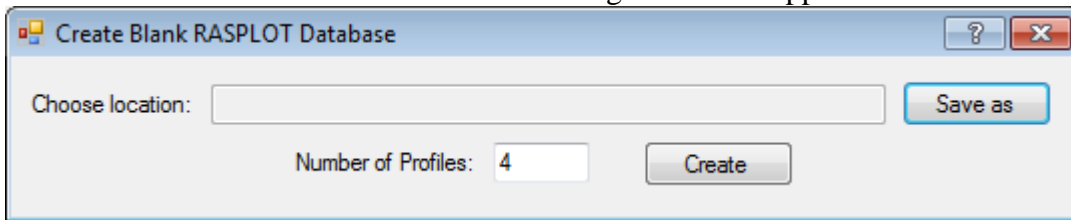
4.4 Creating a Blank RASPLOT Database

The user has the option of creating a blank RASPLOT database which can then be populated manually with flood profile information. The database can then be used to create flood profiles and/or FDTs in RASPLOT.

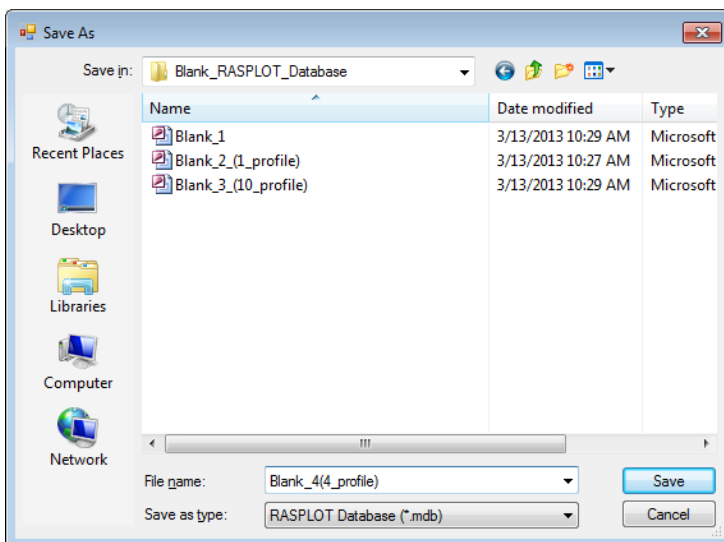
- From the main interface window, click the *Utilities* drop down menu and select “Create Blank Database.”

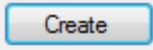


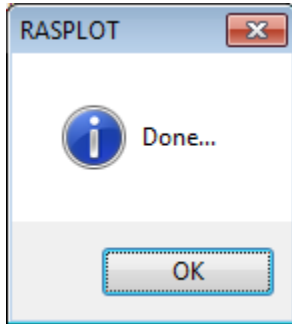
- The “Create Blank RASPLOT Database” dialogue window appears:














- Click the “Save as” button to open the “Save as” dialogue box.
- From the dialogue box the user must give the blank database a name and navigate to the folder where the database will be saved and then click “Save”.



- In the “Number of Profiles” field in the “Create Blank RASPLOT Database” window, the user may provide a value for the total number of profiles the blank database will have. By default the value will be set to 4 profiles.
- Click the Create button  to produce the blank database then click “OK” once you see this dialogue box.



After you create your new RASPLOT Database, the following tables will be included in the database.

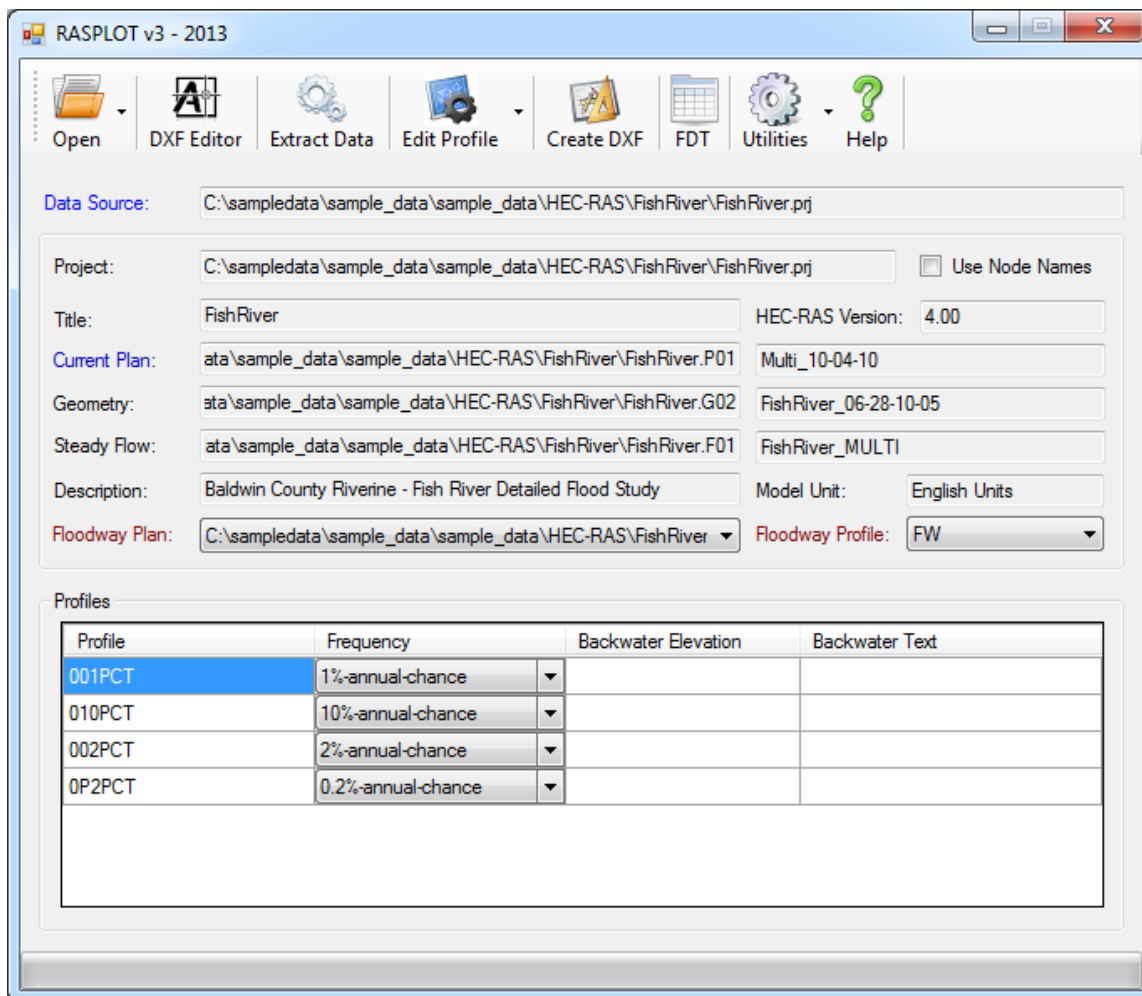
 floodway
 hecrasInfo
 Landmark
 noteField
 noteText
 page
 panel
 printable
 profiles
 workheader
 working

Of these tables, only the ‘Working’ and ‘Profiles’ tables (and if a floodway is involved, the ‘Floodway’ table) will need to be populated by the user. The remaining tables will be populated by the program automatically during usage.

4.5 Selecting Profiles

RASPLOT reads the current plan in the HEC-RAS model. Hence the model should be saved with the multiple profile plan being the current run.

The Profiles window on the main interface screen will show the name and description of the profile from the HEC-RAS model in the field “Profile”. RASPLOT attempts to determine the correct corresponding frequency for each modeled profile (See example below). However, the user should verify the frequencies are correct before proceeding with extracting the data. RASPLOT tabulates the elevations of profiles and plots the profiles under the name of the Frequency selected.

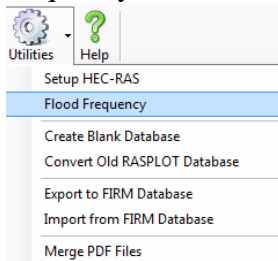


Currently RASPLOT has the 1%, 1% plus, 0.2%, 2%, 4%, 10%, 20%, 50%, and 1% future conditions annual chance flood events included in the *Frequency* drop down list by default. Any other modeled frequency that needs elevations to be extracted and plotted can be added by using the Flood Frequency option on the *Utilities* tab (See Section 4.6).

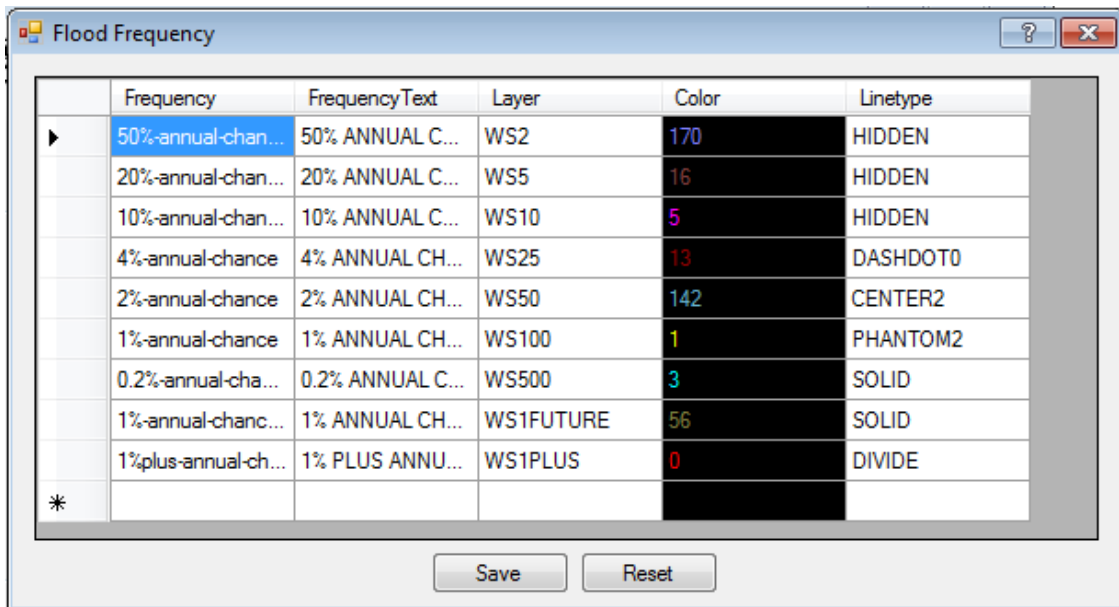
4.6 Adding a Flood Frequency

The user can edit the list of frequencies available in the *Frequency* drop down list on the main interface screen. The user can adjust flood frequency text, profile names, colors, legend names in addition to creating new profiles using the Flood Frequency function in the Utilities menu.

- From the main interface window click the Utilities drop down menu and select “Flood Frequency.”



- The “Flood Frequency” dialogue window appears.

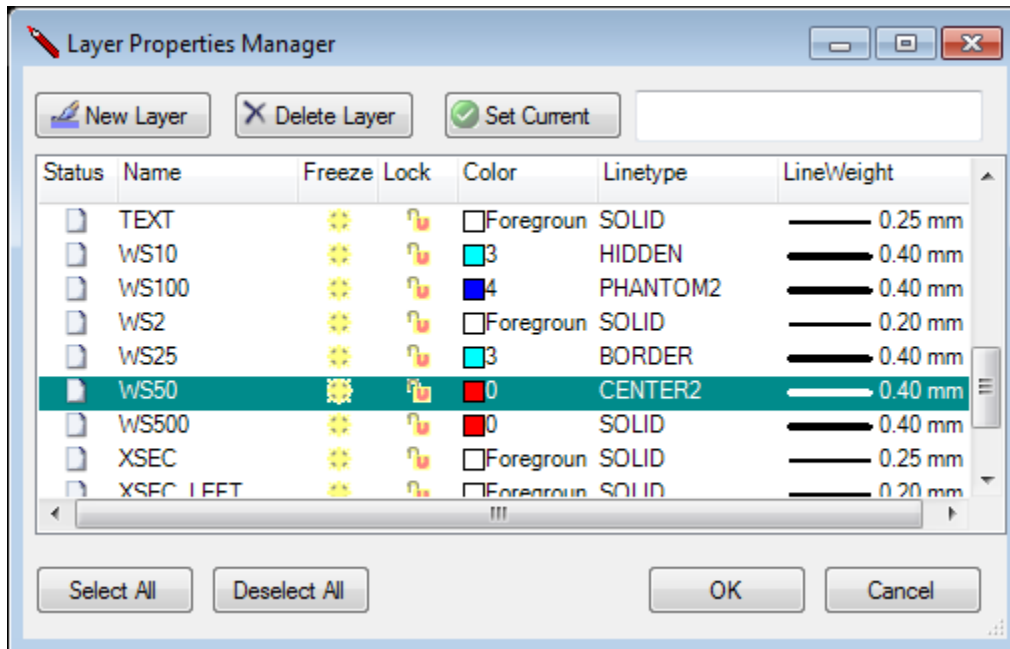


- There are five columns in the Flood Frequency window. Each cell can be adjusted by double clicking then making the necessary adjustment.
- The Frequency column represents the values in the *Frequency* drop down menu in the main interface window.

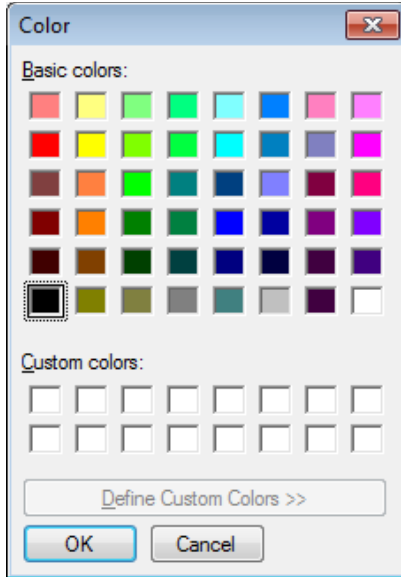
To make an adjustment to an existing profile shown, double click the name of the profile to be renamed in the Flood Frequency table and then enter a new name.

Frequency	
10%-annual-chance	▼
50%-annual-chance	▼
1%-annual-chance	▼
0.2%-annual-chance	▼

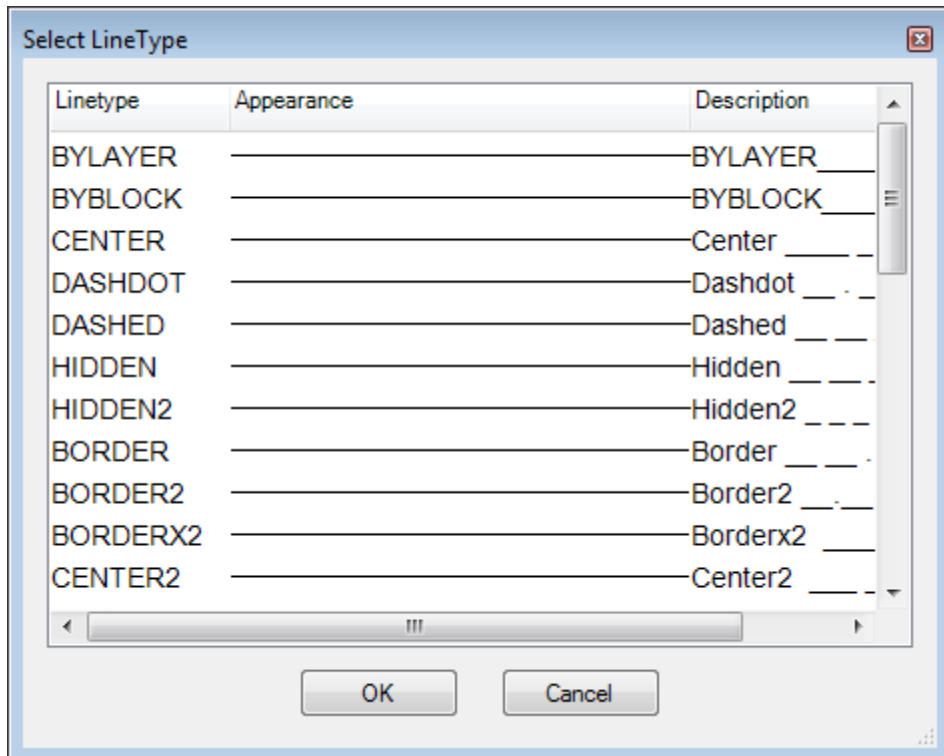
- The Frequency Text column represents what is displayed in the Legend of the DXF flood profile (See Section 7). To make an adjustment, double click a cell; then enter in new text. Then click the “Save” button.
- The Layer column represents the layer name for that specific profile. To adjust the name, double click the cell, enter in new text, and then click the “Save” button. The layer name will be displayed in the Layer Properties Manager within the DXF Editor.



- The Color column represents the color of the profile in the plot window and in the DXF Editor. To make an adjustment, double click a cell in the Color column and the Color dialogue box will appear. Choose a color from the Basic Color swatches, and then click the “OK” button.



- The Linetype column represents how the line is displayed in the plot window and in the DXF Editor. To make an adjustment, double click a cell from the Linetype column and the “Select Line Type” window will appear.




- Select a line type and click “OK.”

- To create a new profile that will appear in the *Frequency* drop down list on the main interface screen, double click on each field in the blank row at the bottom of the Flood Frequency window table and enter the desired information.

	1%-annual-chanc...	1% ANNUAL CH...	WS1fut	3	SOLID
▶*					

Once you have made all desired changes to the Flood Frequency table, click the “Save” button and close RASPLOT. Then reopen the program. The edited list of Frequencies will now be available in the drop down list in the main interface window and the new profile will appear in the profile plot window (See Section 6.5) and in the DXF profile generated by the program using the “Create DXF” function.

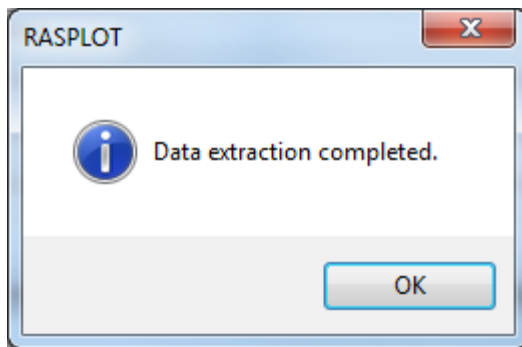
Note that the legend of the DXF profile generated will automatically be updated to include the revised profile in situations where an existing flood profile in the Flood Frequency table was edited. However, in cases where a new profile was added to the table, the legend will need to be manually updated to reflect the added profile.

- To set all Flood Frequency settings back to the original default values, click the “Reset” button  at the bottom of the Flood Frequency window.

5. Extracting Data from HEC-RAS

After opening your HEC-RAS model in RASPLOT, setting/verifying the frequencies of each of your profiles, and selecting the appropriate Floodway Plan and Floodway Profile (See Section 4), you will be ready to extract the HEC-RAS data into a RASPLOT Database.

To extract the data, simply click on the *Extract Data* button at the top of the interface screen. A dialogue box will appear which will allow the user to choose the location and name for the RASPLOT database which will be generated. By default, the program will name the database after the HEC-RAS project file used and place it in the same folder as the HEC-RAS project file. After making any name or location adjustments, click the Save button. Once data extraction is complete, the following dialogue box will appear.



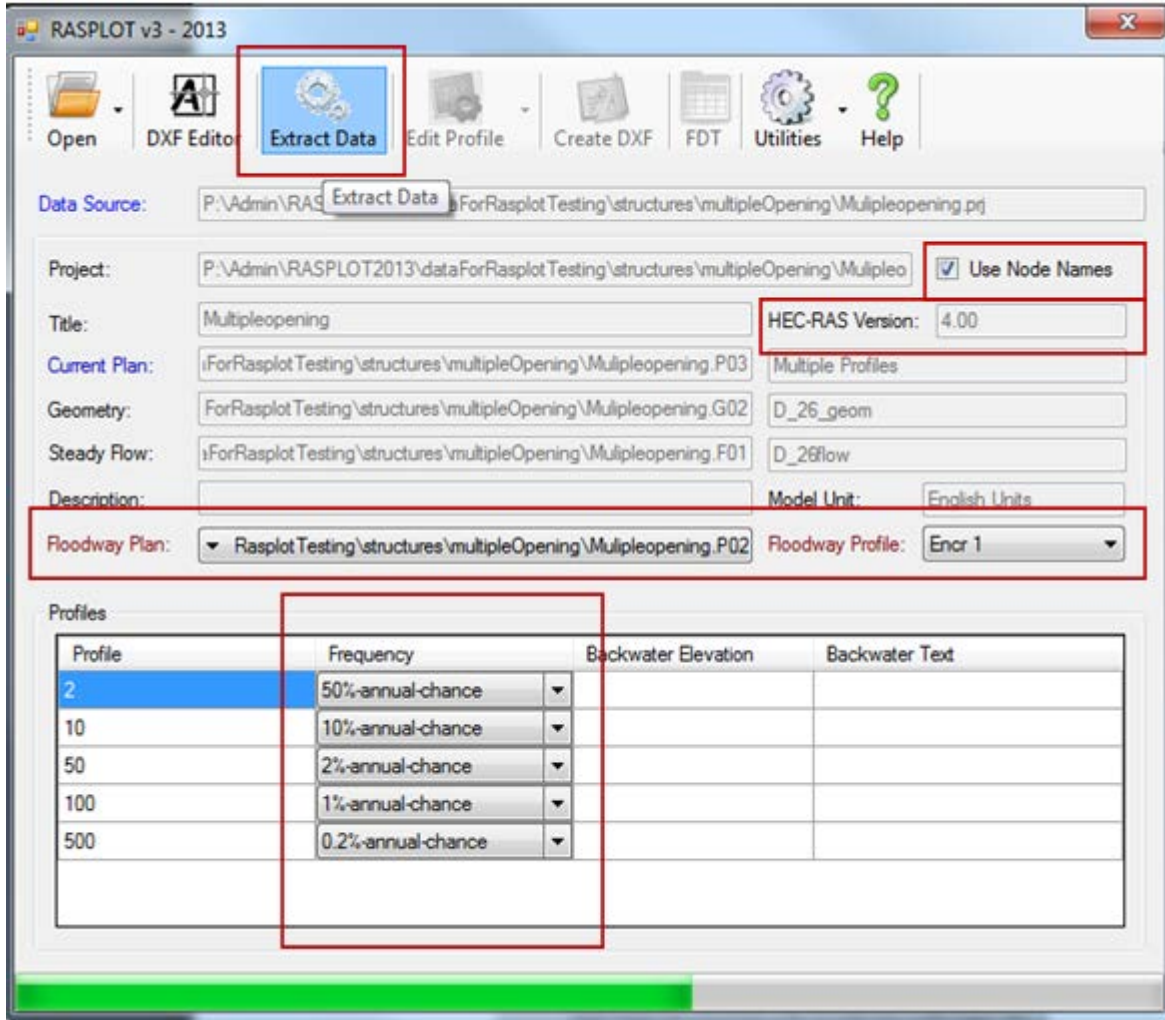
Click OK.

