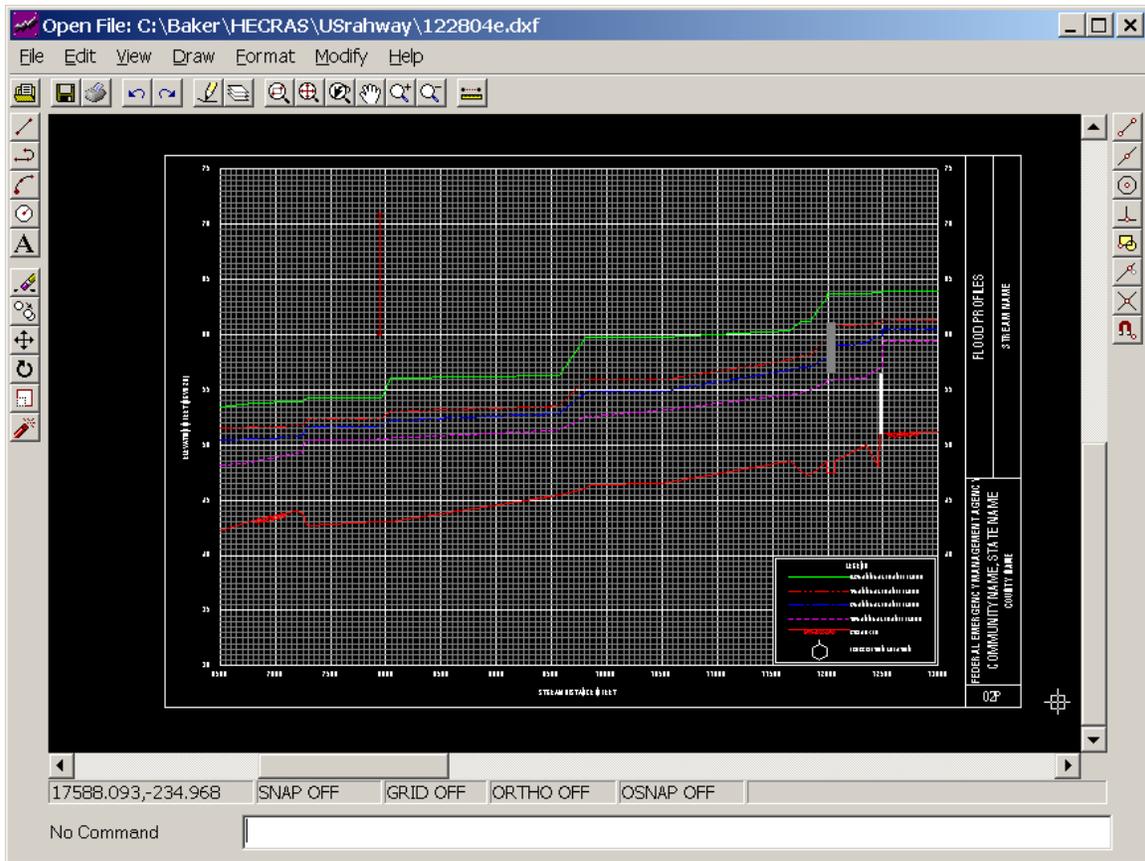


# RASPLOT

## Flood Insurance Study Profile Plot Program User's Guide



**Federal Emergency Management Agency**

March 2005

Version 2.5

## Summary of Changes for RASPLOT User's Guide

The summary of changes below details changes that have been made to RASPLOT User's Guide subsequent to the initial publication in December 1999.