Information about the HEC-RAS model data extracted will appear in the main interface screen. You will also notice that the Edit Profile, Create DXF and FDT buttons at the top of the interface screen are no longer grayed out.

On the main interface screen, RASPLOT will display the HEC-RAS model version, in which the model was last run and saved (See HEC-RAS Version field in the screenshot below).

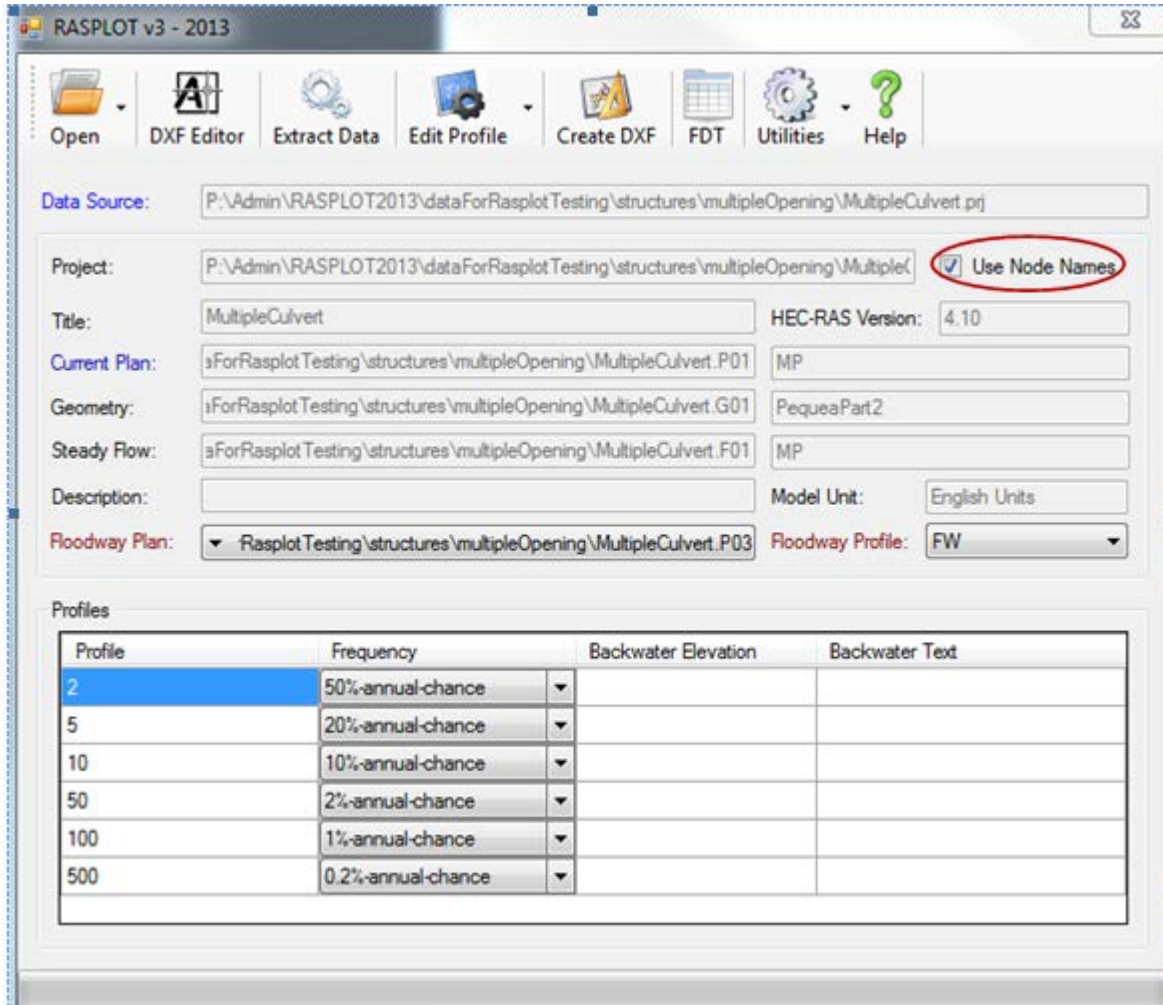
Please note that if it is necessary to rerun the model in HEC-RAS (in case of a missing output file, for example), it is recommended that the same version of HEC-RAS that the model was initially created in be used. The elevations and floodway may vary sometimes when the model is run using an upgraded version of HEC-RAS.

RASPLOT 3.0 User Guide



5.1 Using Node Names

When the ‘Use Node Names’ box is checked on the main interface screen, RASPLOT will populate the node names attributed to the cross sections in the HEC-RAS model as cross section ‘letters’ in the RASPLOT database, which will be carried over into the flood profiles and FDT generated by the program (Sections 6 and 8).



If HEC-RAS node names consist of 3 or less characters, they will be imported into the “Labelletter” field in the Profile Table. If the node names are greater than 3 characters, they will be imported into the “Label Text” field in the Profile Table.

Users can always edit the node names imported and can choose not to import them by unchecking the box. By default, the Use Node Names box will be unchecked.

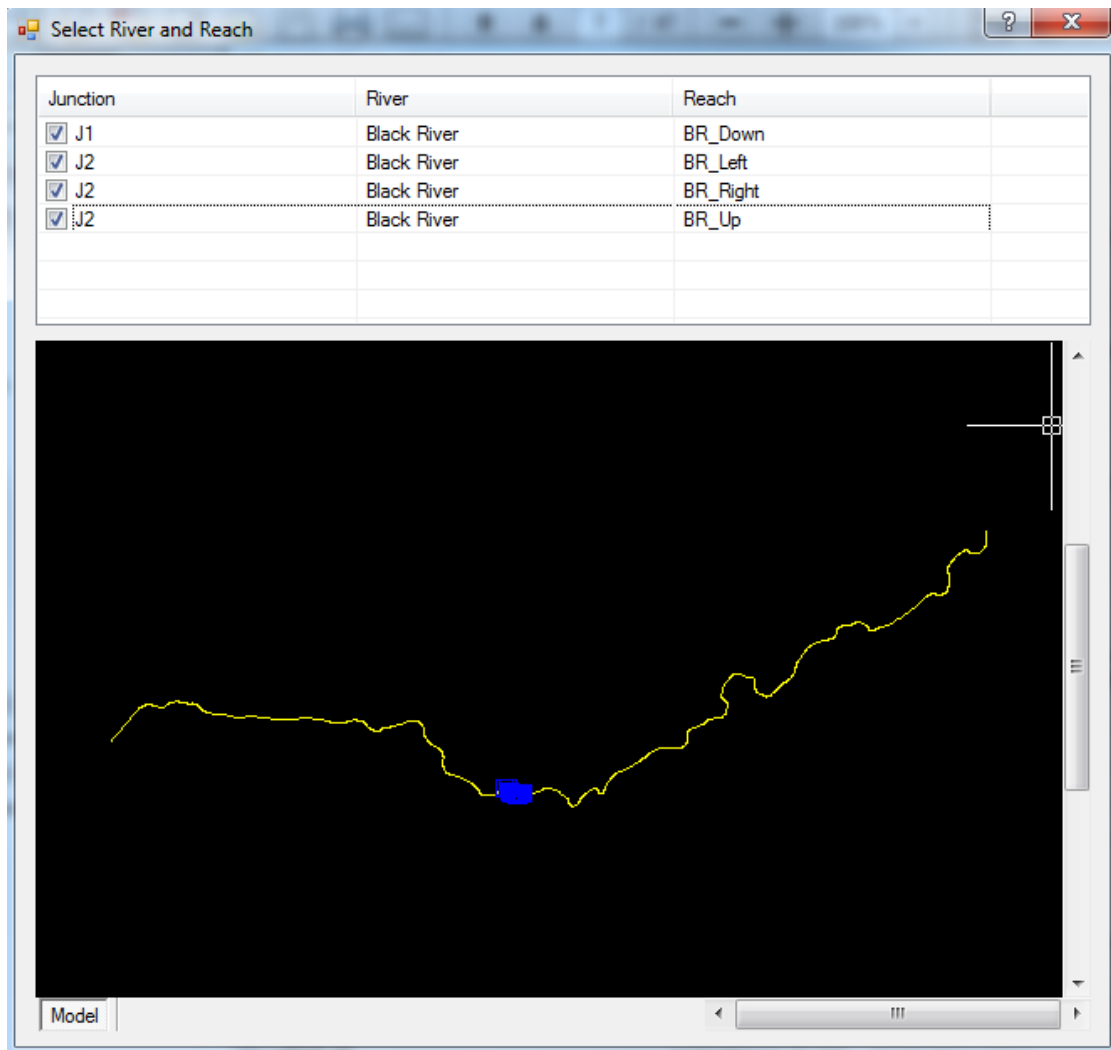
RASPLIT 3.0 User Guide

The screenshot shows a software window titled "Edit Profile Table". At the top, there are two buttons: "Recalculate Cumulative" and "Fix Drawdowns". Below these is a table with the following data:

	lengthchnl	cumdist	minchel	lowchord	highchord	labelletter	labeltext	Prof 1	Prof 2
	10.00	68.97	267.80			DT		279.52	281.56
	52.06	121.03	267.90					279.54	281.58
	203.92	324.95	268.29					279.69	281.77
	480.80	805.75	269.21					280.19	282.35
	528.77	1334.52	270.21					280.55	282.66
	510.15	1844.67	271.20					281.12	283.24
	544.88	2389.55	272.24					281.59	283.62
	500.91	2890.46	273.19			DU		282.02	283.90
	779.74	3670.20	273.41					283.41	285.48
	681.35	4351.55	273.71					284.31	286.46

5.2 Multiple River Reaches

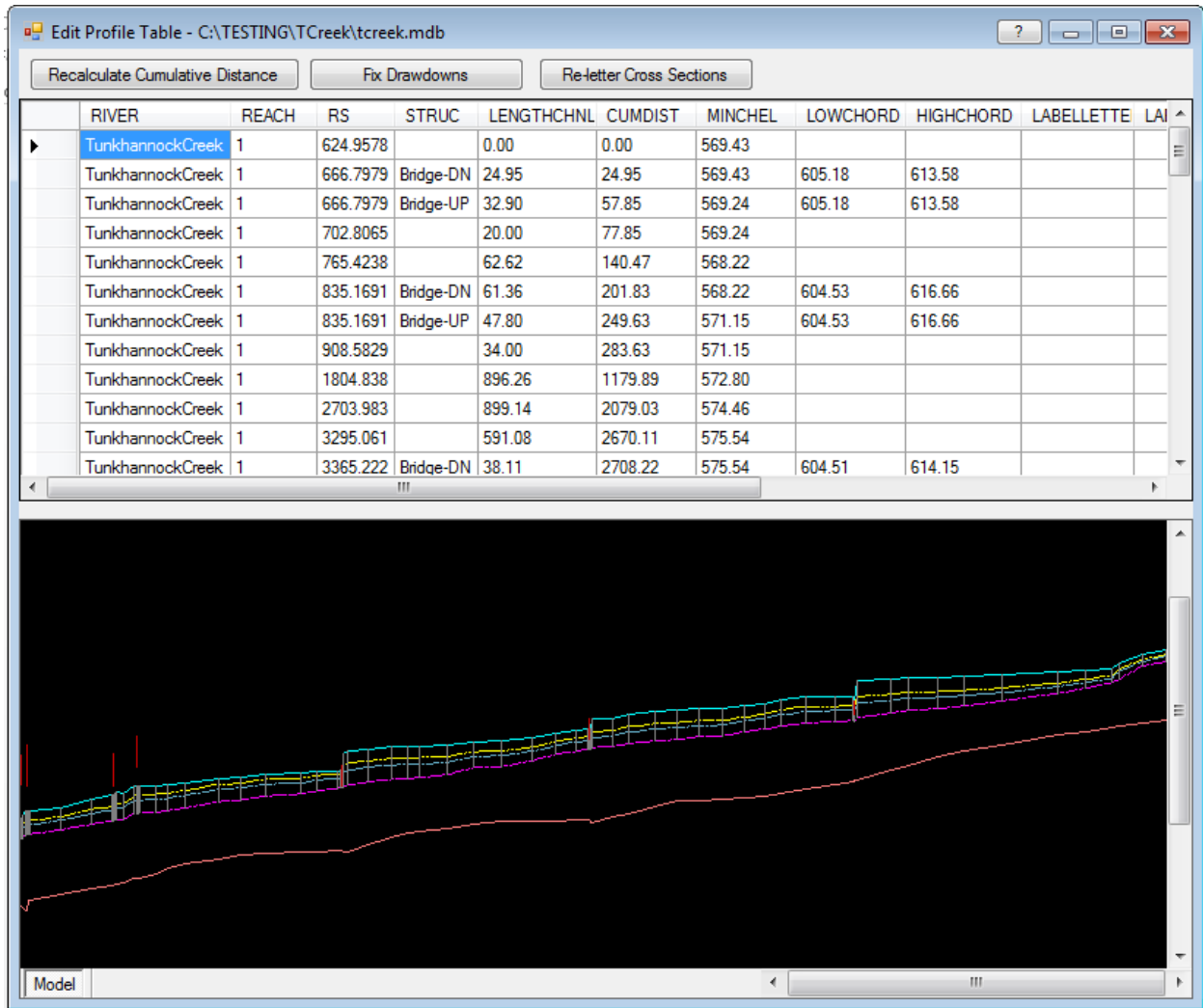
When a HEC-RAS model contains multiple river reaches, the user must group the reaches into a single reach in order to plot the reaches using RASLOT. Whenever there are multiple reaches in a HEC-RAS model, the screen below will appear after clicking the Extract Data button in RASLOT. The user must select which reaches to include. Each reach can be dragged and dropped to arrange the order of the reaches. RASLOT generally plots the profiles from downstream to upstream; hence the reaches should also be selected and arranged in that order with the most downstream reach listed at the top and the most downstream at the bottom of the list. If the user desires a particular reach not be included, the checkbox next to the junction name for that reach should be unchecked.



The user will need to check and update the junction distances between the reaches to match the input used in the model.

5.3 Understanding the Profile Table

Once data has been extracted from HEC-RAS (or if an existing RASLOT database is opened), the data will populate the profile table which can be viewed by navigating to Edit Profile on the main interface screen and selecting “Edit Profile Table.”



The fields of the profile table generated by RASPLOT are summarized below. Additional information about how RASPLOT extracts data from HEC-RAS into the profile table is provided further below.

Profile Table Field	Field Description
RIVER	The river name as defined in the HEC-RAS model. River names can be identified with letters or numbers.
REACH	The name of the reach used in the HEC-RAS model. For rivers with multiple reaches, multiple reach names will exist under the same River name. Reach names can be identified with letters or numbers.
RS	The River Station of the cross section from the HEC-RAS model. Apart from identifying the modeled cross section, the River Station is not used elsewhere in the profile plot or panel.
STRUC	The type of the structure between the modeled upstream and downstream cross sections in HEC-RAS. RASPLOT will add two rows for Up and Dn internal bridge sections and will be shown as Culvert/Bridge/Inline Weir-Dn & Up.
LENGTHCHNL	The downstream reach length of the channel from the cross section to the next downstream one.
CUMDIST	The cumulative downstream reach length from the downstream most point to that particular cross section. The value is obtained by adding the channel length from downstream to upstream. Cumulative distance is used to plot the structures and lettered cross sections on the DXF profile plot.
MINCHEL	For cross sections this column shows the lowest invert (channel) elevation between the bank stations.
LOWCHORD	The bottom of the horizontal deck of a structure.
HIGHCHORD	The top of the horizontal deck of a structure or the railing height if the rail is blocking the flow.
LABELLETTER	This column is used to place letters at various River Stations on the profile. Both text and numbers can be used. If the <i>Use Node Names</i> box is checked on the main user interface screen, this column may be populated by the program. Otherwise, the user must manually enter the desired cross section letters at River Stations of their choice. The lettered cross sections will appear in the profile plot once generated.

	There must be at least one value populated in this column in order to use the Floodway Data Table Creation Tool.
LABEL TEXT	The user may place labels (road names, corporate limits, confluences with streams, etc) at any River Station on the profile in this field. The labels will appear in the profile plot once generated.
PROF1, etc.	The water surface elevations of the profiles modeled in HEC-RAS and chosen in the Frequency window on the main user interface screen. The profiles will appear in the same order as listed in the Frequency window.

Methodology for the Extraction of Structures

Additional information is provided below about the methodology used by RASPLOT to extract different types of structures.

Channel Length (LENGTHCHNL)

For culverts, the length of the cross section at Section 3 is equal to the upstream distance from the culvert data. The length of the cross section at the Culvert-Up section is equal to the length of the culvert. The length of the cross section at the Culvert-Dn section is computed by subtracting the summation of upstream distance and the culvert length from the channel length at Section 3. Channel length at Section 3 is obtained from the cross sectional data in the HEC-RAS model.

For an inline-weir, the channel length at Section 3 is equal to the upstream distance from the Deck/Roadway data. The length of the cross section at Inline-Up section is equal to the width from the Deck/Roadway data. The length of the cross section at Inline-Dn section is computed by subtracting the summation of distance and width from the channel length at Section 3. Channel length at Section 3 is obtained from the cross sectional data in the HEC-RAS model.

For multiple reaches, the channel length at the most downstream cross section at the reach should be equal to the junction distance input in the HEC-RAS model. Junction distance is the distance of the cross section from the most upstream cross section of the main reach. RASPLOT picks up the junction distance as the channel length if the numbers are populated in the HEC-RAS output.

In case of looped networks, where it is not possible to get the junction distances to and from the reaches, RASPLOT displays the downstream reach length at the cross section as the channel length. The user must check and update the reach lengths if they are not representing the junction distances from the model.

Minimum Channel Elevation (MINCHEL)

For Culverts-Up and Culvert-Dn this value is equal to the culvert invert elevation entered in the Culvert Editor.

For Inline Weir-Up, this value is equal to the minimum channel elevation at Section 3, and for Inline Weir-Dn, it is equal to the minimum channel elevation at Section 2 (immediate downstream cross section.)

For Bridge-Dn, the value is the minimum invert elevation between banks inside the internal bridge downstream section, and for Bridge-Up, it is the minimum invert elevation between the banks inside the internal bridge upstream section.

Low Chord (LOWCHORD)

For Bridges this is the elevation of the low chord entered in the Deck/Roadway Data Editor. RASPLOT computes the midpoint of the bank station and selects the corresponding low chord.

In cases of Multiple Openings and complicated structures, where it is not possible to obtain the low chord at the mid-channel, applying a conservative approach, the lowest of the low chord elevation is used from the Deck Input data.

For a Culvert-Dn and Culvert-Up, the value is computed by adding the Rise to the culvert invert elevation at the upstream and downstream.

For dams and inline-weirs, the low chord is assumed as the Minimum channel elevation.

Since each structure will vary, the user should verify the data in the profile table, especially the high chord and low chord data to confirm the values populated in the table from the HEC-RAS model and edit them if needed.

High Chord (HIGHCHORD)

For Bridges and Culverts, RASPLOT computes the mid-point of the bank and selects the corresponding high chord.

In cases of Multiple Openings and complicated structures, where it is not possible to obtain the high chord at the mid-channel, applying a conservative approach, the highest of the high chord elevations in between the banks is used from the Deck Input data.

Since each structure will vary, the user should verify the data in the profile table, especially the high chord and low chord data to confirm the values populated in the table from the HEC-RAS model and edit them if needed.

Profiles (PROF1, PROF2, etc.)

For Culverts the water surface elevations at Culvert-Up and DN are selected depending on the type of flow:

- If the type of flow is *low flow*, the elevation at Culvert-Up is equal to the Culv WS Inlet value from the HEC-RAS output, and the water surface elevation at the Culvert-DN section is equal to the Culv WS Out value from the HEC-RAS output.

- If the type of flow is *pressure flow*, the water surface elevation at the Culvert-Up section is equal to the water surface elevation at Section 3, and the water surface elevation at the Culvert-Dn section is equal to the Culv WS Out value from the HEC-RAS output.
- If the type of flow is *weir flow*, the water surface elevation at the Culvert-Up section is equal to the water surface elevation at Section 3. The water surface elevation at the Culvert-Dn section is obtained by adding the depth of weir flow over the upstream Deck/Roadway profile to the downstream high chord elevation.

For Inline Weirs, the water surface elevation at the Inline-Up and Inline-Dn are equal to the water surface elevations at Section 3.

The profile plot from RASPLOT should not be used to determine the type of flow. The user should review the hydraulic model to determine the type of flow at the structure.

6. Editing Flood Profile Input Data

After data has been extracted from HEC-RAS, or an existing RASPLOT database opened, the user is able to edit or add information that will be shown on the final profile plots and/or FDTs generated by the program. This section covers these functions.

6.1 Adding Backwater Information

After data has been extracted, backwater elevations and text can be added to the profile plots. From the **'Profiles'** section on the main interface screen, the user can provide backwater elevations to the corresponding Frequency at the column labeled **"Backwater Elevation"**. The backwater elevation entered for each profile must be higher than the lowest elevation associated with that profile based on the data extracted from the HEC-RAS model.

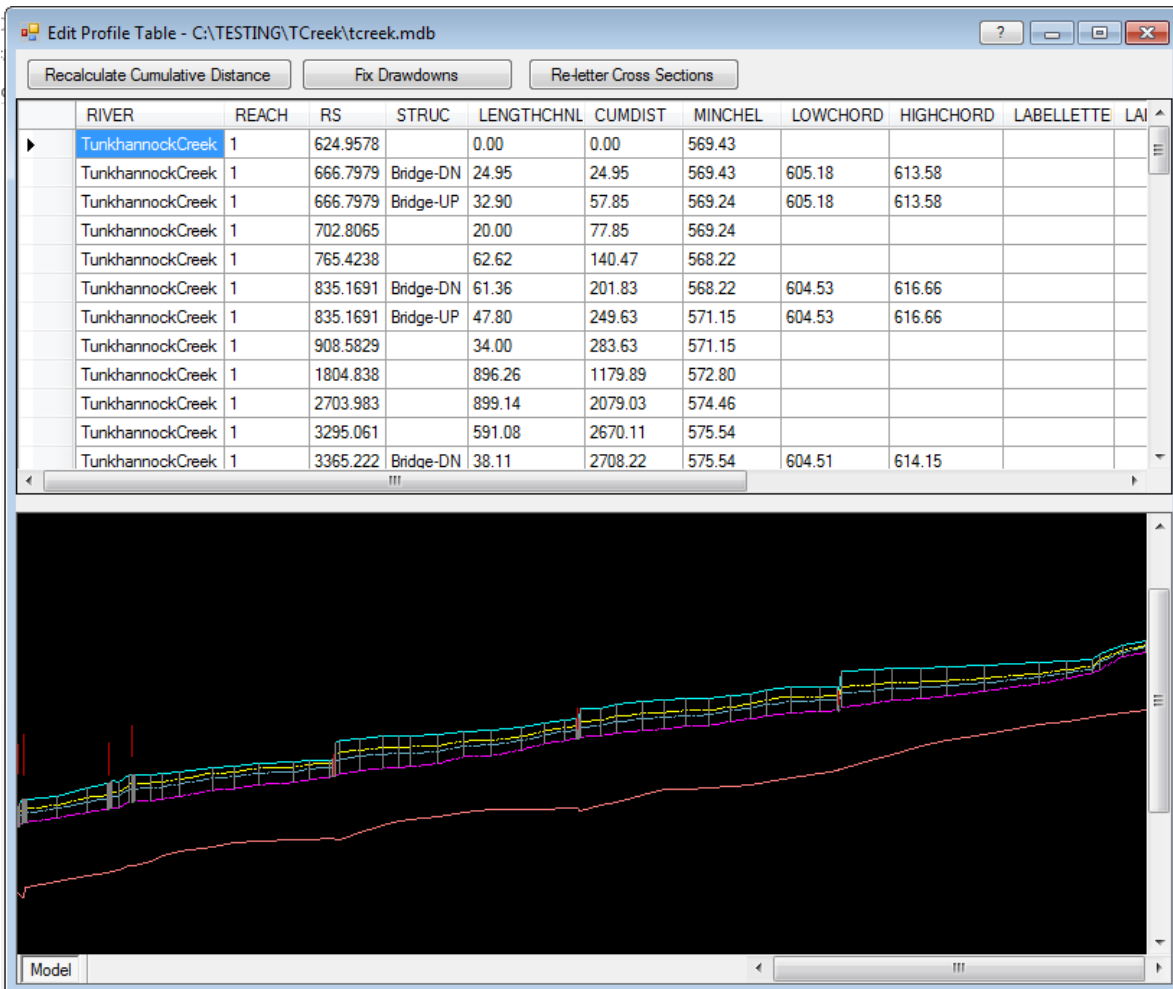
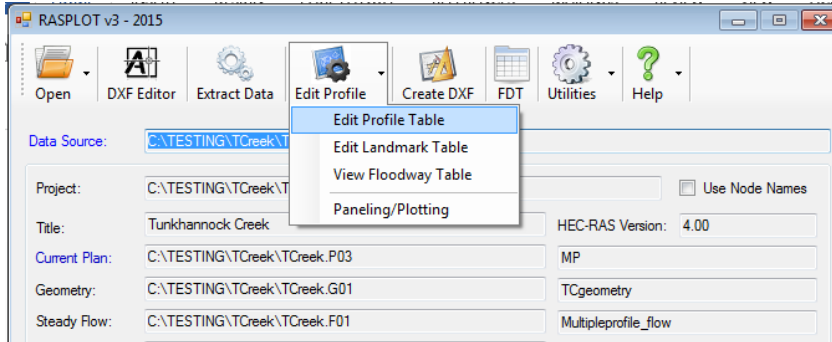
Profile	Frequency	Backwater Elevation	Backwater Text
10-year	10%-annual-chance	8.5	
50-year	2%-annual-chance	10.3	
100-year	1%-annual-chance	11.9	1% ANNUALCHANCE BACKWAT...
500-year	0.2%-annual-chance	12.4	

Also, in the **"Backwater Text"** column the user can provide a backwater note that will be displayed along with a backwater indicator line on the DXF profile panel plot generated by the program. The length of the indicator line will correspond to the length of the backwater for the 1% annual chance flood event. Note that if the amount of 1% annual chance backwater is a short distance on the DXF profile generated using the Create DXF tool, the user may need to adjust the text label to fix overprinting using the DXF Editor (Section 7).

If the 1% annual chance flood is not one of the recurrence intervals included on the profiles, the indicator line and text will appear for the last of the entries inputted in the 4 backwater rows.

6.2 Editing the Profile Table

Under **'Edit Profile'**, select **'Edit Profile Table'**. A window will appear showing the RASLOT database and a rough plot of the profile.



- To add lettered cross sections to your flood profile, enter the desired letter at the desired river station in the '**LABELLETTER**' field in the table".
- Text can be entered in the "**LABEL TEXT**" field that will appear on the flood profile, including text for structures, corporate limits, confluence points, etc. Add the text for structures on the first row of the structure (CULVERT-Dn, INLINE-Dn, BRIDGE-DN etc.). Text for structures and other items can also be added by editing the Landmark Table (See Section 6.3).

Profile Plot Window

The Plot Window shows an overview of the profile of the stream.

- While the mouse cursor is within the Plot Window, the user can right click using the mouse to bring up viewing options.
- Left clicking "**Zoom In**" allows the user to draw a window of where they want to zoom into on the profile.
- Left clicking "**Zoom Out**" allows the user to zoom out a small percentage every time it's clicked.
- Left clicking "**Full Extent**" zooms to the entire extent of the stream profile.
- Left clicking "**Pan**" changes the mouse cursor to a hand icon and allows the user to drag the plot in any direction while holding down the left mouse button.

RASLOT 3.0 User Guide

- Dynamic Zoom: Instead of using the menu options to zoom, the user can also use the

RIVER	REACH	RS	MINCHEL	LOWCHORD	HIGHCHORD	LABELLETTE	LABELTEXT	PROF1	PROF2	PROF3	PROF4
TunkhannockCreek	1	1804.838	572.80					591.83	594.58	595.69	598.23
TunkhannockCreek	1	2703.983	574.46					593.53	596.62	597.86	600.71
TunkhannockCreek	1	3295.061	575.54					594.40	597.56	598.81	602.22
TunkhannockCreek	1	3365.222	575.54	604.51	614.15			594.42	597.55	598.80	602.19
TunkhannockCreek	1	3365.222	575.91	604.90	614.54			594.57	597.74	599.03	602.38
TunkhannockCreek	1	3436.072	575.91					594.82	598.11	599.46	602.75
TunkhannockCreek	1	3624.13	576.51					594.93	598.16	599.46	602.68
TunkhannockCreek	1	3958.957	577.58					596.56	600.35	601.89	604.59
TunkhannockCreek	1	4038.851	577.58	610.04	619.31			596.58	600.36	601.90	604.60
TunkhannockCreek	1	4038.851	577.77	610.24	619.27			596.61	600.39	601.94	604.62
TunkhannockCreek	1	4128.366	577.77					596.71	600.51	602.06	604.72

middle ‘wheel’ button of their mouse to dynamically zoom in or out in the plot window.

- When the user clicks on a particular river station row in the profile table, the location will be highlighted in yellow in the profile plot window.

Fixing Drawdowns

A drawdown is defined as a situation where the upstream water surface elevation (WSEL) is lower than the downstream WSEL. For Flood Insurance Studies drawdowns should be eliminated from profiles. Drawdowns in the profile columns (PROF1, PROF2, PROF3, etc.) are displayed as **red text** in the profile table (see example below).

To fix drawdowns in RASLOT, click the “**Fix Drawdowns**” button located in the upper left corner on the Edit Profile Table window. A dialogue box will appear stating with the following message: “Drawdowns at all Cross Sections will be fixed. Do you want to continue?” Click Yes. RASLOT will eliminate the drawdown by drawing a horizontal line from the downstream WSEL until it intersects with the original profile, thus removing the upstream WSEL that is lower than the downstream WSEL.

If lettered cross sections have already been selected by the user and the ‘Fix Drawdowns’ option is selected, RASLOT will also update values populated in the Floodway Data Table generated by the program if a lettered cross section is affected by a drawdown as needed. This may include any or all of the elevation fields and/or the Increase field.

Other Editing Functions

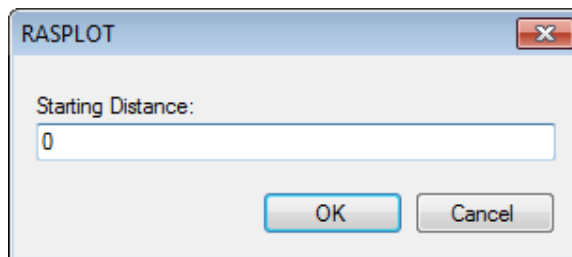
RASPLOT 3.0 User Guide

- You can edit numerical values in the profile table by clicking the cell you want to update and

	RIVER	REACH	RS	STRUC	LENGTHCHNL	CUMDIST	MINCHEL	LOWCHORD	HIGHCHORD	LABELLETTE	LABELTEXT	PROF
	TunkhannockCreek	1	624.9578		0.00	0.00	569.43					589.11
	TunkhannockCreek	1	666.7979	Bridge-DN	24.95	24.95	569.43	605.18	613.58			589.11
	TunkhannockCreek	1	666.7979	Bridge-UP	32.90	57.85	569.24	605.18	613.58			589.11
▶	TunkhannockCreek	1	702.8065		20.00	77.85	569.24			A		589.81
	TunkhannockCreek	1	765.4238		62.62	140.47	568.22					590.20
	TunkhannockCreek	1	835.1691	Bridge-DN	61.36	201.83	568.22	604.53	616.66			590.30
	TunkhannockCreek	1	835.1691	Bridge-UP	47.80	249.63	571.15	604.53	616.66			590.38
	TunkhannockCreek	1	908.5829		34.00	283.63	571.15					590.56
	TunkhannockCreek	1	1804.838		896.26	1179.89	572.80			B		591.83
	TunkhannockCreek	1	2703.983		899.14	2079.03	574.46					593.53
	TunkhannockCreek	1	3295.061		591.08	2670.11	575.54			C		594.40

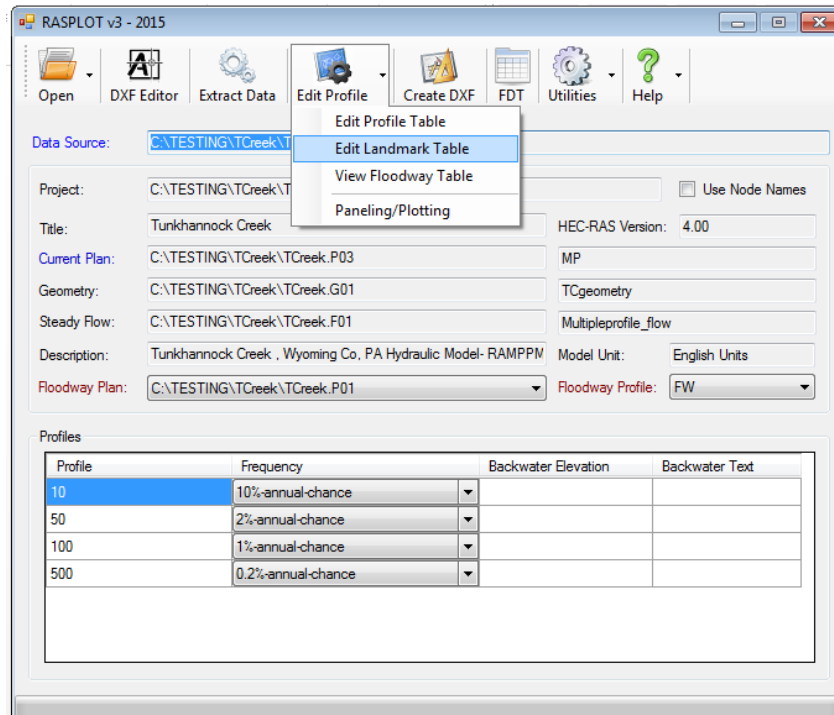
then entering in a new value. Keep in mind that if an elevation is going to be adjusted +/- half a foot, it should be adjusted in the model instead before running RASPLOT. This also applies for fixing drawdowns.

- The cumulative distance values in the CUMDIST field are calculated using the Channel Length (LENGTHCHNL) field values. By default, the cumulative distance starts at '0'. To recalculate cumulative distance, click the **“Recalculate Cumulative Distance”** button located in the upper left corner of the *Edit Profile Table* window. A dialogue box will appear asking for the **“Starting Distance.”** Enter the new value here and then click **“OK”**. To reset the cumulative distance, simply click on the Recalculate button again and keep the default value of 0. Then click **“OK.”**



- The program will automatically re-letter all or a portion of the cross sections for your stream if desired. First select the row in the table associated with the lettered cross section you'd like to start with.

Then click the “**Re-Letter Cross Sections**” button at the top of the *Edit Profile Table* window. Enter the new letter that you’d like associated with that cross section (for example, “C”) in the dialogue box that appears. The cross section will be re-lettered and all other previously lettered cross sections below it in the table will also be re-lettered in alphabetical order.



6.3 Editing the Landmark Table

The “**Edit Landmark Table**” window allows the user to insert horizontal or vertical notes at any point on the profile. This is not limited to cross section locations. To access this window, click the *Edit Profile* drop down menu and click “Edit Landmark Table.”

The Edit Landmark Table dialogue box will appear.

The user of either entering and fields in using the to these

Manually Distance fields:



has the option manually the Distance Elevation the table or plot window determine values:

Entering the and Elevation

- From the “**Distance**” column, enter the horizontal distance where you want the note to be displayed.
- From the “**Elevation**” column enter, the vertical elevation where you want the note displayed.

Using the Plot Window to Determine Distance and Elevation fields

First click on the asterisk on the far left of the empty row in the Landmark Table dialogue box to select it in blue. Then use the profile plot window to identify the location where the text should be included on the profile plot.

To use the plot window:

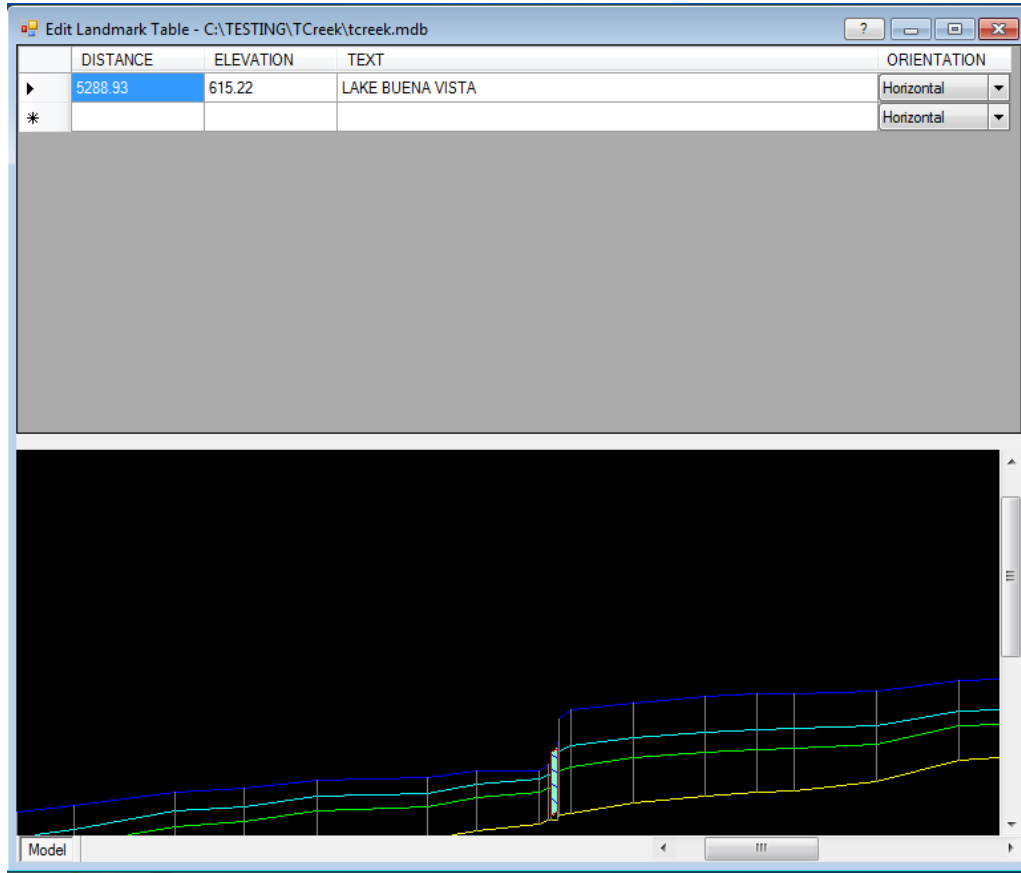
- While the mouse cursor is within the Plot Window, the user can right click using the mouse to bring up viewing options.
- Left clicking “**Zoom In**” allows the user to draw a window of where they want to zoom into on the profile.
- Left clicking “**Zoom Out**” allows the user to zoom out a small percentage every time it’s clicked.
- Left clicking “**Full Extent**” zooms to the entire extent of the stream profile.
- Left clicking “**Pan**” changes the mouse cursor to a hand icon and allows the user to drag the plot in any direction while holding down the left mouse button.
- Dynamic Zoom: Instead of using the menu options to zoom, the user can also use the middle ‘wheel’ button of their mouse to dynamically zoom in or out in the plot window.

Once you have determined the desired location of the text in the plot window, double click on that location. The Distance and Elevation fields will populate in the table.

Adding the Text

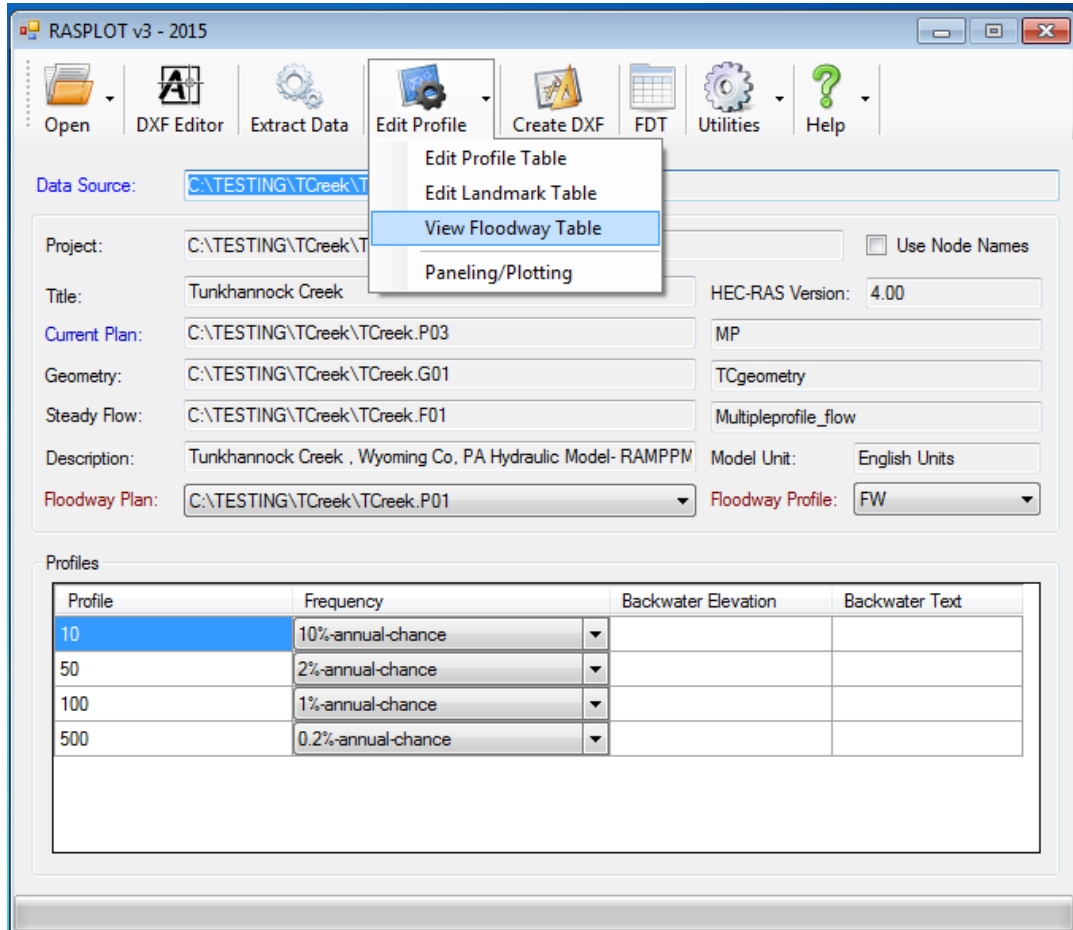
- In the “**Text**” column, enter your landmark note to be displayed on the DXF profile. The text limit for the field is 50 characters.
- From the “**Orientation**” column, click the drop down menu and choose how you want your note positioned (Horizontal or Vertical).
- To add an additional landmark, select the empty row below the first row that appears after text is added to the first row. Select the desired location to add the additional landmark per the instructions above and repeat the steps above to add the text note.
- To delete a note, select the row and then press the Delete key.

RASPLLOT 3.0 User Guide



6.4 Viewing and Editing the Floodway Table

To access the floodway table of values populated from the HEC-RAS model, click the Edit Profile drop down menu and click “View Floodway Table”. The information in this table will be used to develop the FDT using the FDT Creation Tool (See Section 8). The floodway table available under the Edit Profile menu is not the actual FDT generated by the program.



The floodway table produced from the HEC-RAS model will show floodway information for all modeled cross sections. The floodway table is populated using the multiple profile run for the 100-year flood elevations and the floodway run for the floodway elevations. If there is no floodway run included in the HEC-RAS project, the Floodway Table will not be populated. Cross sections which were lettered in the profile table (See Section 6.2 above) will appear in the floodway table.