Date	Affected Sections /Subsections	Summary of Changes
March 2005	1.2	Additional Windows operation systems
March 2005	1.3	To install RASPLOT from Internet
March 2005	1.3	To create RASPLOT icon
March 2005	1.5	HEC-RAS program setup
March 2005	1.6, 1.6.2	RASPLOT User Table
March 2005	1.6.1	Create a HEC-RAS User Tables menu
March 2005	1.6.2	Table Cross Section Order
March 2005	1.7	HEC-RAS Report File for RASPLOT
March 2005	2.2	How to create a Working Table for HEC-RAS
March 2005	2.3	Supercritical HEC-2 files
March 2005	2.5	Explanation about the profile generated by RASPLOT
March 2005	2.5	Drawdown
March 2005	3.1	Figure for RASPLOT menus and buttons
March 2005	3.2	Additional options in River/Reach Connection Box
March 2005	3.3	Node Names from HEC-RAS
March 2005	3.6	Additional options for Vertical Datum and Legend
March 2005	3.9	Structure and Stream Bed Symbols

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## 1.0 INTRODUCTION

After installing the RASPLOT program the user needs to select the version of HEC-RAS program to run with the RASPLOT. It is explained under HEC-RAS Program Setup section. HEC-RAS program must have RASPLOT user table under the User Tables menu in Profile Output Table window of HEC-RAS. How to accomplish this task is explained under RASPLOT User Table section. A HEC-RAS report file for RASPLOT must be created in order for RASPLOT to extract data in creating Profile Table Database. It is explained under HEC-RAS Report File for RASPLOT section. The components of the Profile Table Database are explained in Chapter 2, The Profile Table Database.

### 1.1 What Is RASPLOT?

RASPLOT is a computer program that creates a Flood Insurance Study (FIS) profile by automatically extracting data from HEC-RAS or HEC-2 input and output files. In addition, the RASPLOT program can be used to create FIS profiles for any other hydraulic model by entering the necessary data manually. The final product will be in DXF file format and a CADD program is included as part of this program to edit and print profiles as necessary.

### 1.2 System Requirements

In order to run, RASPLOT requires:

- Windows 98/NT/2000/XP operating systems
- Microsoft compatible mouse
- Printer
- SVGA graphics card and monitor.

### 1.3 Program Installation

**Please note:** The user must initially uninstall any previous versions or Beta versions of RASPLOT. For guidance on uninstalling previous versions of RASPLOT, see section 1.4.

#### To install RASPLOT from a CD-ROM:

The setup program in the setup.exe file runs from a CD-ROM. On most systems, the CD-ROM is drive D. The following steps refer to drive D. If necessary, substitute the appropriate drive letter for D.

1. Insert the CD in the appropriate drive.
2. Select Windows 98/NT/2000/XP Start button, choose Run, designate the CD-ROM, and enter the path name and **setup** (for example, D:\setup).

To stop the setup program, choose Cancel. If you cancel the setup program after copying has begun, all files copied by the setup program will be removed.

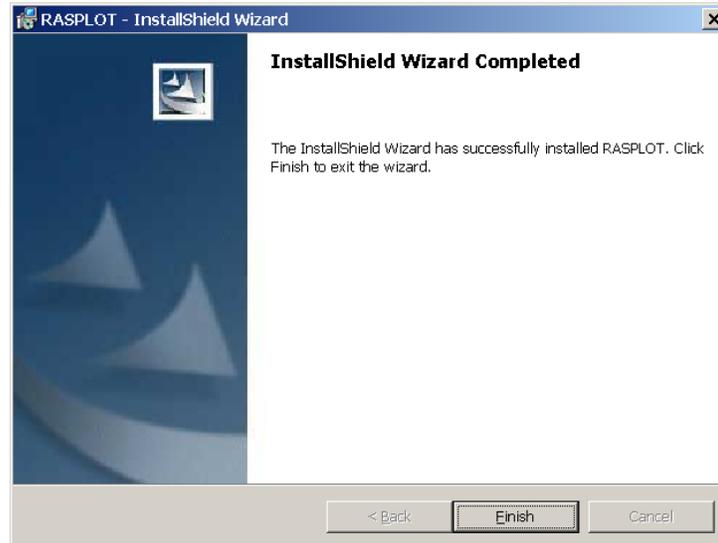
3. RASPLOT displays “C:\Program Files\Rasplot” as the path. Accept the default destination location by clicking the upper right button, or use the Change Directory button to choose a different location.