Editing Values in the Floodway Table:

- Field cells that are colored in yellow (LABELLETTER through PROFILE) are not editable. The values correspond to those in the profile table (Section 6.2 above). If cross section letters need to be edited, this needs to be performed directly in the profile table.

RASPLIT 3.0 User Guide

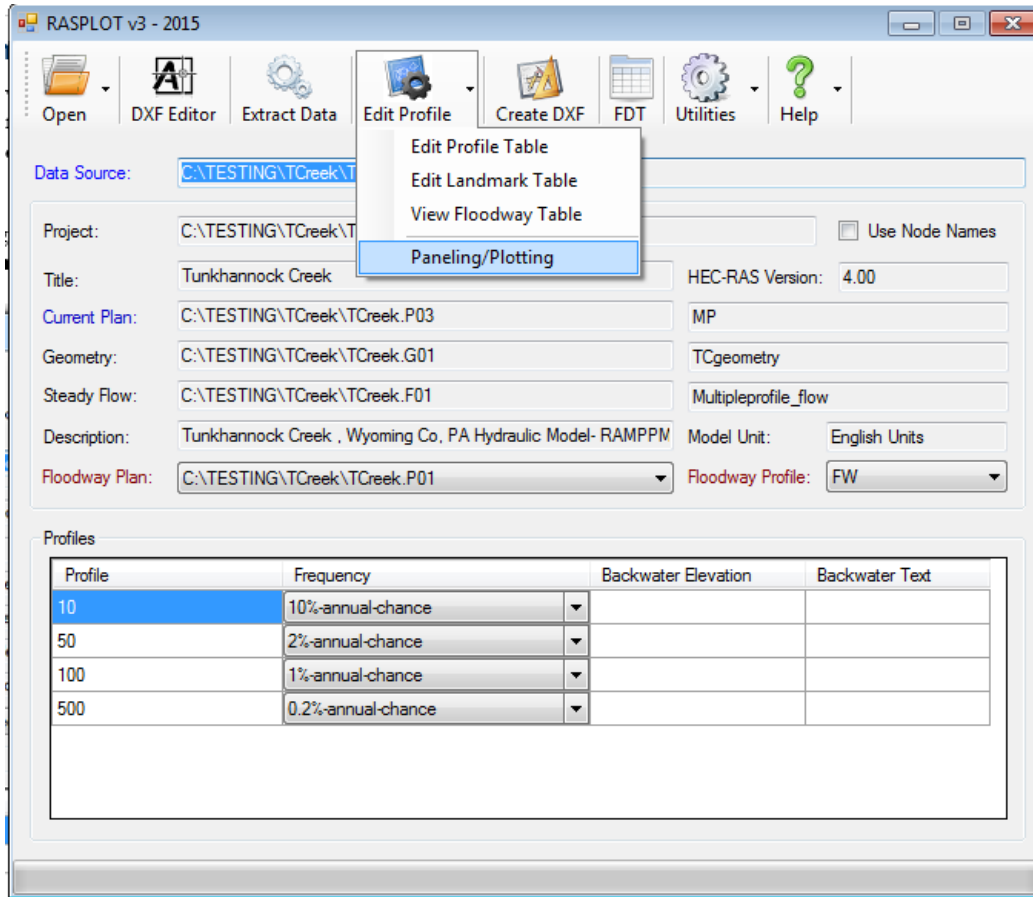
- Field cells that are colored in white (WSELEV through ELEV_WITHOUT_FW) are editable.
- To edit a cell, click the cell, then enter a value and hit the Enter key.

labelletter	River	Reach	RS	STRUC	profile	wsElev	chStaL	chStaR	leftStaEff	rightStaEff
W	Fox Hollow	Fox Hollow	10847.03		FW	9.00	9.00	9.00	9.00	9.00
V	Fox Hollow	Fox Hollow	10456.72		FW	1469.69	205.06	214.15	161.75	235.08
U	Fox Hollow	Fox Hollow	10287.42		FW	1461.81	165.41	172.80	152.27	259.55
T	Fox Hollow	Fox Hollow	10132.15		FW	1451.29	75.93	99.44	71.88	104.73
S	Fox Hollow	Fox Hollow	10075.50		FW	1448.36	90.69	114.13	84.45	127.78
R	Fox Hollow	Fox Hollow	9898.33		FW	1440.05	190.31	209.81	146.14	240.89
Q	Fox Hollow	Fox Hollow	9869.23		FW	1439.98	169.14	186.57	126.31	204.72
P	Fox Hollow	Fox Hollow	9821.51		FW	1434.44	179.87	200.99	175.74	206.36
O	Fox Hollow	Fox Hollow	9767.73		FW	1432.65	181.11	198.19	174.69	206.23
N	Fox Hollow	Fox Hollow	9734.59		FW	1427.51	186.80	209.46	185.24	212.82
	Fox Hollow	Fox Hollow	9556.35		FW	1419.22	104.32	131.45	98.34	146.29
	Fox Hollow	Fox Hollow	9520.55		FW	1419.40	185.91	204.85	163.88	256.88
	Fox Hollow	Fox Hollow	9462.02		FW	1414.21	185.74	203.86	180.45	217.09
M	Fox Hollow	Fox Hollow	9376.29		FW	1411.52	251.45	269.84	223.92	280.15
	Fox Hollow	Fox Hollow	9061.01		FW	1393.69	171.46	183.18	114.74	194.39
L	Fox Hollow	Fox Hollow	8785.90		FW	1376.39	517.30	551.06	478.46	556.73
	Fox Hollow	Fox Hollow	8448.05		FW	1360.82	213.16	231.71	166.95	246.69
K	Fox Hollow	Fox Hollow	7967.00		FW	1341.60	258.92	286.31	157.41	343.97
	Fox Hollow	Fox Hollow	7762.82		FW	1331.24	286.25	307.22	270.80	359.86

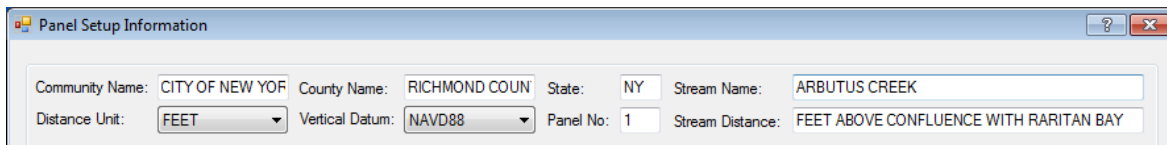
6.5 Paneling/Plotting

The Paneling/Plotting window allows the user to view and edit profile panel information which then will be used to generate the DXF profile(s). *In order to create a DXF profile using the Create DXF button, the Paneling/Plotting window will need to be opened by the user at least once.*

To access the Paneling/Plotting window from the Edit Profile icon, click the drop down menu and then click on “**Paneling/Plotting.**”



The user can edit these features that will be displayed on the DXF(s). (All data entered should be in upper case):



- **Community Name** (For Countywide studies, this text should usually be “And Incorporated Areas” or “All Jurisdictions” in order for the text to correctly appear on the flood profiles).
- **County Name** (e.g., “Jackson County”).

- **State** – state abbreviation.
- **Stream Name.**
- **Distance Unit** – this is a drop down menu where the user can choose which unit of measurement to display the horizontal distance of the stream on the DXF profile (Feet, Hundred Feet, Thousand Feet, Meters, Kilometers, Miles).
- **Vertical Datum** – this is a drop down menu where the user can choose the desired datum as the label to appear on the profile. The default value is North American Vertical Datum of 1988 (NAVD88).
- **Panel No.** – the user can enter what panel number the stream profile starts with. The default value is ‘1’.
- **Stream Distance** – the user identifies what distance unit is used and where the stream reach begins (e.g., *Feet above confluence with Big River*).

By default, RASLOT will assign a horizontal scale of 500 feet and a vertical scale of 5 feet to all profiles. The user has the option to adjust the scale and other information using the tools outlined below.

The Local Panel Table

The local panel table is where information regarding each individual panel can be viewed and edited.

	PANEL	STARTINGSTATION	ENDINGSTATION	STARTINGELEVATION	ENDINGELEVATION	Panel X	Panel Y
▶	1	0	6500	555	600	0	555
	2	6500	13000	570	615	6500	570
	3	13000	19500	580	625	13000	580
	4	19500	26000	590	635	19500	590
	5	26000	32500	600	645	26000	600
	6	32500	39000	610	655	32500	610
*							

The user can edit a cell in the table by clicking the cell, entering in a value and then hitting the “Enter” key or clicking a different cell. By double clicking on the far left cell in gray in a row, that panel will be highlighted with yellow indicator markers in the profile plot below the table.

Below is a description of each field in the local panel table.

- **Panel** field represents the panel order.
- **Starting Station** field represents at what starting cumulative distance the data will be displayed for that specific panel.
- **Ending Station** field represents at what ending cumulative distance the data will be displayed for that specific panel.
- **Starting Elevation** field represents at what starting vertical location the data will be displayed for that specific panel.
- **Ending Elevation** field represents at what ending vertical location the data will be displayed for that specific panel.

- **Panel X** field represents the starting horizontal location of the panel.
- **Panel Y** field represents the starting vertical location of the panel.
- **HScale** field represents the horizontal scale of the panel.
- **VScale** field represents the vertical scale of the panel.

To add an additional profile panel, right click anywhere on the table and click “Add Panel”. This new panel will begin from where the last panel in the set ended.

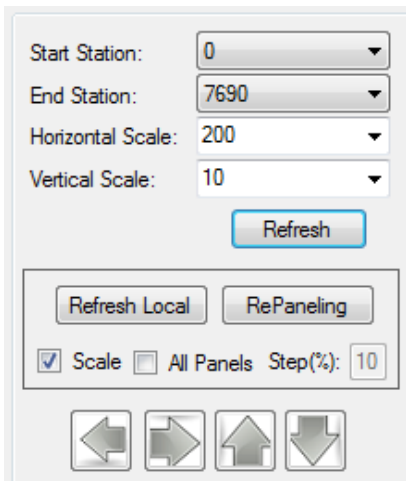
To remove a panel, select the row from the gray column to the left then hit the Delete key.

To add an offset starting distance to the profiles, right click anywhere on the table and click “Set Starting Panel Distance”. Enter the distance at which you would like your panels to begin and click “Okay.” The offset distance can be reset by again right clicking the table, selecting “Set Starting Panel Distance,” keeping the offset distance as “0” and then clicking “Okay.”

Note that not all changes to the local panel table will be reflected in the Plot view, but they will be reflected in the DXF.

Global Settings Panel

The global settings panel allows the user to adjust stationing and scale properties for all panels.



Adjusting the Global settings

- **Start Station** allows the user to choose a starting location from the drop down box. These values from the drop down box are pulled from the River Station “RS” column in the RASPLOT database.
- **End Station** allows the user to choose an ending location from the drop down box. These values from the drop down box are pulled from the River Station “RS” column in the RASPLOT database.
- **Horizontal Scale** allows the user to set the horizontal scale for all panels by either picking from the drop down box or entering in their own value.
- **Vertical Scale** allows the user to set the vertical scale for all panels by either picking from the drop down box or entering in their own value.

- **Refresh** button allows the user to implement all global changes to the local panel table and plot window.
- **Refresh Local** button allows the user to refresh the plot window after edits have been made to the Panel X and Panel Y fields in the local panel table.
- **RePaneling** button allows the user to readjust the start and end stations of all panels after they have adjusted the Ending Station of the first panel.

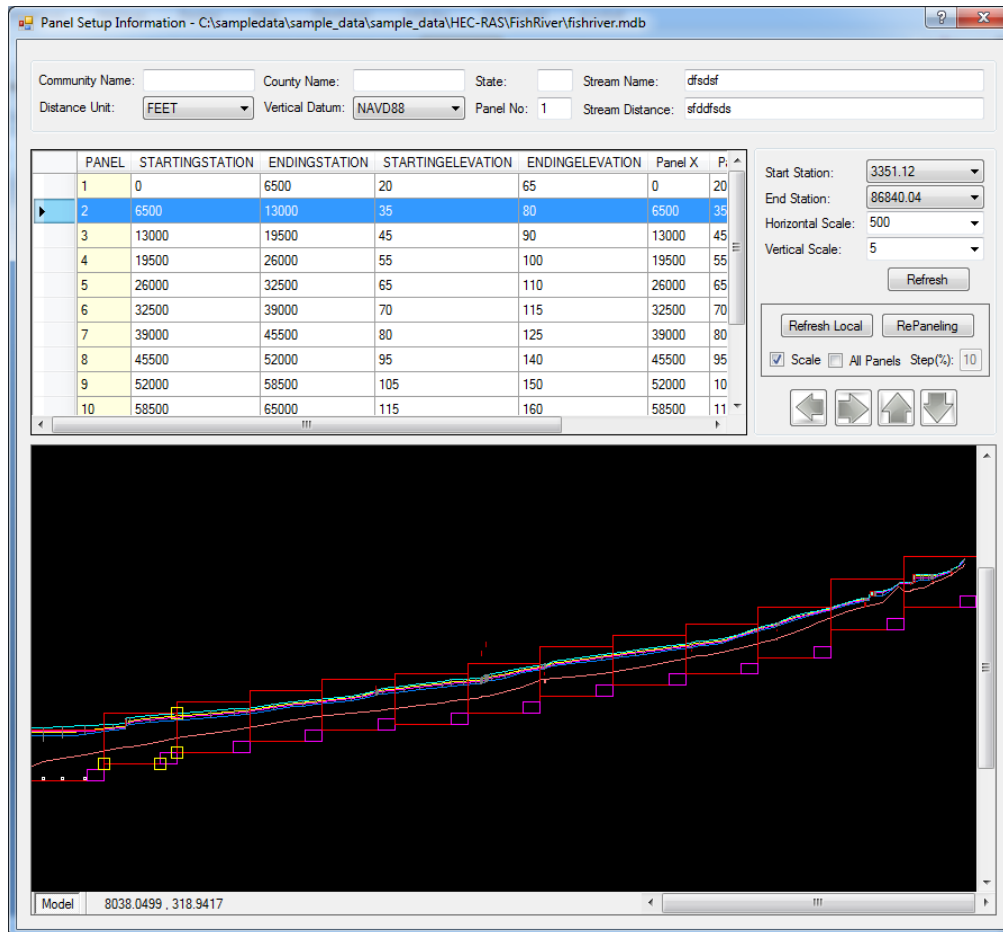
Adjusting Horizontal and Vertical Positioning of Panels Graphically

The user can use the 4 arrow buttons at the bottom of the global settings panels to adjust the positioning of profiles graphically instead of manually adjusting scale and stationing values:

- The **Scale** check box allows the user to make adjustments based on the current global scale (e.g., if the vertical scale is set to 5, then every time you click the up or down arrow it will move the panel up or down 5 units).
- Having the **Scale** box unchecked enables the user to adjust panels based on the percentage of the total height and distance of that panel. The user can manually enter the step percentage and then use the arrows to adjust the panels.
- When checked, the **All Panels** check box allows the user to adjust all panels at the same time with every click to the arrow buttons.
- Having the All Panels box unchecked, allows the user to adjust one panel at a time. First the user must highlight the panel they want to adjust from the local panel table, and then click the desired arrows to adjust that panel.
- Every time the user clicks an Arrow button, it will be reflected in the plot window and local panel table.

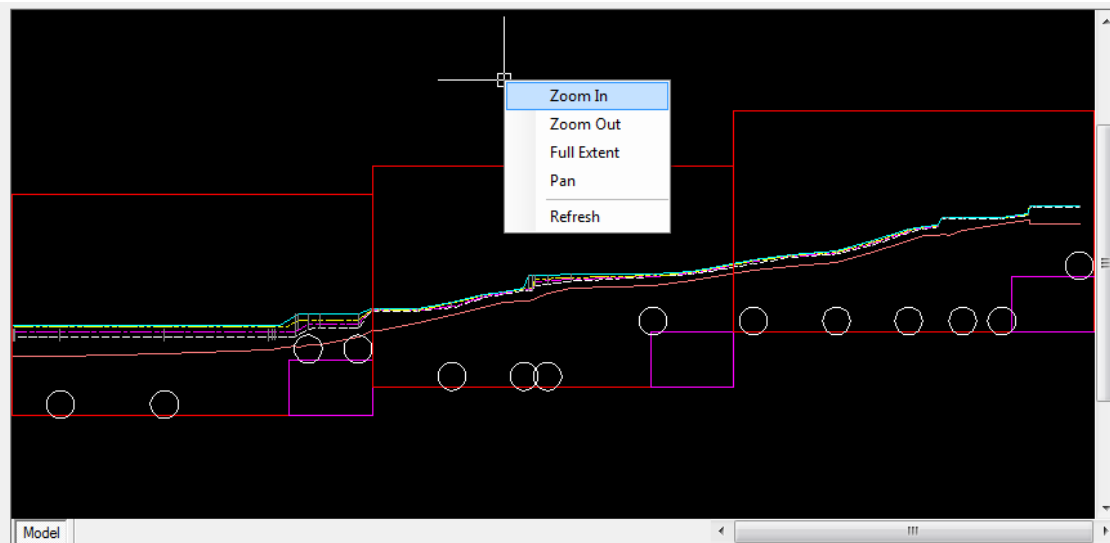
Profile Plot Window

The Plot Window shows an overview of the profile of the stream and its panel(s). By double clicking on the gray cell to the left of each profile row in the Local Panel Table, the profile will be selected with yellow points in the Plot Window. In the example below, Panel 2 is selected.



Using the Plot window:

- While the mouse cursor is within the Plot Window, the user can right click the mouse to bring up viewing options.
- Left clicking “**Zoom In**” allows the user to draw a window of where they want to zoom into on the profile.
- Left clicking “**Zoom Out**” allows the user to zoom out a small percentage every time it’s clicked.
- Left clicking “**Full Extent**” zooms to the entire extent of the profile panel(s).
- Left clicking “**Pan**” changes the mouse cursor to a hand icon and allows the user to drag the plot in any direction while holding down the left mouse button.
- Left clicking “Refresh” is equivalent to the Refresh Local button; it will only adjust the plot view if the user made edits to Panel X or Panel Y.
- Dynamic Zoom: Instead of using the menu options to zoom, the user can also use the middle ‘wheel’ button of their mouse to dynamically zoom in or out in the plot window.



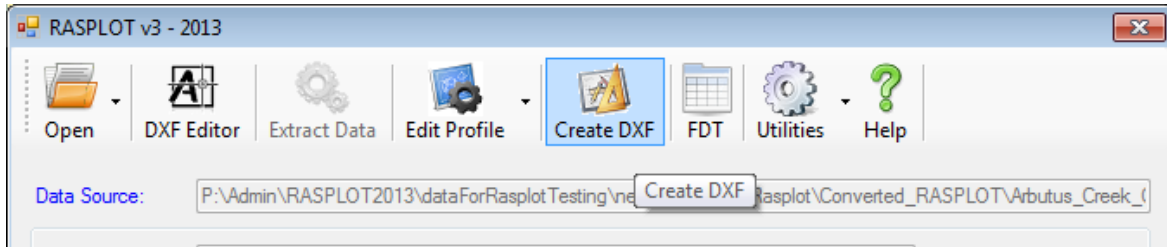
7. Creating, Editing and Exporting DXF Flood Profiles

Once all profile data has been entered, you are ready to create the profile plot in .dxf format. Once this is done, additional graphical edits can be made to the profile using the DXF Editor. Finally, once all edits are made, the profiles can be exported as .pdf files and/or printed. This section provides information about creating, editing and exporting DXF flood profiles.

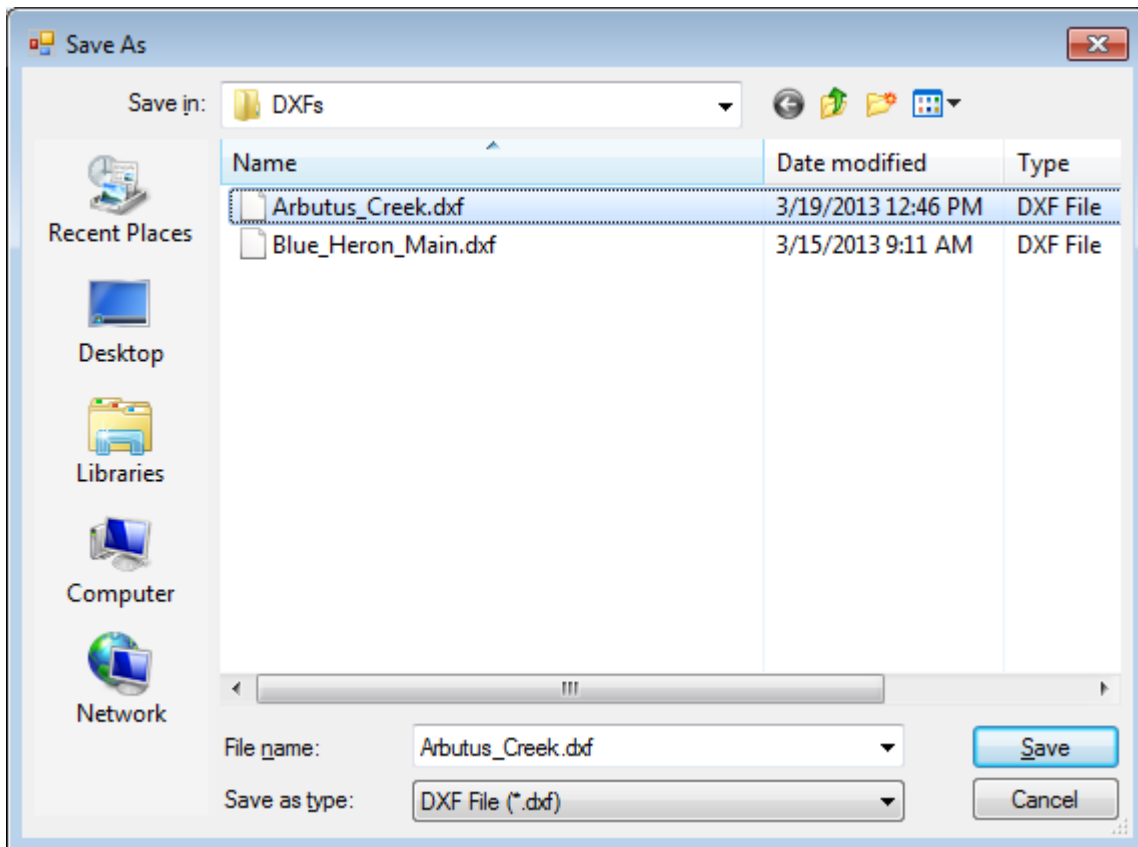
Note: While changes to the actual flood profile data (e.g., changes in cross section locations, flood frequency profile elevations, structure locations) can be made using the DXF Editor, these changes will not be reflected in the RASPLOT database. As a result, any FIRM database tables exported using the program or FDTs generated by the program will not reflect these changes. Therefore, it is highly recommended that the DXF Editor be used only for minor graphic adjustments to the profiles, rather than significant edits to the actual flood hazard information.

7.1 Creating a DXF Profile

To create a DXF, the user must click the “**Create DXF**” icon.

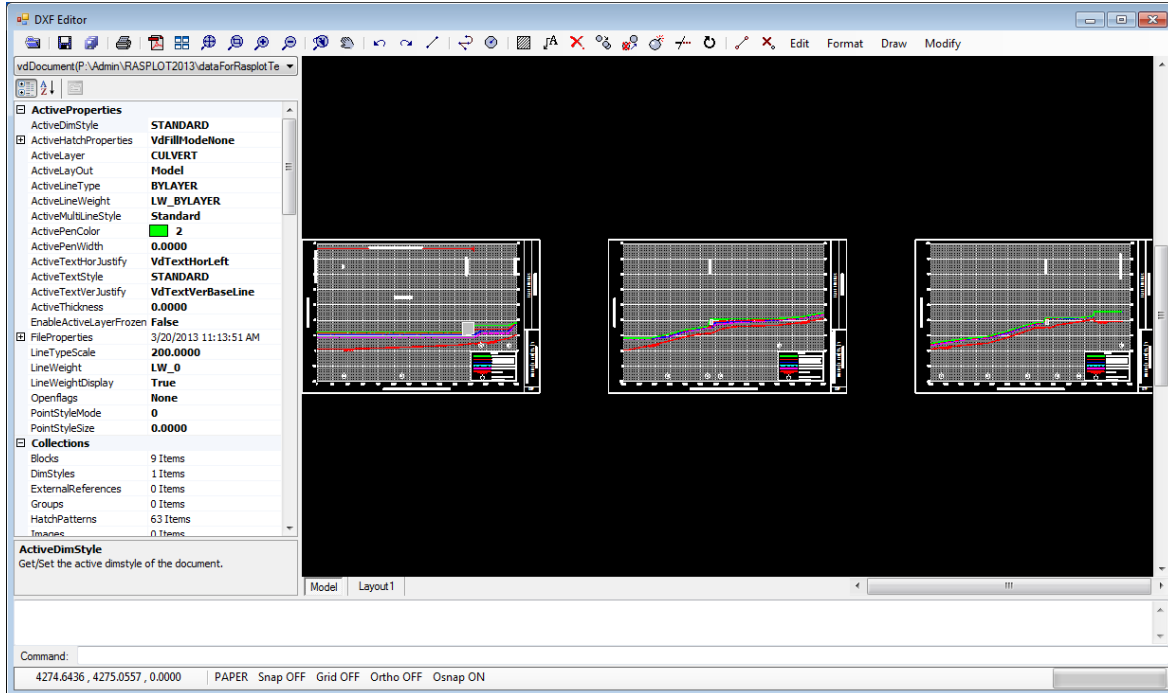


A “Save As” dialogue box will appear. The user must name the DXF in the File name box, then choose a location to store the DXF, and click the “Save” button.



This then opens the DXF Editor Window. Users may also open the DXF Editor window from the button at the top of the main interface screen to edit previously created DXF profiles.

RASPLOT 3.0 User Guide




7.2 The DXF Editor

The DXF Editor allows the user to view, modify and print DXF files. It is a fully functional CADD program where the user can create, erase, trim, explode, rotate, copy, move and format objects. The DXF Editor allows the user to save changes to DXF file formats only.

Open an Existing DXF file



By default, after the user creates a DXF file in RASPLOT, the DXF Editor window will open automatically with that DXF file. However, you do not have to have RASPLOT create a DXF file in order to use the DXF editor. To use the DXF editor, open RASPLOT, and click the “DXF Editor” button on the main interface screen.



To open a DXF file within the DXF Editor, click the open button . Browse to the location of the DXF file. Click the “Open” button to open the selected file.

Note that RASPLOT 3.0 is intended for use with DXF files compatible with AutoCAD 2013. The user can open DXF files created using previous versions of RASPLOT or other sources which are compatible with older versions of AutoCAD. However, some symbology, including structures, will be compromised.

Save changes in DXF format







To save edits to an opened DXF file, the user can click the Save button . To save the DXF file as a different name, the user can click on the Save As button  then give the file a new name within the “File name” section and then navigate to where they want the file saved before clicking the “Save” button.

Important: By default, RASPLOT will create a DXF file compatible with AutoCAD 2013. However, the user may instead save the file as an older DXF version in order to maintain compatibility with older versions of AutoCAD or Microstation. To do this, click on the “Save As” button after opening your profiles in the DXF Editor, and then select the desired DXF version from the field type drop down list. Keep in mind that some symbology will be impacted by downsaving to a lower DXF version, including structure symbology.

Viewing and Editing/Feature Creation Functions



From the main menu bar of the DXF Editor, there are numerous shortcut buttons that the user can choose to view or edit/create features with.

Viewing buttons





-  **Full Extent** button allows the user to zoom to the full extent of the profile(s).
-  **Zoom Window** button allows the user to zoom into a specific area they designate by drawing a box in that area.
-  **Zoom In** button allows the user to zoom in a small percentage of the entire view every time the button is clicked.
-  **Zoom Out** button allows the user to zoom out a small percentage of the entire view every time the button is clicked.
-  **Zoom Previous** button allows the user to zoom to the previous view every time it's clicked.
-  **Pan** button allows the user to pan in any direction by clicking and holding down with the hand icon and then dragging the hand icon in the desired direction.


Dynamic Zoom: Instead of using the menu options to zoom, the user can also use the middle 'wheel' button of their mouse to dynamically zoom in or out in the plot window.

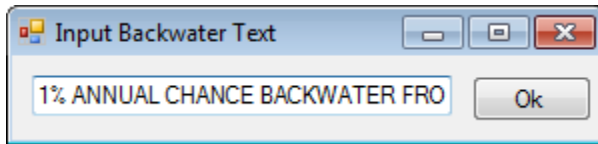
Undo and Redo Shortcut button

-  **Undo** button allows the user to undo the previous action.
-  **Redo** button allows the user to redo actions.

Feature creation shortcut buttons

-  **Draw Line** button allows the user to draw a line on the DXF plot window by left clicking the mouse at the desired start point, then left clicking the mouse at the desired end point of the line and then right clicking the mouse button to finish the drawing.
-  **Draw Polyline** button allows the user to draw a line on the DXF plot window that can have multiple points and curves by left clicking the mouse at the desired start location and continuing to left click, adding points for the desired shape of the line. Then the user will right click the mouse to complete the drawing.
-  **Draw Circle** button allows the user to draw a circle on the DXF plot window by left clicking the mouse at the desired location, then moving the mouse up or down to increase the size of the circle, and then left clicking the mouse to finish the drawing.
-  **Poly Hatch** button allows the user to draw a structure (ex. Culvert) with hatching on the DXF plot window. This functions the same way as drawing a polyline. The only difference is that when you finish the drawing by right clicking, the feature will be hatched with default symbology. To adjust the hatching symbology, select the feature and then make adjustments from the Active properties window.

-  **Backwater** button allows the user to draw an indicator line that includes text on the DXF plot window. First the user will be asked to Input Backwater Text from the dialogue box that appears, and then click “Ok”.











The user then must left click where the start point of the indicator line will be, then left click where the line will end.



This feature can also be used to create other notes on profiles.

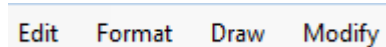
Edit Shortcut buttons

-  **Erase** button allows the user to remove feature(s) from the DXF plot window by left clicking the feature(s) and then right clicking to erase the feature(s).
-  **Copy** button allows the user to copy feature(s) from the DXF plot window by left clicking the feature(s), then right clicking, and then left clicking again. The copied feature(s) will then be displayed and will need to be moved to the desired location. Then left click to paste the copied feature(s).
-  **Move** button allows the user to move an existing feature to anywhere on the DXF plot window by left clicking the feature(s) they want moved, then right clicking, and then left clicking which then will display a copy of the feature(s) on the mouse cursor which will need to be moved to the new desired location. Then left click to finish the process.
-  **Explode** button allows the user to change grouped feature(s) into individual elements so it can be edited in the DXF plot window by left clicking the feature(s) to be exploded, then right clicking to finish the explosion.
-  **Trim** button allows the user to shorten a feature to an intersection or remove a section of a feature between two intersections in the DXF plot window by left clicking the feature that intersects the main feature, then right clicking the main feature side where the trim will occur, and then left clicking the same spot to trim the main feature.
-  **Rotate** button allows the user to rotate a feature(s) around a point of reference on the XY plane on the DXF plot window by left clicking feature(s) to be rotated, then right clicking, and then left clicking which will display a copy of the feature on the mouse cursor. Then the user must rotate the feature with the mouse in a circular motion until the desired location is reached, and then left click to finish process.

- 
Snap to End Point button allows the user to snap to the end points of lines and arcs and to polyline vertices. To use this tool, click on the icon and then choose your desired drawing, editing or viewing tool. Then navigate to the feature/vertex to snap to. Before you snap to a vertex, the vertex that is nearest to the mouse cursor will be identified with a green box to let the user know which vertex the snapping will occur to. Proceed with using the desired drawing, editing or viewing tool as desired.
- 
Snap Cancel button deactivates Snap to End Point (Osnap).

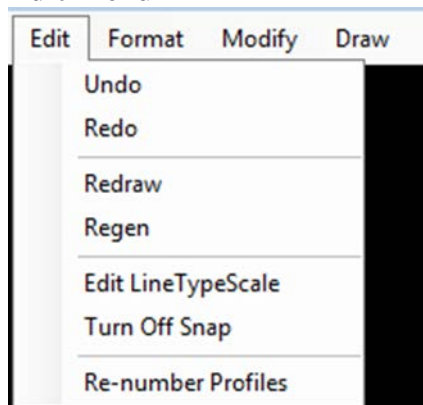
Using DXF Editor Menus

Menu bar items



The menu bar items in RASPLOT consist of four drop down menus, Edit, Format, Draw, and Modify. Some of the shortcut button functions can also be found in these menus.

Edit Menu



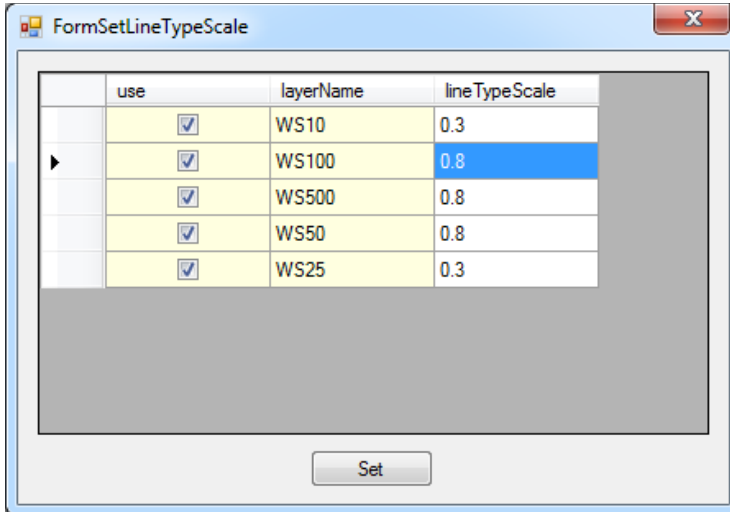
The Edit menu consists of:

- **Undo** and **Redo** function the same as the shortcut buttons.
- **Redraw** refreshes or cleans up the current view of the DXF plot window.
- **Regen** functions to regenerate the current view of the DXF plot window by recalculating the vector locations of all endpoints.
- **Edit LineType Scale tool** (see below for more information).
- **Turn off Snap** turns off the snapping function.
- **Re-number Profiles** allows the user to automatically renumber all of the profiles in the set.

Edit LineTypeScale Tool

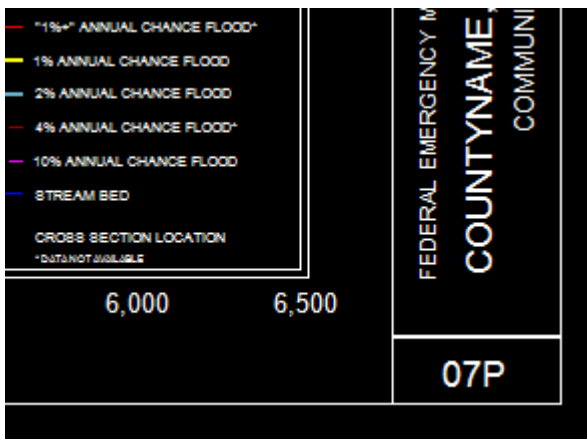
The Edit LineTypeScale tool allows the user to globally change the line type scale shown in the properties panel for one or more flood recurrence profiles. After opening the Edit LineTypeScale tool, enter the desired scale for one or more of the flood profiles and click “Set.” The change will occur in all of the profile panels in the DXF file. When you click on the flood recurrence profile line, you will see the LineTypeScale field has been

adjusted. (Note that if you navigate to the *Edit LineType Scale* tool table after making a change, these changes will not be shown in the table, which by default shows the original values. However, they will be shown in the properties field for the recurrence profile in question.)

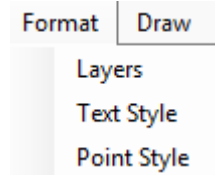


Re-Number Profiles Tool

The user can automatically re-number all of the profiles in the set by using this tool. After selecting the “Re-Number Profiles” menu item, enter the desired panel start number (e.g. 5, 10, 37, etc.) into the “Starting Panel Number” dialogue box. (Note that only numeric values are accepted -- the program will automatically add the ‘P’ suffix for each panel.) All of the panels will be renumbered based on the starting panel number indicated.

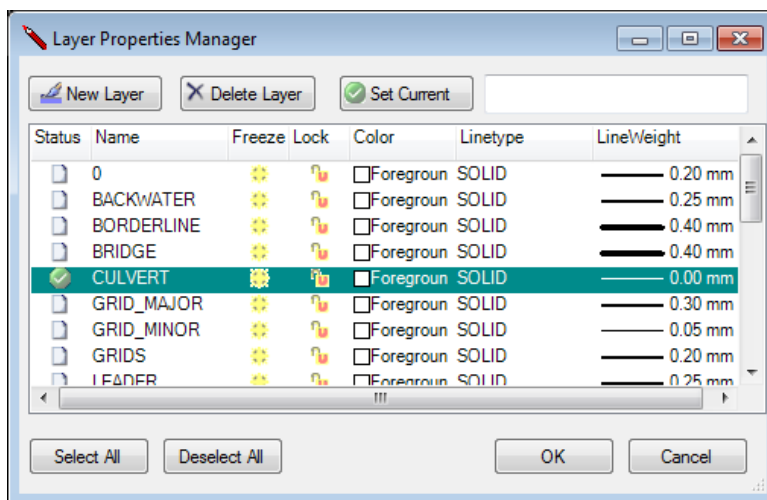


Format Menu

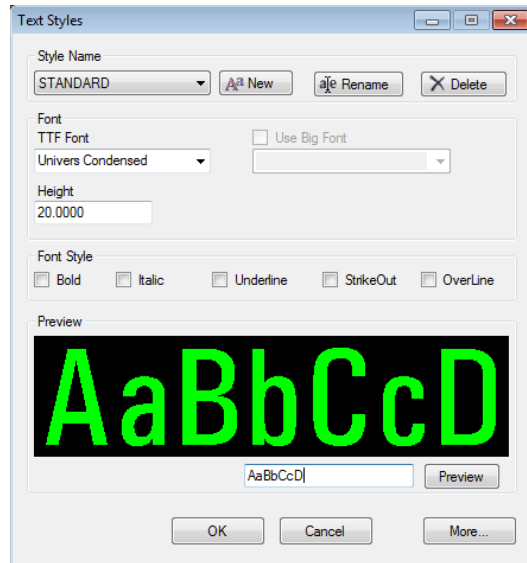


The Format menu consists of:

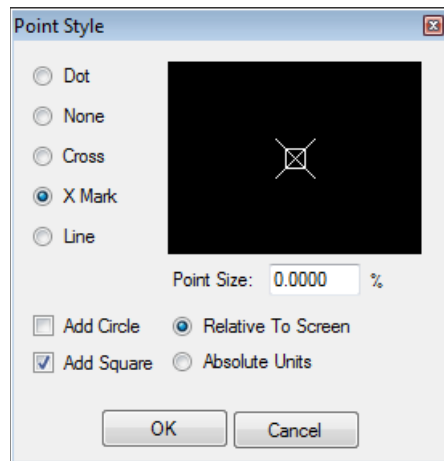
- **Layers** opens up the **Layer Properties Manager**. This is where the user can add, delete, and rename layers, and change their properties. Users can also freeze layers so they are not visible in the profile and lock layers so they are not editable. Note that a layer cannot be set as the Current Layer (the green checkmark to the left of the layer name indicates this) when freezing and unfreezing a given layer.



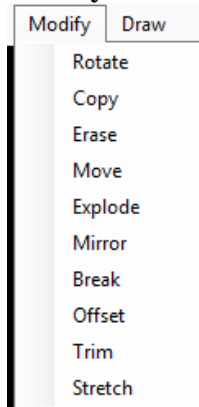
- **Text Style** opens up the Text Styles dialogue box through which the user can adjust the current text font, size, and font style. The user can also create new and rename existing text styles. Other properties are available for adjusting by clicking the “More” button.



- **Point Style** opens up the Point Style dialogue box where the user can adjust the appearance and size of a point.



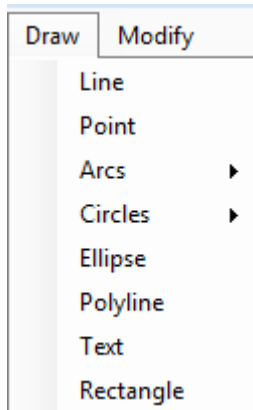
Modify Menu



The Modify Menu consists of:

- **Rotate** functions the same as the **Rotate** shortcut button.
- **Copy** functions the same as the **Copy** shortcut button.
- **Erase** functions the same as the **Erase** shortcut button.
- **Move** functions the same as the **Move** shortcut button.
- **Explode** functions the same the **Explode** shortcut button.
- **Mirror** allows the user to flip a feature(s) to create a mirror image in the DXF plot window by left clicking the feature(s) they want to mirror, then right click, then left click. Then move the mirror feature(s) to the desired location, left click and then right click to finish process.
- **Break** allows the user to erase part of a line, arc, or circle, or splits it into two lines or arcs in the DXF plot window by left clicking the two points where the break will occur.
- **Offset** allows the user to create a new line, polyline arc or circle parallel to the feature(s) and at a specified distance from it in the DXF plot window by left clicking an existing feature, and then left clicking the feature again. Then a draw line is displayed attached to the cursor. Next move the cursor further away to increase the offset of the new feature and then left click twice to finish the process.
- **Trim** functions the same as the **Trim** shortcut button.
- **Stretch** allows the user to stretch feature(s) crossed by a selection window in the DXF plot window by left clicking feature(s) to stretch, and then right clicking. Next draw a window by left clicking. Then left click and move cursor to the desired location of stretched feature(s) and then left click to finish the process.

Draw Menu

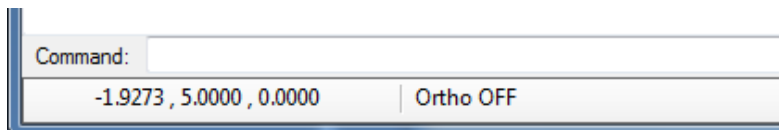


The Draw menu consists of:

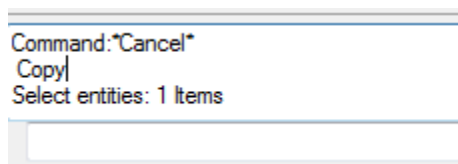
- **Line** functions the same as the **Draw Line** shortcut button.
- **Point** adds a point to the DXF plot window when the user left clicks the mouse.
- **Arcs** is a submenu where the user can chose the function **Arc** and **3 Points Arcs**.
 - **Arc** is created by the user by left clicking where the center of the Arc is going to be, then left clicking one end point of the Arc, and then left clicking the other end point of the Arc. Then the user moves the cursor

- around until the desired arc is displayed. Then left click to finish the process.
 - **3 Points Arc** is created by the user by left clicking one end point of the arc, then left clicking the other end of the arc, and then moving the cursor around until the desired arc is displayed in the desired location. Then left click to finish the process.
- **Circles** is a sub menu where the user can chose the function **Center-Radius Circle**, **3 Points Circle**, and **2 Points Circle**.
 - **Center-Radius Circle** functions the same as the **Draw Circle** shortcut button.
 - **3 Points Circle** is used by left clicking 3 points where the circle will pass.
 - **2 Points Circle** is used by left clicking 2 points where the circle will pass.
- **Ellipse** is used by left clicking where the center of the Ellipse will be, then left clicking where one of the end points will be, and then moving the cursor away from the center point to stretch the circle to create an ellipse shape. Then once the desired shape is reached, left click to finish.
- **Polyline** functions the same as the **Draw Polyline** shortcut button.
- **Text** allows the user to create text in the DXF plot window by left clicking where the text will start, then left clicking where the text will end. Then the user types in the desired text and hits the Enter key to finish process.
- **Rectangle** allows the user to draw a rectangle in the DXF plot window by left clicking where one corner of the rectangle will be, then left clicking where the opposite corner will be.

Ortho and Command Line Functions



- **Ortho** is activated by left clicking Ortho at the bottom of the window. It constrains cursor movement to horizontal or vertical direction.