#### To install RASPLOT from the Internet:

1. Download the setup.zip file from the FEMA web site at [http://www.fema.gov/fhm/frm\\_soft.shtm](http://www.fema.gov/fhm/frm_soft.shtm) to a local directory (e.g., C:\temp) on your computer's hard drive.

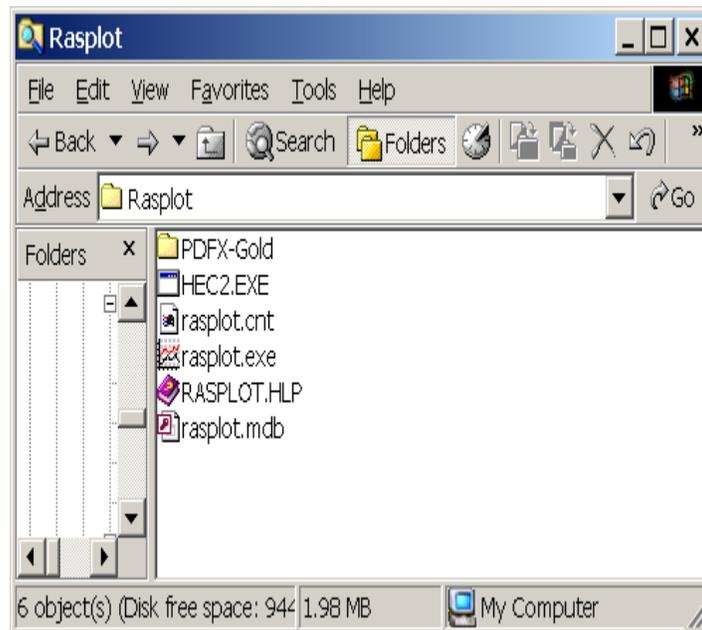
2. Extract setup.exe file from the setup.zip file in your local directory.
3. Double click on **Setup.exe** and follow the instructions on the screen to install the program.

When the installation is complete, the following window will be displayed.



- Click the **Finish** button.

The RASPLOT program is installed under C:\Program Files\Rasplot, and the following files should be in the RASPLOT folder. The files can be viewed using Windows Explorer.



To place the RASPLOT icon on the Desktop window:

1. Click the **Start** button from the Windows Task bar => **Programs** => **RASPLOT**.
2. Right click the mouse and select **Send to folder** => **Desktop** and left click the mouse.

#### 1.4 Uninstalling RASPLOT

The following steps should be followed to uninstall any previous version of RASPLOT, or Beta versions of RASPLOT:

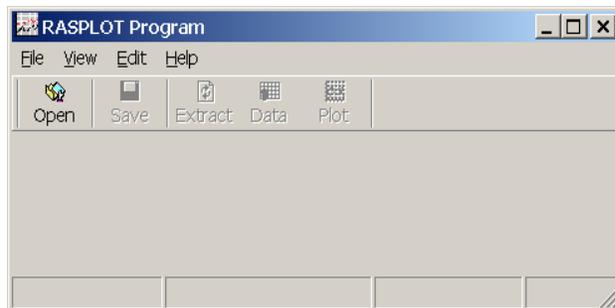
1. From the Windows Taskbar, click the **Start** button => **Settings** => **Control Panel**.
2. From the Control Panel, double click **Add/Remove Programs**.
3. From the list of programs, select **RASPLOT**.
4. Choose **Add/Remove**.
5. In the confirmation dialog box, choose **Yes**.

All of the program files that were part of the installation will be removed. Files that were created in the RASPLOT folder after RASPLOT was installed will not be removed.

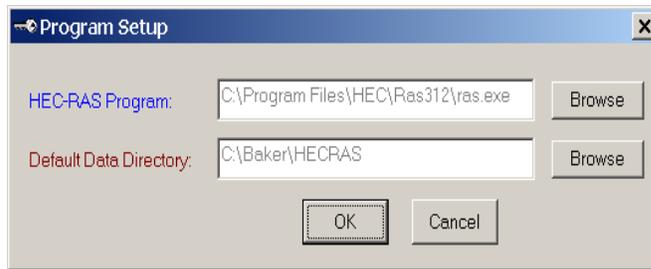
#### 1.5 HEC-RAS Program Setup

This section explains how to select the proper version of HEC-RAS to run with the RASPLOT program. The user is required to locate the HEC-RAS program file (i.e., ras.exe) through the RASPLOT Program.

1. Double click the **RASPLOT** icon to run RASPLOT. After the opening window, the following window will be displayed. This is the main RASPLOT Program window.



2. Click the **File** menu.
3. From the list of displayed options, click **Setup Program**.
4. The following dialog box will be displayed. When the dialog box first opens, the HEC-RAS Program box and Default Data Directory box will be empty.



5. Click the upper **Browse** button to locate the ras.exe file of the HEC-RAS version to be used.
6. Click the lower **Browse** button to select the default directory where the HEC-RAS files will be located. This step is optional.
7. Click **OK**.

The HEC-2 program was already installed in the C:\Program Files\Rasplot during the installation process.

## 1.6 RASPLOT User Table

This section explains how RASPLOT creates the RASPLOT table in the HEC-RAS Program's User Tables menu. First, check to see whether there already is a User Tables menu on the menu bar of the Profile Output Table window of HEC-RAS. If there is, skip to the RASPLOT User Table subsection below (subsection 1.6.2). If not, follow the procedure described below (subsection 1.6.1) to create one.

### 1.6.1 Create a HEC-RAS User Tables menu

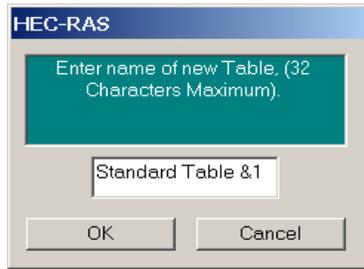
1. From the HEC-RAS main window, click **Profile Table** button (third button from the right in HEC-RAS 3.1.2 version). The following window will be displayed.

Reach	River Sta.	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow (cfs)
rw	15.614	6600.00	65.70	80.41	74.36	80.60	0.000633	4.46	2
rw	15.6065								
rw	15.600	6600.00	65.70	77.39	74.37	77.82	0.001875	6.42	1
rw	15.485	6600.00	64.00	76.60		76.86	0.001181	5.11	2
rw	15.291	6600.00	63.60	75.35		75.54	0.001353	5.19	2
rw	15.102	6600.00	63.50	74.26		74.36	0.001000	4.35	4
rw	14.981	6600.00	62.50	73.83		73.88	0.000579	3.56	5

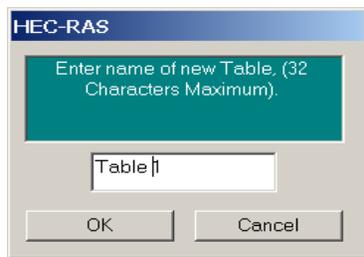
Note that there is no **User Table** menu on the menu bar, and Standard Table 1 is displayed as a default. (The name of the Table displayed is shown on the header of the window.)

2. Click **Options** menu.

- From the list of displayed options, click **Save Table**. The following dialog box will be displayed.



Change the name to Table 1 by deleting (using the delete key) the unnecessary letters from “Standard Table & 1,” as shown below.



- Click **OK**. The following window will be displayed.

Reach	River Sta	Q Total (cfs)	Min Ch El (ft)	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow (s)
rw	15.614	6600.00	65.70	80.41	74.36	80.60	0.000633	4.46	2
rw	15.6065	Culvert							
rw	15.600	6600.00	65.70	77.39	74.37	77.82	0.001875	6.42	1
rw	15.485	6600.00	64.00	76.60		76.86	0.001181	5.11	2
rw	15.291	6600.00	63.60	75.35		75.54	0.001353	5.19	2
rw	15.102	6600.00	63.50	74.26		74.36	0.001000	4.35	4
rw	14.981	6600.00	62.50	73.83		73.88	0.000579	3.56	5

Note that **User Tables** menu is displayed on the menu bar, and Table 1 is displayed on the header of the window. Table 1 will be displayed as an option when the **User Tables** menu is clicked.