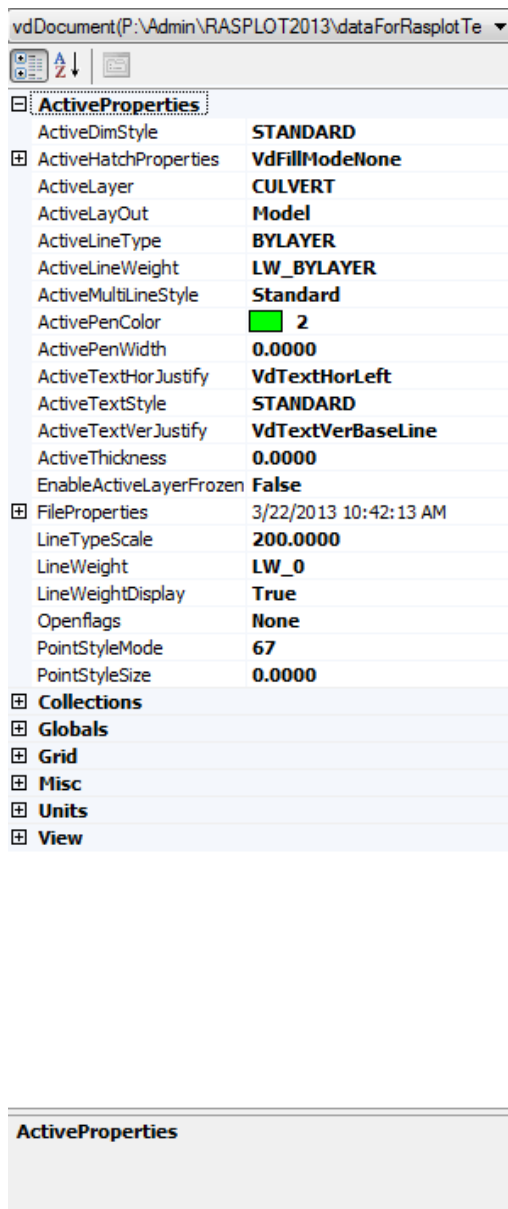


The user can also enter standard Computer Aided Design (CAD) commands instead of using shortcut or menu buttons by entering text in the command line located at the bottom of the window. Some commands also have abbreviated names called command aliases. To enter a command by using the keyboard, type the full command (ex. Copy, Move, Erase etc.) into the command line and press Enter. Some commands also have abbreviated names. For example, instead of entering **Circle**, the user can enter “c”. A list

of all Command names and abbreviated commands are located in the “Commands.txt” file located in the installation folder for RASPLOT.

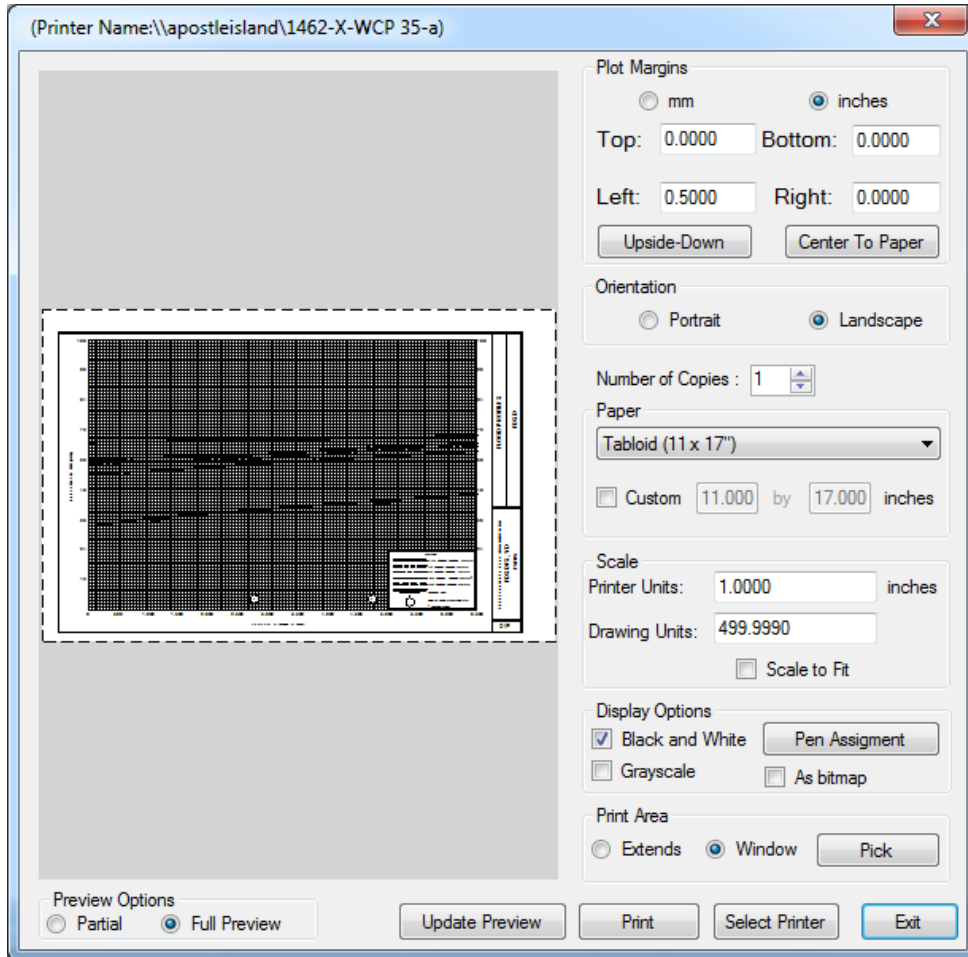
Active Properties Window

The Active Properties window allows the user to change the properties for any selected feature. First the user selects the desired feature in the plot window. Then in the active properties window, the display will show all of the properties for that selected feature. To change the properties of a feature, select any cell from the second column in bold. Either a drop down menu will display or the user can enter in a value. Examples of properties fields that can be changed include TextString, Style, Bold, Hor and Ver Justify, and WidthFactor.



7.3 Printing DXF Profiles

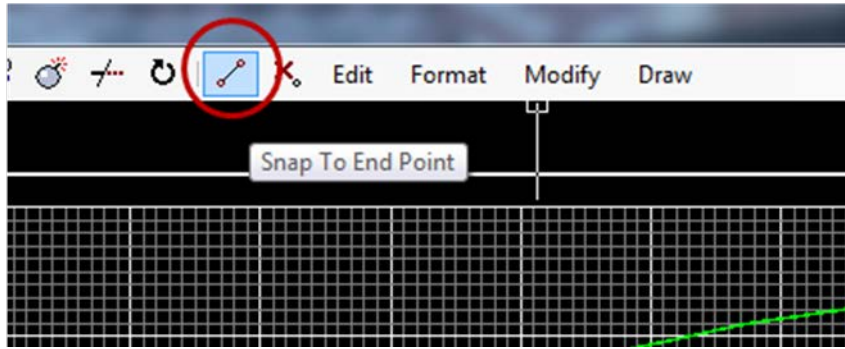
To print a DXF file, click the print button  within the DXF Editor. Then the print dialogue box appears.



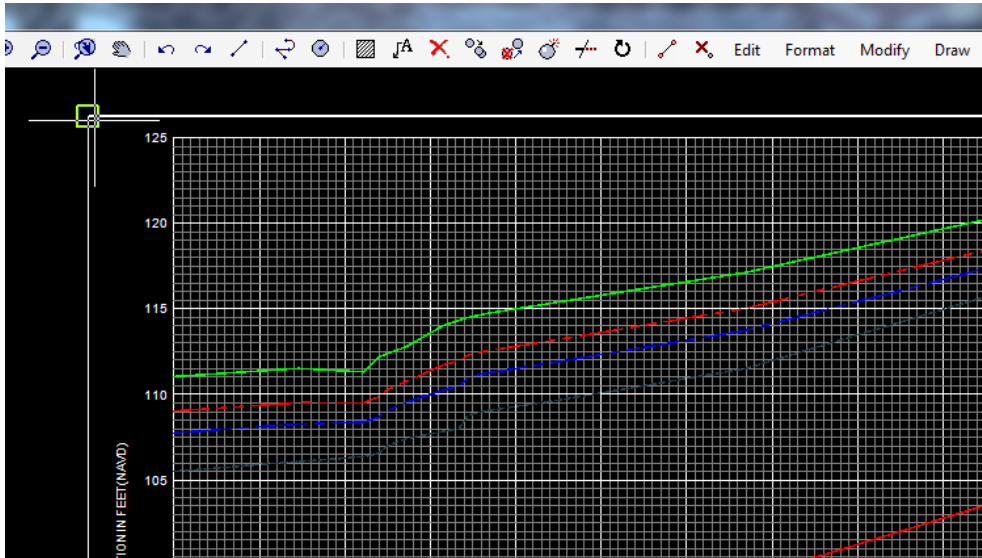
From the print dialogue box, the user has many options to set up the profile panel to print. Some of those print options include adjusting the plot margins, setting the orientation of the panel(s), and adjusting scale and display options.

The user also has the option to update the printing window by using the Pick button and drawing a window in the DXF plot window that includes the profile to be printed. The user may snap to the profile corners to ensure the panels consistently align on pages. To do this follow the instructions below:

After clicking the Pick button, the DXF Editor plot window will become active. Click the Snap to Endpoint tool.




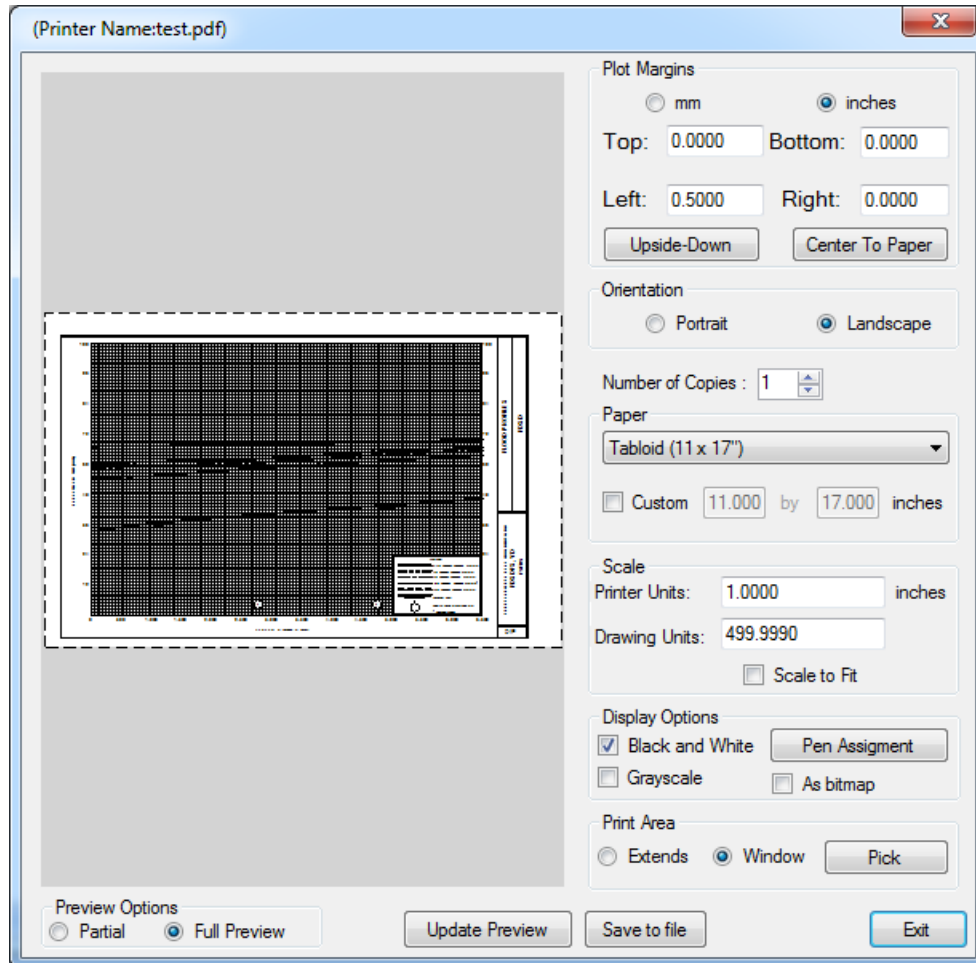
Now, hover the cursor over one of the panel corners. A green box will appear at the corner. Click on the screen where the box appears. Then click the Snap to Endpoint tool again, navigate to the opposite corner, and click on the screen where the green box appears. The Print dialogue box will now appear. Select Print or change options as needed prior to printing the profile.



7.4 Exporting DXF Profiles

Exporting a Single Profile Plot

DXF profile panels can be exported in PDF format. To save as PDF, click the Save as PDF button  in the DXF Editor. A Print to PDF dialogue box will appear.

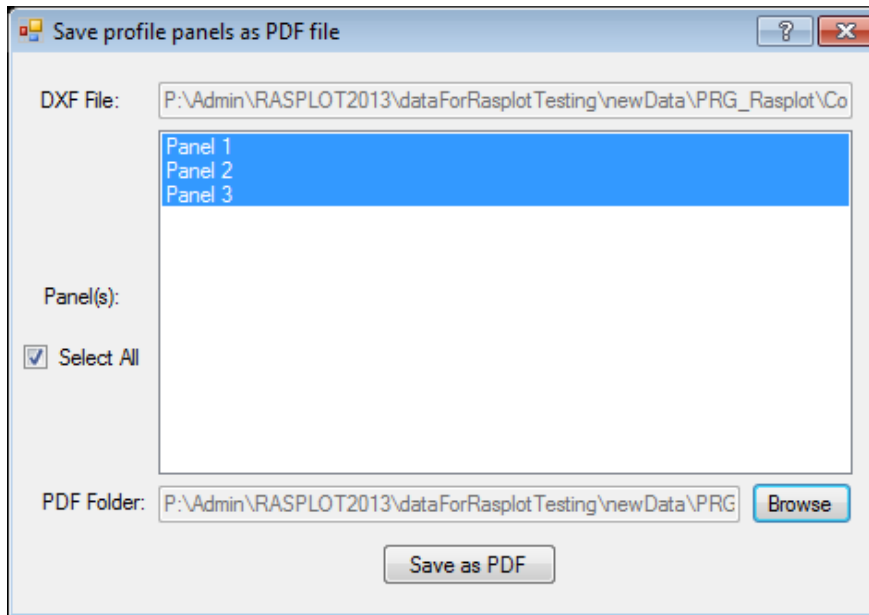


To save the DXF to PDF format, click the “Save to file” button, and then click the “Save” button. The user also has the option to save the file as a different file format from the “Save as type” drop down menu.

Unless specified otherwise by the user, the file will be saved to the location of your HEC-RAS project and/or RASPLOT Database.

Exporting Batch Profile Plots from the Same DXF File

To save multiple profiles from the same DXF file as a multiple page PDF file, click the “Batch save as PDF” button  in the DXF Editor. The following dialogue box will appear.



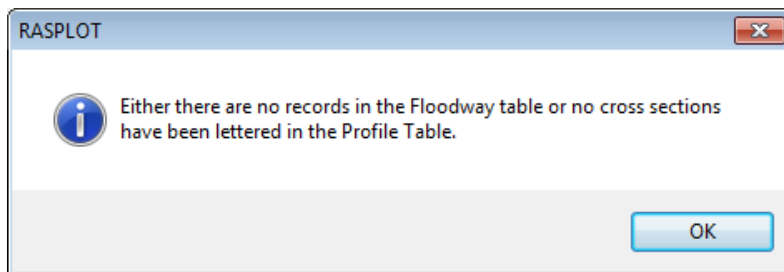
The user has the option to select which panels they would like to include in the PDF file by clicking any panel listed in the Panel(s) display box. The user can check the “Select All” box to include all of the panels. The user then needs to click the Browse button to navigate to where they would like to save their PDF and enter a file name. Once done, the user clicks the Save button. To produce the PDF, the user then clicks the “Save as PDF” button. Keep in mind that this tool can only export the profiles in PDF file format.

8. Creating, Editing and Exporting Floodway Data Tables (FDTs)

8.1 Creating FDTs



After a RASPLOT database has been created or loaded, the “FDT” button on the main interface screen will become active. Keep in mind that in order to use the FDT Creation Tool, the RASPLOT database must have lettered cross sections (See Section 6.2 about how to add these to the profile table) and a floodway table populated. If the database doesn’t have both of these populated and the user clicks the FDT button they’ll get this message:



To create an FDT, first the user must load a valid RASPLOT database.



- Then click the FDT button.
- The FDT Creation Tool window will then appear.

The FDT Creation Tool window displays the following data:

Note Number	Note Text
1	Feet above mouth
2	
3	
4	

Field Name	Note Number
XS Letter	
Distance	
Width	
Area	
Velocity	
Regulatory	
Without Floodway	
With Floodway	
Increase	

RS	Letter	Note	Distance	Note	Width	Note	Area	Note	Velocity	Note	Regulatory	Note	Without Floodway	Note	With Floodway	Note	Increase	Note
702.8065	A		78		336		4724		8.9		593.7		593.7		593.7		0	
1804.838	B		1180		227		3966		10.6		595.7		595.7		595.7		0	
3295.061	C		2670		235		4218		10		598.8		598.8		599		0.2	
3624.13	D		2999		195		3751		11.3		599.5		599.5		599.6		0.1	
4569.94	E		3945		257		4869		8.7		602.2		602.2		602.4		0.2	

Adding General Information

The General Info section consists of these fields: State (Abbreviation), County, Community, Stream (Name), Table Name (e.g. Table 2, Table 24, etc.), and the Vertical Datum drop down menu (Default is NAVD88). By default, the “Table Name” field will be populated with the text “Table 24” which corresponds to the set table number for FDTs in the latest FIS Report specifications. All entries in this section should be in upper case.

If the user has already entered community, state, and stream name information for use on flood profiles associated with the same model in the Paneling/Plotting window (See Section 6.5), this information will be auto-populated in the General Info section. Otherwise, the user will have to fill out all of the fields in this section.

The screenshot shows a form with the following fields and values:

- State: NY
- County: LEWIS|COUNTY
- Community: (ALL JURISDICTIONS)
- Stream: FOX HOLLOW
- Table Name: 10
- Vertical Datum: NAVD88 (dropdown menu)

Adding Footnotes

The Note Number/Note Text section in the top center of the FDT Creation Tool screen allows the user to select standard FDT footnotes for inclusion in the FDT. The user can select the desired footnote(s) from the dropdown list and include up to four footnotes on the FDT:

Note Number	Note Text
1	Feet above mouth
2	Feet above confluence with [Enter flooding source name]
3	
4	

For footnotes that include bracketed text (See example above for Note Number 2), the FDT generated will need to be manually updated by the user to add the text indicated in the brackets.

The user may also create their own customized footnote by selecting the blank row above the first footnote in the dropdown list. Then the desired text can be typed in the Note Text field to the right of the Note Number.

Note Number	Note Text
1	Feet above mouth
2	
3	Elevation computed without consideration of backwater effects from [Enter flooding source name]
4	Feet above mouth
	Feet above confluence with [Enter flooding source name]
	Feet above county boundary
	Feet above Limit of Detailed Study (Limit of Detailed Study is approximately [Enter description])
	Flooding controlled by [Enter flooding source name]
	Total floodway width/width within jurisdiction
	Width extends beyond county boundary
	Elevation riverward of levees
	Elevation landward of right bank levee
	Elevation landward of left bank levee
	Floodway not computed/shown for this cross section
	Combined probability with coastal flooding from [Enter coastal flooding source name]
	Combined coastal and riverine effects from [Enter riverine and coastal flooding source names]

Select Text for Asterisks

Data Not Available

The user can associate a particular footnote to a particular column in the FDT by entering the applicable Note Number in the Field Name/Note Number box on the right. In the example below, the footnote 'Feet above mouth' will be associated with the 'Distance' column in the FDT generated.

Note Number	Note Text	Field Name	Note Number
1	Feet above mouth	XS Letter	
2		Distance	1
3		Width	
4		Area	
		Velocity	
		Regulatory	

The user also has the option to add a note for specific data field on the FDT. In the Floodway section each column field has a "Note" column next to it.

Without Floodway	Note	
7	3	7
1050.702	3	1
1061.452		1
1089.854		1
1136.046		1

Enter the note number next to the desired record to add this note for a specific data field.

Notes with Asterisks

For users importing FIRM Database data to generate an FDT through the FDT Creation Tool, all data fields populated in the imported FIRM database tables as '-8888' (i.e., No data available) will appear as '*' in the FDT generated by the program. The user can select the specific note associated with these fields by selecting one of the two options in the 'Select Text for Asterisked Fields' section.

Select Text for Asterisked Fields (If applicable)

Data Not Available

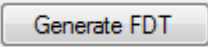
Controlled by Coastal Flooding

Users may also change values in View Floodway Table under the 'Edit Profile' table to '-8888' if they wish these values to populate as asterisks, rather than numeric values, in the FDT generated by the program.

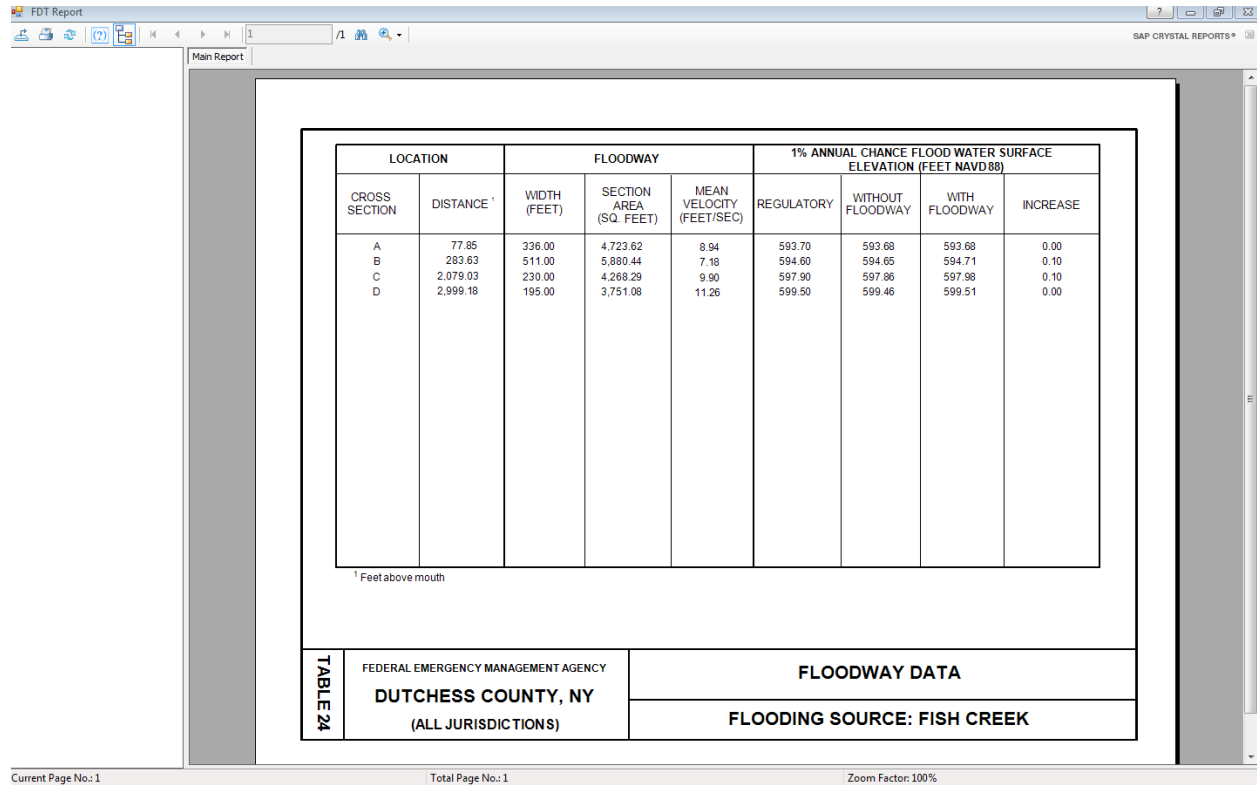
Rounding of Values in the FDT

Note that all elevations included in the FDT from the RASPLOT database will be rounded to a tenth of a foot. The Increase field is then populated by subtracting the Regulatory field (prior to the addition of any backwater values) from the With Floodway field.