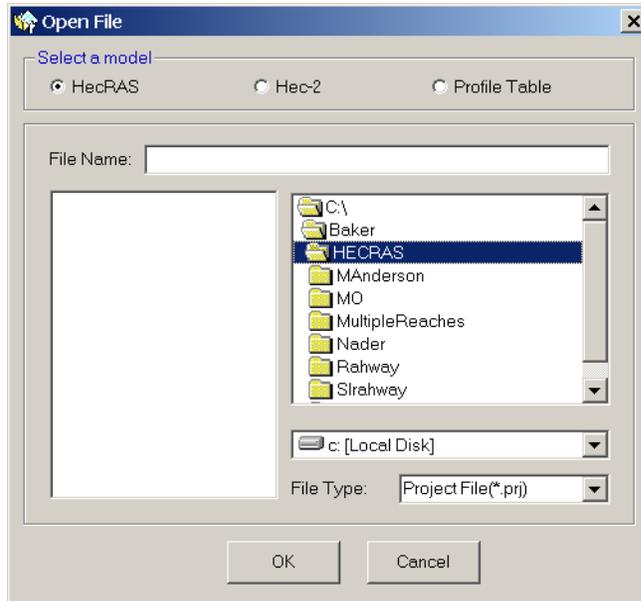
- Close the Profile Output Table window.
- Close HEC-RAS main window.

### **1.6.2 Create a RASPLOT User Table**

Follow the procedure described below to create a RASPLOT table in the HEC-RAS Program’s User Tables menu.

- Delete the file with extension “.rep,” if there is one, from the directory where the user’s HEC-RAS files reside.

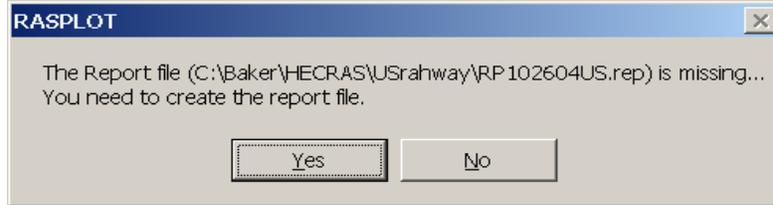
2. Run RASPLOT (double click the **RASPLOT** icon).
3. From **RASPLOT Program** window, click the **Open** button. The following dialog box will be displayed. (The files displayed will be the ones on the user's computer).



In the **Open File** window, as a default, HEC-RAS will be the selected mode in the **Select a model** area. Locate the folder where the HEC-RAS files reside by browsing through the folders in the right box. All the HEC-RAS project files (files with extension “.prj”) in that folder will be displayed in the left box, as shown below.

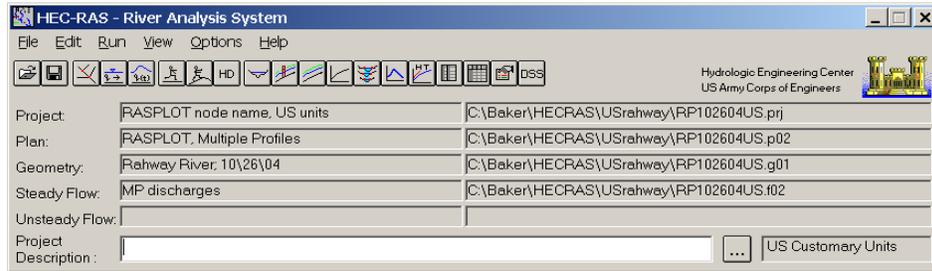


4. Double click the HEC-RAS project file to be studied or select the HEC-RAS project file and click **OK**.
5. From the **RASPLOT Program** window, click the **Extract** button. The following message box will be displayed.



(As a default, HEC-RAS assigns the project file name as the primary name of all the HEC-RAS files). Click **Yes**.

The HEC-RAS main window for the version that was selected (see Section 1.5) will be displayed, as shown below, with the selected HEC-RAS project from the previous step.



6. From the HEC-RAS main window, click **Profile Table** button. (For HEC-RAS 3.1.2, it is the third button from the right.) The **Profile Output Table** window with the Standard Table 1 will be displayed.
7. Click **User Tables** menu and click **RASPLOT**. The RASPLOT table will be displayed, as shown below.

Reach	River Sta	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	Len
rw	15.614	80.41						
rw	15.614	74.89						
rw	15.614	78.57						
rw	15.614	82.20						
rw	15.6065 Culvert #1		74.40	65.40	74.40	65.40		

The above procedure explains how RASPLOT creates a RASPLOT user table in the HEC-RAS User Tables menu. Do not attempt to create a RASPLOT user table through the HEC-RAS

program by selecting the variables. If for any reason, a RASPLOT table no longer exists in the **User Tables** menu, follow the above procedure to recreate one.

### Table Cross Section Order

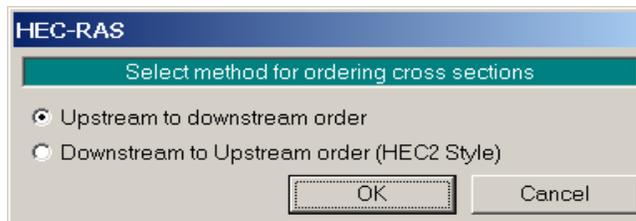
The River Stations (RS) in the RASPLOT table must be from upstream to downstream direction. RASPLOT extracts data not only from the RASPLOT table, which is the output data, but also from HEC-RAS input data: plan data, geometric data, and reach lengths. The order of the RS of the input data in the HEC-RAS report file is always from upstream to downstream order irrespective of the RS order in the output data. In order for RASPLOT to extract the data properly from both the input and output data the RS order must be from upstream to downstream order for both input and output data.

The order of the RS is controlled by the option **Table Cross Section Order** under **Options** menu in the Profile Output Table window. If HEC-RAS is opened through the RASPLOT program, it will automatically select the RS order as upstream to downstream order.

From the Profile Output Table window in HEC-RAS:

- Click **Options** menu
- Select **Table Cross Section Order** from the displayed options.

The following dialog box will be displayed.