8.2 Generating and Exporting FDTs

To generate the FDT click the Generate FDT button  at the bottom of the FDT Creation Tool window.

This opens the FDT Report window:




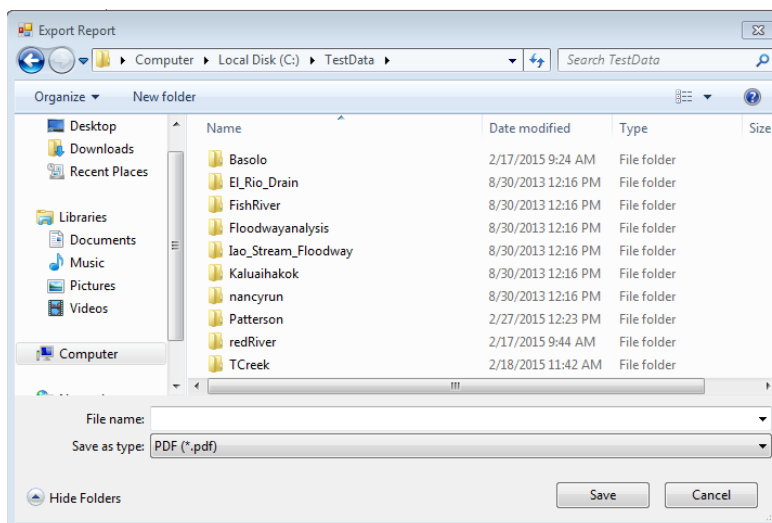
LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	77.85	336.00	4,723.62	8.94	593.70	593.68	593.68	0.00
B	283.63	511.00	5,880.44	7.18	594.60	594.65	594.71	0.10
C	2,079.03	230.00	4,268.29	9.90	597.90	597.86	597.98	0.10
D	2,999.18	195.00	3,751.08	11.26	599.50	599.46	599.51	0.00

¹ Feet above mouth

TABLE 24	FEDERAL EMERGENCY MANAGEMENT AGENCY DUTCHESS COUNTY, NY (ALL JURISDICTIONS)	FLOODWAY DATA
		FLOODING SOURCE: FISH CREEK

Current Page No.:1 Total Page No.:1 Zoom Factor:100%


Now click on the Export Report button  from the FDT Report window. This opens the Export Report window.



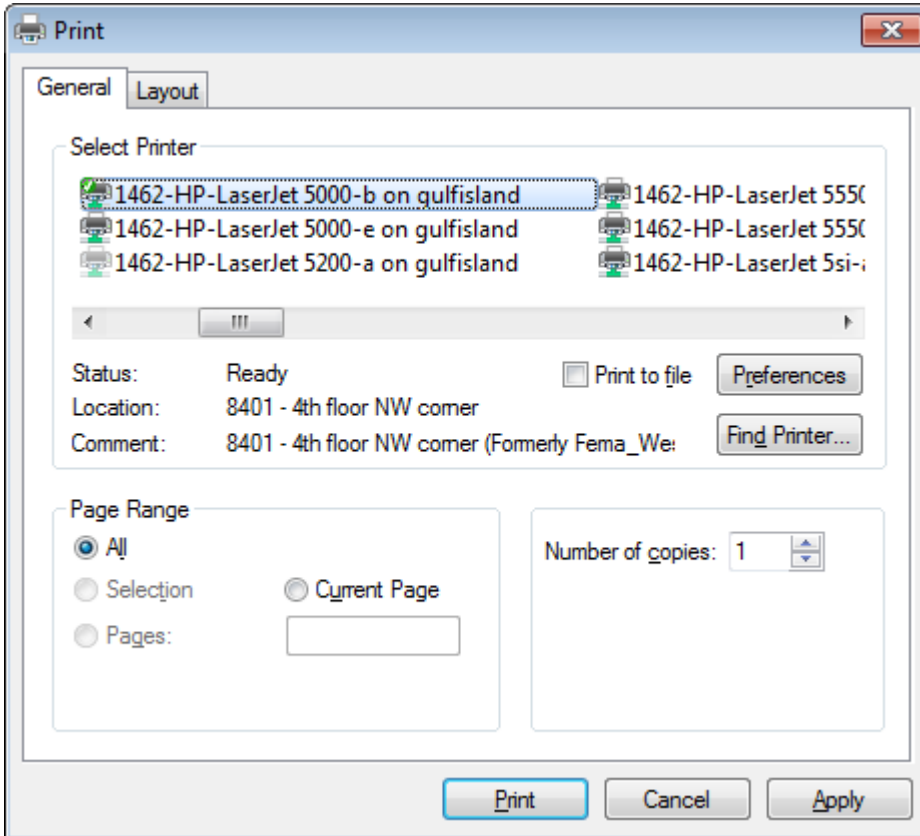
RASPLOT 3.0 User Guide

The user can save the FDT in either two file formats: PDF or Microsoft Word. To do this click the drop down menu from the “Save as type” section. Give the FDT a name in the “File name” section. Then navigate to the location where the FDT will be saved. Then click the Save button. If exported as a Word file, the FDT can be manually updated, if needed.

8.3 Printing FDTs

After the FDT has been generated, click on the print icon  from the FDT Report window.

This opens up the Print dialogue box where the user can choose the printer and make standard printing adjustments. Click the Print button to print.

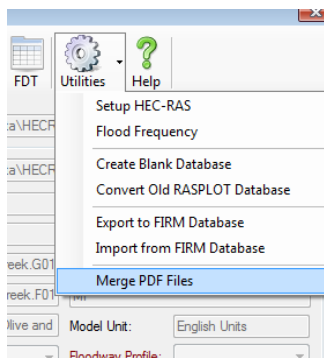


9. Merging Multiple PDF Profile or FDT Sets

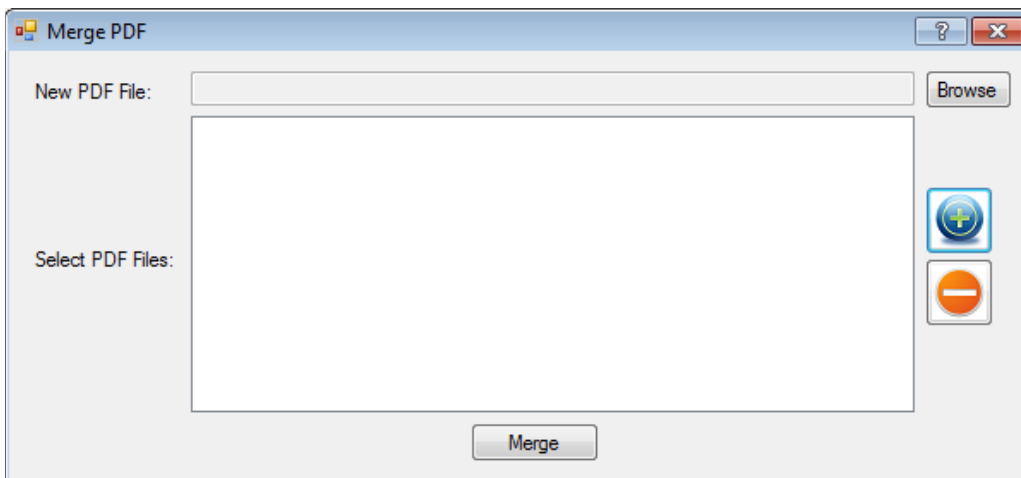
Once sets of profiles or FDTs for different streams have been exported as PDF files, the user may wish to consolidate the PDF files into one file. RASPLOT allows the user to perform this merge using the “Merge PDF Files” option under the Utilities menu.

Merging PDF Files

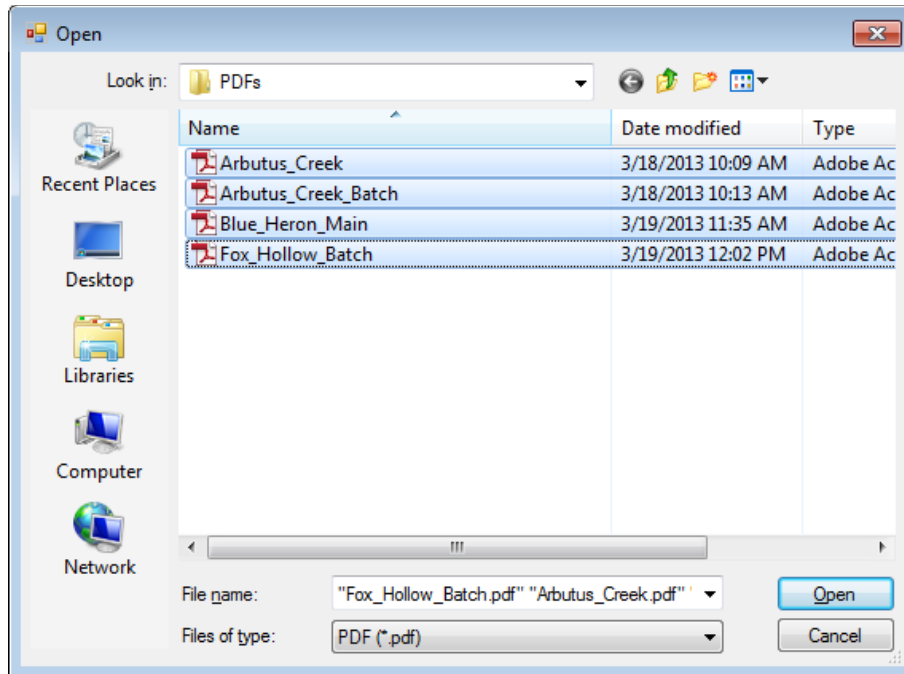
- From the main interface window, click the Utilities drop down menu and select “Merge PDF Files”.




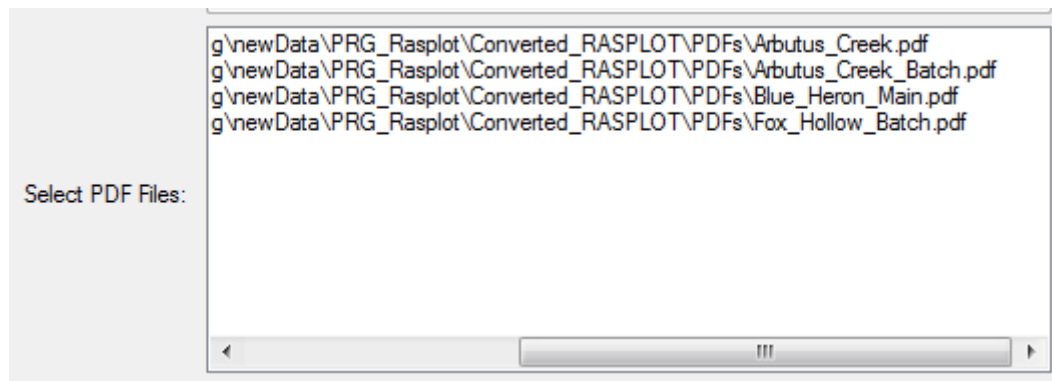
- The Merge PDF dialogue window appears.



- The user must create a New PDF file by clicking the Browse button. This will open up the Save As dialogue window.




- Give the PDF file a name in the “File Name” section. Then navigate to the location where it will be saved and click “Save”.
- Next, the user must add the PDF files to merge by clicking the add button .
- This opens up the Open dialogue window. The user must navigate to where the PDF files are and select all of the files. Then click the “Open” button.
- In the Select PDF files section, the user can see the PDFs added to be merged. You can also scroll to see the full file path and name of PDFs.



- The user can select the PDF, then drag to the top of the list to change the order of how the PDFs will be merged.
- Double click a file to open the file directly from this screen.

RASPLOT 3.0 User Guide

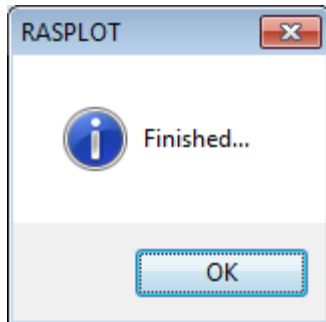
- The user can also remove PDFs from the list by selecting the PDF and clicking the

remove button. 

- To Merge the PDFs the user must click the Merge button.



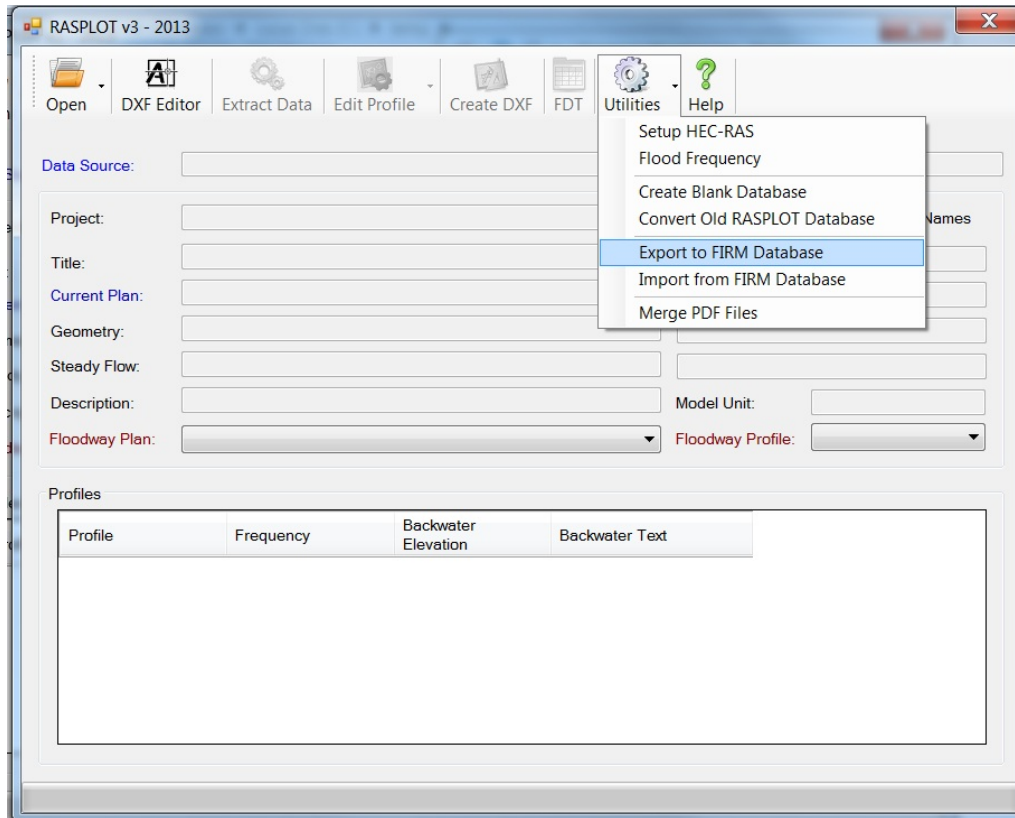
- When processing is finished, the dialogue window below will appear.



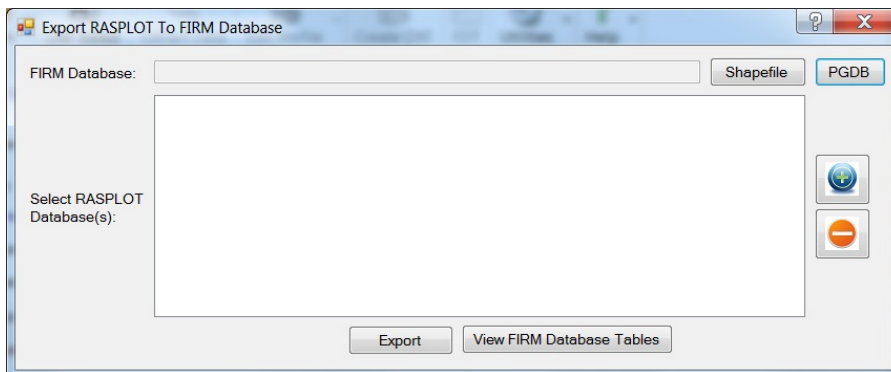
10. Export to FIRM Database-Compatible Format

Once you have created a RASPLOT database, flood profiles and/or FDTs using RASPLOT 3.0, you can choose the Export to FIRM Database function to export the information in the RASPLOT database into database tables which reflect the schema referenced in the November 2014 *FIRM Database Technical Reference*.

From the Utilities menu, choose “Export to FIRM Database.”



The Export RASPLOT to FIRM Database dialogue box will appear:

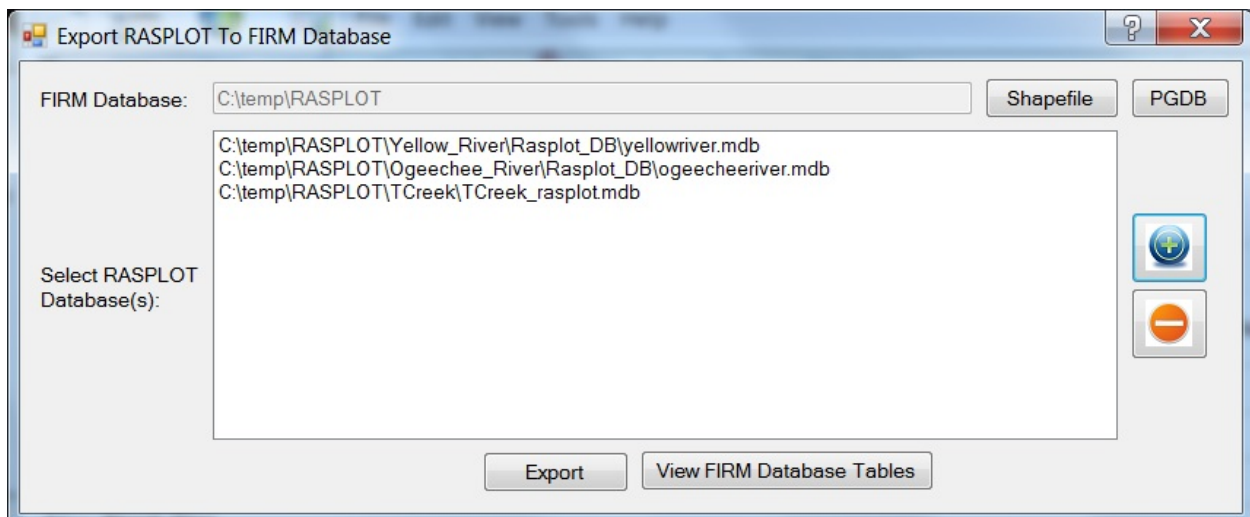


Next, click either the “Shapefile” or “PGDB” button at the top right of the box. If you have chosen the PGDB (Personal Geodatabase) option, you will need to navigate to your desired location where your new FIRM Database-compatible file(s) will be located and choose a name. Afterwards, click ‘Save.’ This will save a blank database in the FIRM Database schema, containing only the tables that RASPLOT will export, and that conforms to the November 2014 *FIRM Database Technical Reference*. If you have chosen the Shapefile option, you can browse to a location where the output Shapefiles will be stored. You may want to create an empty folder for your Shapefiles before you export your data.

Next, browse to the RASPLOT database(s) from which you want to export data by clicking the plus sign to the right. Note that you can choose multiple RASPLOT databases to export into a single FIRM Database. You can remove databases from the list by clicking on the minus sign to the right. To change the order of the databases in the list, left click on a file and drag up or down in the list. You can double click on each database file to view once added to the list.

Click “Export.”

This will populate the FIRM Database tables with data exported from RASPLOT. Once the data have been exported, you can preview the FIRM Database tables that are created by choosing “View FIRM Database Tables.” Choose the table name to view from the drop down box at the top.



The screenshot shows a window titled 'Shapefile - C:\temp\RASPLOT'. Below the title bar is a 'Select Table:' dropdown menu with 'L_XS' selected. Below the dropdown is a table with the following columns: OBJECTID, L_PROFIL_LABEL, L_PROFIL_BKWTR_EL, L_STN_START, L_XS_STRUCT, L_XS_ELEV, and L_XS. The table contains data for stations 87 through 103, all labeled 'YELLOW RIVER'. The 'L_XS_ELEV' column contains values ranging from 81306.06 to 88512.02. The 'L_XS' column contains values ranging from 735.23 to 743.22. The 'L_XS_STRUCT' column contains values 'G', 'H', 'I', 'J', 'K', and 'L'.

Note that RASPLOT does not export spatial features. You will either need to create spatial features in your FIRM Database or join the exported RASPLOT data to pre-existing spatial features in your FIRM Database using the cross section's stream name and stream station. To join the L_XS table to the S_XS table, add a new text field to each table that is wide enough to accommodate your stream names plus the stream stationing values. Then calculate the value of each of the new fields to equal the WTR_NM & STREAM_STN fields. You can add a symbol (e.g., "/") to separate the two fields if you like. Then join the two tables based on this new field and calculate any other values needed in S_XS from L_XS.