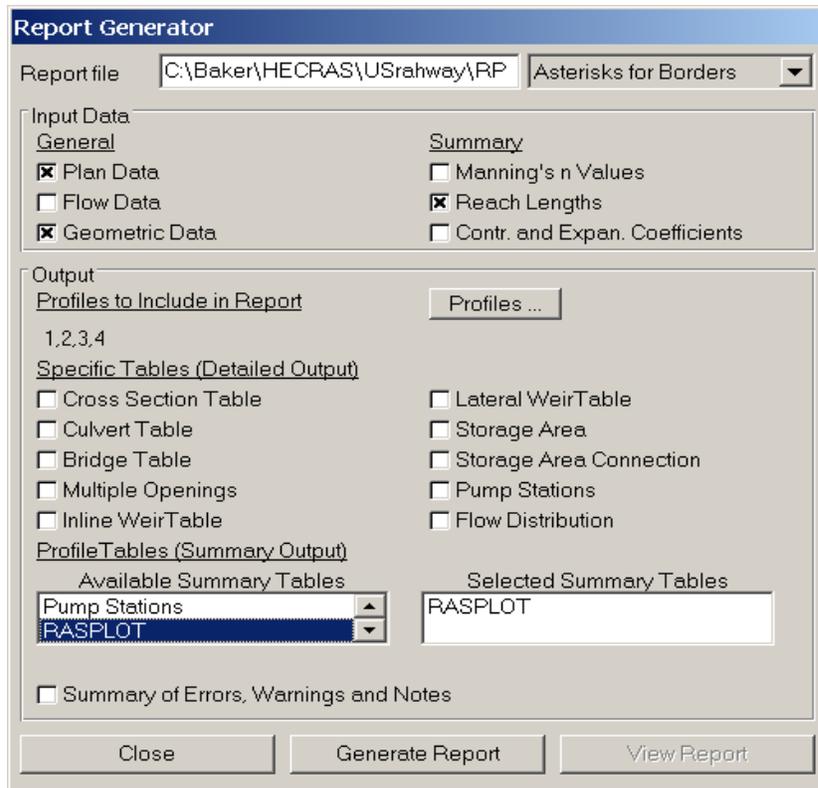


- If the cross section order selected is from **Downstream to Upstream order (HEC2 Style)**, change the selection to **Upstream to downstream order**.
- Click **OK**.
- Close the **Profile Output Table** window.
- Rerun HEC-RAS. If the plan shown is not the desired one, select a different plan and rerun HEC-RAS.

### **1.7 HEC-RAS Report File for RASPLOT**

This section explains how to create a report file in HEC-RAS for the RASPLOT program. The following instructions can be used as the continuation of the previous section, or it can be used independently if the report file is to create from HEC-RAS directly. If that is the case, the user must make sure that the HEC-RAS User Tables menu has a RASPLOT table and the Table Cross Section Order is from upstream to downstream.

1. From the HEC-RAS main window, click **File** menu.
2. From the list of displayed options, click **Generate Report**. The following window should be displayed. (Except nothing is displayed under **Selected Summary Tables** box. How to select RASPLOT will be explained later.)



The following should be noted about the **Report Generator** window.

- The **Report File** box will show “Asterisks for Borders.” Do not change this option.
  - Under the **Input Data** area, the boxes for Plan Data, Geometric Data, and Reach Lengths will be checked. Other boxes are not checked.
  - Under the **Output** area, the number of profiles shown under **Profiles to Include in Report** must be the same as the number of profiles in the Steady Flow Data window. If you are unsure, click the **Profiles...** button in the Report Generator window and click the **Select All** button. Then click the **OK** button.  
(The user must select all the profiles although not all the profiles are to be plotted. The user will have a choice which profile(s) to be printed by using the Select Profile(s) option in RASPLOT. See Section 3.4 Select Profile Dialog box.)
  - No boxes are checked under the **Specific Tables (Detailed Output)** area. (If the boxes are not checked as shown in the above figure, reselect the boxes.)
  - Search for RASPLOT in the **Available Summary Tables** box by scrolling through the pull down arrow.
  - Click **RASPLOT** to select. RASPLOT will be displayed in the **Selected Summary Tables** box. RASPLOT should be the only table in the Selected Summary Tables box. If there are other tables in the Selected Summary Tables box, double click on the additional tables to delete them.
3. Click **Generate Report** button.
  4. After the report is generated, click the **Close** button.

5. Click the **Save** button (second button from the left) from the HEC-RAS main window.
6. Close the HEC-RAS main window.

Proceed to Section 2.2, How to Create a Working Table for HEC-RAS to create profiles in RASPLOT.

### **1.8 Acknowledgements**

This program was developed by Dewberry for Federal Emergency Management Agency.

## 2.0 The Profile Table Database

RASPLOT extracts data from HEC-RAS report file, HEC-2 input and output files, and user created database through RASPLOT to create a Working table in RASPLOT displaying the extracted variables. How to create a Working Table for HEC-RAS, HEC-2, and non-HEC files and the extracted variables are explained in this chapter.