The table below shows the corresponding FIRM Database and RASPLOT exported database table names.

FIRM Database Table	RASPLOT Exported Database Table
S_Stn_Start	L_Stn_Start
S_XS	L_XS
L_Profil_Bkwtr_El	L_Profil_Bkwtr_El
L_Profil_Label	L_Profil_Label
L_Profil_Panel	L_Profil_Panel
L_XS_Elev	L_XS_Elev
L_XS_Struct	L_XS_Struct

The table below shows the exported FIRM Database tables and fields along with the RASPLOT table and fields used as the source of the exported data.

RASPLOT 3.0 User Guide

FIRM Database Table	FIRM Database Field	RASPLOT Database Table	RASPLOT Database Field
L_Stn_Start	DFIRM_ID		
L_Stn_Start	VERSION_ID		
L_Stn_Start	START_ID	WORKING	ID of first cross section
L_Stn_Start	START_DESC	WORKHEADER	StreamDistanceLabel
L_Stn_Start	LOC_ACC		
L_Stn_Start	SOURCE_CIT		
L_XS	DFIRM_ID		
L_XS	VERSION_ID		
L_XS	XS_LN_ID	WORKING	ID
L_XS	WTR_NM	WORKING	RIVER/REACH
L_XS	STREAM_STN	WORKING	cumdist
L_XS	START_ID	WORKING	ID
L_XS	XS_LTR	WORKING	labelletter
L_XS	XS_LN_TYP	WORKING	Assigned based on labelletter
L_XS	WSEL_REG	WORKING	Prof1-n using wsel01pct/backwaterElev
L_XS	STRMBED_EL	WORKING	minchel
L_XS	LEN_UNIT	WORKHEADER	unit
L_XS	V_DATUM	WORKHEADER	verticalDatum
L_XS	PROFXS_TXT	WORKING	labeltext
L_XS	MODEL_ID	HECRASINFO	project/planFile/flowFile
L_XS	SEQ	WORKING	ID
L_XS	SOURCE_CIT		
L_Profil_Bkwtr_El	DFIRM_ID		
L_Profil_Bkwtr_El	VERSION_ID		
L_Profil_Bkwtr_El	PROF_BW_ID	PROFILES	ID
L_Profil_Bkwtr_El	WTR_NM	WORKHEADER	StreamName
L_Profil_Bkwtr_El	EVENT_TYP	PROFILES	frequency
L_Profil_Bkwtr_El	BKWTR_WSEL	PROFILES	backwaterElev
L_Profil_Bkwtr_El	LEN_UNIT	WORKHEADER	Unit
L_Profil_Bkwtr_El	V_DATUM	WORKHEADER	verticalDatum
L_Profil_Label	DFIRM_ID		
L_Profil_Label	VERSION_ID		
L_Profil_Label	PROFLBL_ID	LANDMARK	ID
L_Profil_Label	WTR_NM	WORKHEADER	StreamName
L_Profil_Label	STREAM_STN	LANDMARK	CumulativeDistance
L_Profil_Label	ELEV	LANDMARK	Elevation

RASPLOT 3.0 User Guide

FIRM Database Table	FIRM Database Field	RASPLOT Database Table	RASPLOT Database Field
L_Profil_Label	DESCR	LANDMARK	Text
L_Profil_Label	ORIENT	LANDMARK	Orientation
L_Profil_Label	ADJUSTED	LANDMARK	adjusted
L_Profil_Label	UNDERLINE	LANDMARK	underline
L_Profil_Label	LEN_UNIT		
L_Profil_Label	V_DATUM		
L_Profil_Panel	DFIRM_ID		
L_Profil_Panel	VERSION_ID		
L_Profil_Panel	PROFPAN_ID		
L_Profil_Panel	WTR_NM	WORKHEADER	StreamName
L_Profil_Panel	PANEL_NO	PANEL	Panel
L_Profil_Panel	FIS_PAN_NO	PANEL	
L_Profil_Panel	START_STN	PANEL	StartingStation
L_Profil_Panel	END_STN	PANEL	EndingStation
L_Profil_Panel	START_ELEV	PANEL	StartingElevation
L_Profil_Panel	END_ELEV	PANEL	EndingElevation
L_Profil_Panel	ORIGIN_X	PANEL	OrginX
L_Profil_Panel	ORIGIN_Y	PANEL	OrginY
L_Profil_Panel	H_SCALE	PANEL	Hscale
L_Profil_Panel	V_SCALE	PANEL	Vscale
L_Profil_Panel	LEN_UNIT		
L_Profil_Panel	V_DATUM		
L_XS_Elev	DFIRM_ID		
L_XS_Elev	VERSION_ID		
L_XS_Elev	XS_ELEV_ID		Autopopulated
L_XS_Elev	XS_LN_ID	WORKING	ID
L_XS_Elev	FW_WIDTH	FLOODWAY	Width
L_XS_Elev	FW_WIDTHIN		
L_XS_Elev	NE_WIDTH_L		
L_XS_Elev	NE_WIDTH_R		
L_XS_Elev	XS_AREA	FLOODWAY	Area
			Based on values in unit field
L_XS_Elev	AREA_UNIT	WORKING	
L_XS_Elev	VELOCITY	FLOODWAY	Velocity
L_XS_Elev	VEL_UNIT		Always "Feet / Second"
L_XS_Elev	EVENT_TYP	PROFILES	profileName/frequency
			Prof1-n based on frequency
L_XS_Elev	WSEL	WORKING	
L_XS_Elev	WSEL_WOFWY	FLOODWAY	Elev_without_fw

RASPLOT 3.0 User Guide

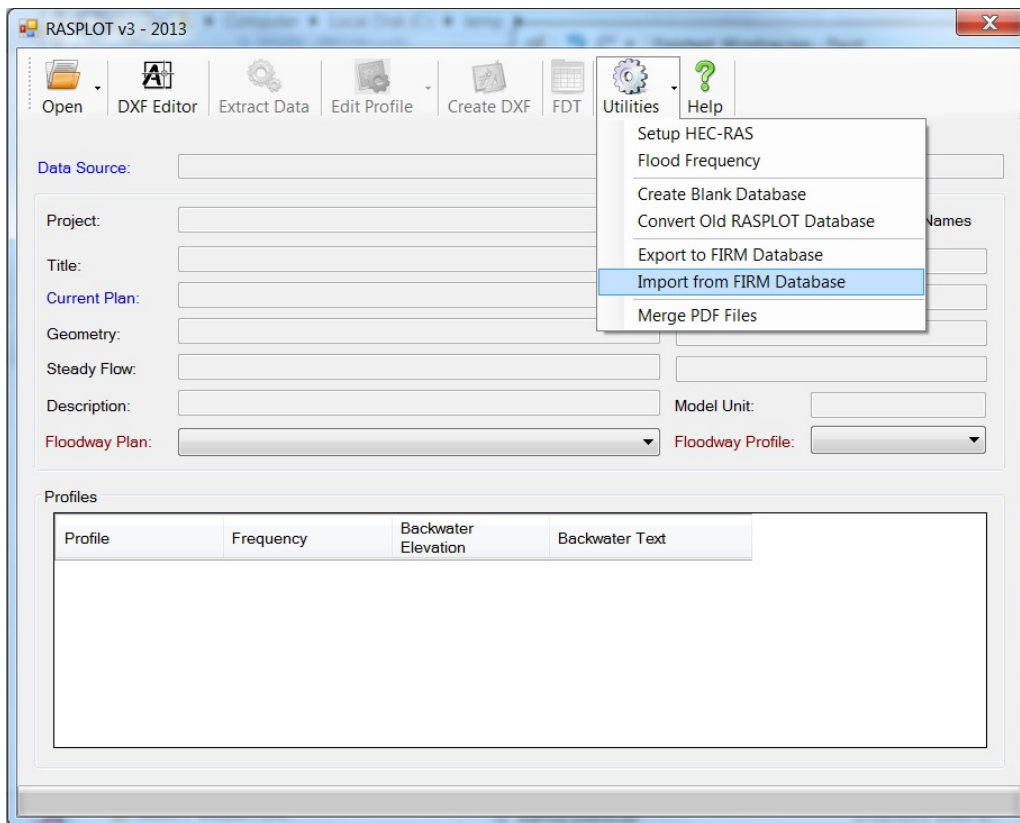
FIRM Database Table	FIRM Database Field	RASPLOT Database Table	RASPLOT Database Field
L_XS_Elev	WSEL_FLDWY	FLOODWAY	Elev_with_fw
L_XS_Elev	WSEL_INCRS	FLOODWAY	Elev_diff
L_XS_Elev	LEN_UNIT	WORKHEADER	Unit
L_XS_Elev	V_DATUM	WORKHEADER	verticalDatum
L_XS_Elev	LEVEE_TF		Always "F"
L_XS_Elev	LVSCENARIO		
L_XS_Elev	WSELREG_LL		
L_XS_Elev	WSELREG_RL		
L_XS_Elev	FREEBRD_LL		
L_XS_Elev	FREEBRD_RL		
L_XS_Elev	CALC_WO_BW	PROFILES	T/F values based on backwaterElev
L_XS_Struct	DFIRM_ID		
L_XS_Struct	VERSION_ID		
L_XS_Struct	XS_STR_ID		Autopopulated
L_XS_Struct	XS_LN_ID	WORKING	ID
L_XS_Struct	STRUCT_TYP	WORKING	STRUC
L_XS_Struct	WTR_NM	WORKHEADER	StreamName
L_XS_Struct	STRUC_FACE	WORKING	STRUC
L_XS_Struct	STR_STN	WORKING	cumdist
L_XS_Struct	LO_CHRD_EL	WORKING	lochord
L_XS_Struct	HI_CHRD_EL	WORKING	highchord
L_XS_Struct	STRMBED_EL	WORKING	minchel
L_XS_Struct	LEN_UNIT	WORKHEADER	Unit
L_XS_Struct	V_DATUM	WORKHEADER	verticalDatum

11. Import Data from FIRM Database

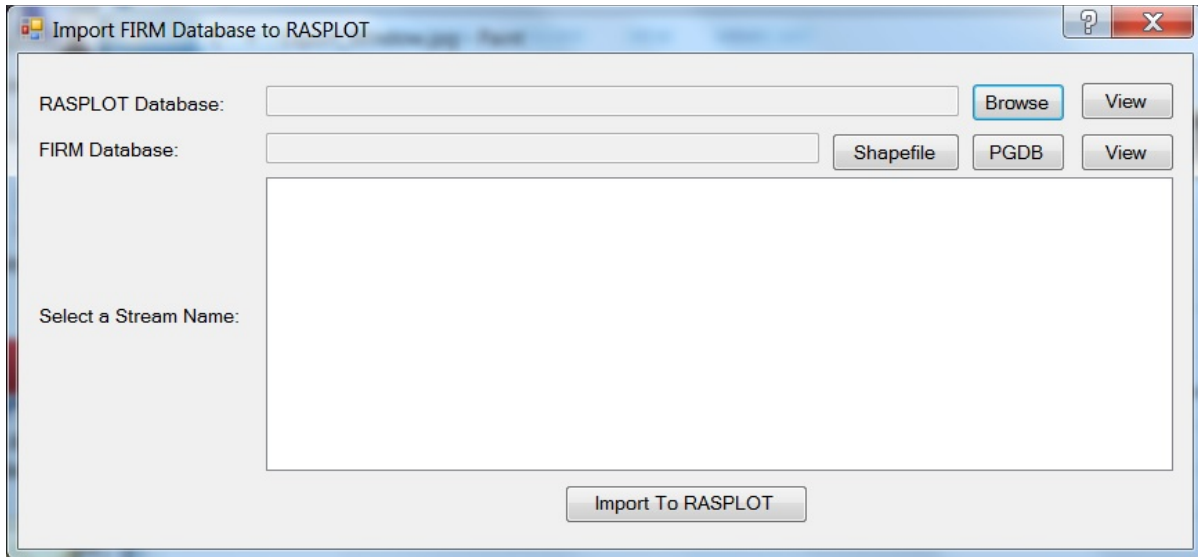
You can choose to import data from a FIRM Database into RASPLOT in order to use RASPLOT 3.0 to create flood profiles and FDTs.

Note that the FIRM Database must conform to the schema provided in the November 2014 *FIRM Database Technical Reference* and it must be either in Shapefile format or a personal geodatabase, not a file geodatabase.

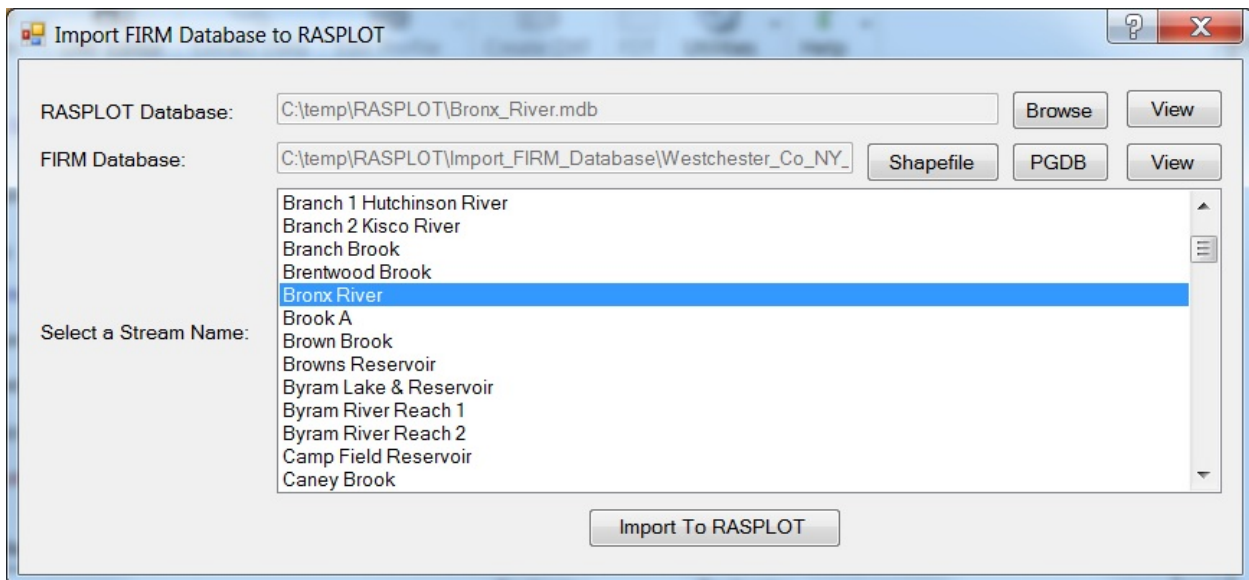
From the Utilities menu, choose “Import from FIRM Database.”



RASPLOT 3.0 User Guide



Browse to the folder where you want to store the RASPLOT database that will be populated with the FIRM Database data and provide a file name. Since the RASPLOT database will only include the data for one flooding source, it is recommended to include the stream name in the RASPLOT database file name. Choose either the “Shapefile” or “PGDB” button at the top right of the box and browse to the FIRM Database you want to import data from and choose the stream name of the data you want to import. Click “Import to RASPLOT.”



Once the data have been imported, you can preview the RASPLOT Database tables that are created by choosing the “View” button. Choose the table name to view from the drop down box at the top.

Rasplot Database - C:\temp\RASPLOT\Bronx_River.mdb

Select Table: working

RIVER	floodway	landmark	profiles				
Bronx River	Bronx River	65.41		60.03	65.41	-8888.00	
Bronx River	Bronx River	151.44		86.03	151.44	-8888.00	
Bronx River	Bronx River	233.20		81.76	233.20	-8888.00	
Bronx River	Bronx River	309.43		76.23	309.43	-8888.00	
Bronx River	Bronx River	810.16		500.72	810.16	-8888.00	
Bronx River	Bronx River	1417.95		607.79	1417.95	-8888.00	
Bronx River	Bronx River	1466.56		48.61	1466.56	-8888.00	
Bronx River	Bronx River	1478.72		12.16	1478.72	-8888.00	
Bronx River	Bronx River	1533.62		54.90	1533.62	-8888.00	
Bronx River	Bronx River	1990.50		456.89	1990.50	-8888.00	
Bronx River	Bronx River	2410.98		420.47	2410.98	-8888.00	
Bronx River	Bronx River	2462.06		51.08	2462.06	-8888.00	
Bronx River	Bronx River	2532.45		70.39	2532.45	-8888.00	
Bronx River	Bronx River	2654.49		122.04	2654.49	-8888.00	
Bronx River	Bronx River	3110.70		456.21	3110.70	-8888.00	
Bronx River	Bronx River	3823.12		712.42	3823.12	-8888.00	
Bronx River	Bronx River	4914.97		1091.85	4914.97	-8888.00	
Bronx River	Bronx River	5643.77		728.79	5643.77	-8888.00	
Bronx River	Bronx River	5710.68		66.92	5710.68	-8888.00	

Using the imported RASPLOT database, you can create FDTs or flood profiles. Note that for data imported from a FIRM Database you should not recalculate the cumulative distance to be the river station (RS) in the Edit Profile Table window (See Section 6.2). If you do, your distances may be incorrect.

Note also that your FIRM Database must have streambed elevations in order for RASPLOT to be able to generate a profile. If the MINCHEL field in the profile table appears as “-8888.00”, then no streambed elevations were imported from the FIRM database. If the PROF field in the profile table appears as “-9999.00” then no elevation data was imported from the FIRM database.

The table below shows the RASPLOT database tables and fields along with the FIRM Database table and fields used as the source of the imported data.

RASPLOT Database Table	RASPLOT Database Field	FIRM Database Table	FIRM Database Field
floodway	River		
floodway	Reach		
floodway	RS		
floodway	STRUC		

RASPLOT 3.0 User Guide

RASPLOT Database Table	RASPLOT Database Field	FIRM Database Table	FIRM Database Field
floodway	profile		
floodway	wsElev		
floodway	chStaL		
floodway	chStaR		
floodway	LeftStaEff		
floodway	RightStaEff		
floodway	topWidthAct		
floodway	qTotal		
floodway	areaVal		
floodway	velTotal		
floodway	profDeltaWs		
floodway	centerStaDistL		
floodway	centerSta		
floodway	centerStaDistR		
floodway	encroachStaL		
floodway	encroachStaR		
floodway	Width	L_XS_ELEV	FW_WIDTH
floodway	Area	L_XS_ELEV	XS_AREA
floodway	Velocity	L_XS_ELEV	VELOCITY
floodway	Regulatory		
floodway	Elev_diff	L_XS_ELEV	WSEL_INCRS
floodway	Elev_with_fw	L_XS_ELEV	WSEL_FLDWY
floodway	Elev_without_fw	L_XS_ELEV	WSEL_WOFWY
floodway	ID		
floodway	letter_note		
floodway	distance_note		
floodway	width_note		
floodway	area_note		
floodway	velocity_note		
floodway	regulatory_note		
floodway	withoutfloodway_note		
floodway	withfloodway_note		
floodway	increase_note		
hecrasInfo	project	S_XS	MODEL_ID
hecrasInfo	title		
hecrasInfo	version		
hecrasInfo	planFile	S_XS	MODEL_ID
hecrasInfo	PlanTitle		
hecrasInfo	geometryFile		
hecrasInfo	geometryTitle		

RASPLOT 3.0 User Guide

RASPLOT Database Table	RASPLOT Database Field	FIRM Database Table	FIRM Database Field
hecrasInfo	flowFile	S_XS	MODEL_ID
hecrasInfo	flowTitle		
hecrasInfo	description		
hecrasInfo	unit		
hecrasInfo	floodwayPlanFile		
hecrasInfo	floodwayProfile		
hecrasInfo	ID		
Landmark	CumulativeDistance	L_PROFIL_LABE L	STREAM_STN
Landmark	Elevation	L_PROFIL_LABE L	ELEV
Landmark	Text	L_PROFIL_LABE L	DESCR
Landmark	Orientation	L_PROFIL_LABE L	ORIENT
Landmark	adjusted	L_PROFIL_LABE L	ADJUSTED
Landmark	underline	L_PROFIL_LABE L	UNDERLINE
Landmark	ID		
Profiles	profileName	L_XS_ELEV	EVENT_TYP
Profiles	frequency	L_XS_ELEV	EVENT_TYP
Profiles	backwaterElev	L_PROFIL_BKW TR_EL/L_XS_EL EV	BKWTR_WSEL if available, or WSEL where CALC_WO_BW = "F"
Profiles	backaterText		
Profiles	ID		
WorkHeader	CommunityName		
WorkHeader	CountyName		
WorkHeader	StateName		
WorkHeader	StreamName		
WorkHeader	StreamDistanceLabel	S_STN_START	START_DESC
WorkHeader	Starting		
WorkHeader	Ending		
WorkHeader	HorizontalScale		
WorkHeader	VerticalScale		
WorkHeader	Unit	S_XS	LEN_UNIT
WorkHeader	startpanelNo		

RASPLOT 3.0 User Guide

RASPLOT Database Table	RASPLOT Database Field	FIRM Database Table	FIRM Database Field
WorkHeader	verticalDatum	S_XS	V_DATUM
WorkHeader	tableName		
WorkHeader	tableTitle		
WorkHeader	ID		
working	RIVER	S_XS	WTR_NM
working	REACH	S_XS	WTR_NM
working	RS	S_XS	STREAM_STN
working	STRUC	L_XS_STRUCT	STRUC_TYP/STRUC_FACE
working	lengthchnl		
			STREAM_STN except if "Reverse Order" is chosen, then calculated based on STREAM_STN
working	cumdist	S_XS	STREAM_STN
working	minchel	S_XS	STRMBED_EL
working	lochord	L_XS_STRUCT	LO_CHRD_EL
working	highchord	L_XS_STRUCT	HI_CHRD_EL
working	labelletter	S_XS	XS_LTR
working	labeltext	S_XS	PROFXS_TXT
working	ID		
working	Prof1-n	L_XS_ELEV	WSEL based on EVENT_TYP

Appendix A: Acronyms

CAD	Computer Aided Design
DXF	Drawing Exchange Format
FDT	Floodway Data Table
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
GB	Gigabyte
GHz	Gigahertz
HEC	Hydrologic Engineering Center
HEC-RAS	Hydrologic Engineering Centers River Analysis System
NAVD88	North American Vertical Datum of 1988
PDF	Portable Document Format
PGDB	Personal Geodatabase
RAM	Random Access Memory
VGA	Video Graphics Array
WSEL	Water Surface Elevation