### 2.1 What Is Profile Table Database?

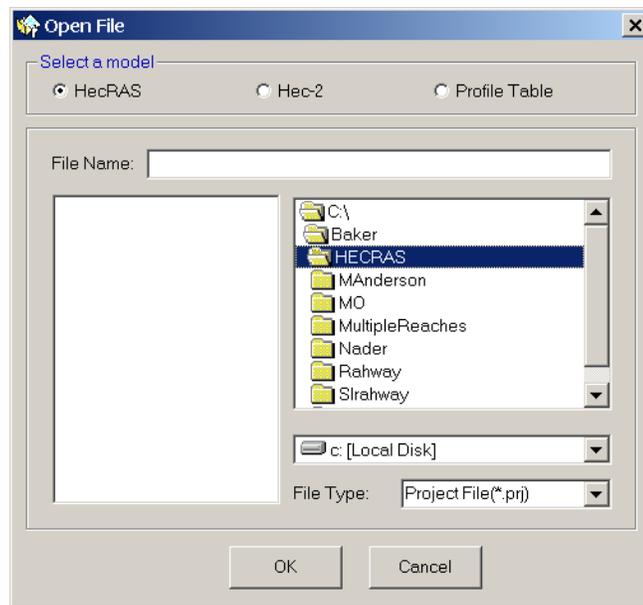
The Profile Table Database is an Access Database. It has four tables: [Working], [Work Header], [Panel], and [Landmark]. This section explains in detail about the table [Working]. See Section 3.5 Header Information for table Work Header, see Section 3.6 Panel Setup Information Dialog Box for table Panel, and see Section 3.7 Landmark Table for table Landmark.

**Please note:** The user should not modify the [Landmark], [Panel], or [Work Header] tables outside of RASPLOT. In addition, the data inside the table [Working] should not be sorted. To do so, may cause RASPLOT to malfunction.

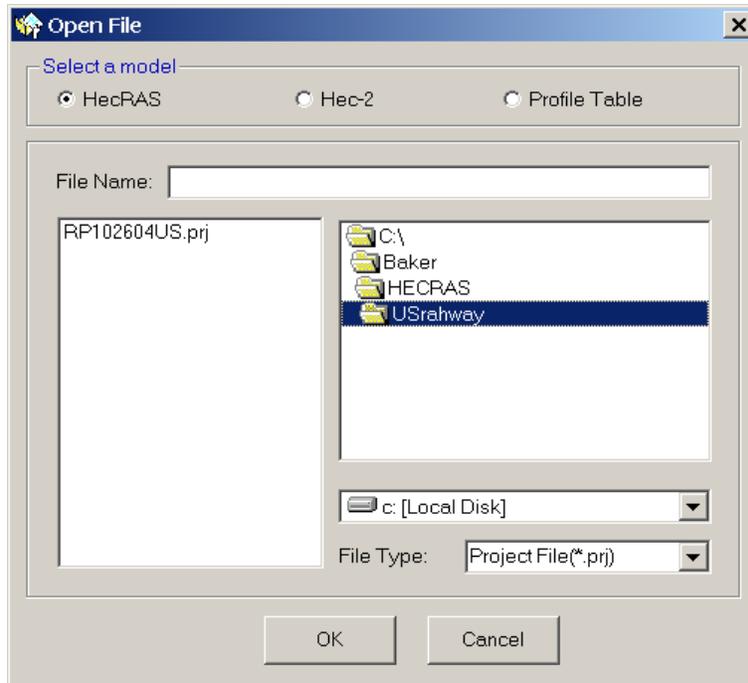
### 2.2 How to Create a Working Table for HEC-RAS

This section explains how to create a working table in RASPLOT for HEC-RAS.

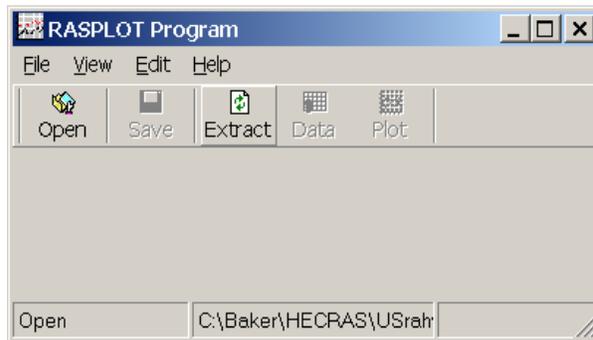
1. Run RASPLOT (double click the **RASPLOT** icon).
2. From the **RASPLOT Program** window, click the **Open** button or click **File** menu and select **Open** command. The following dialog box will be displayed. (The files displayed will be the ones on the user's computer).



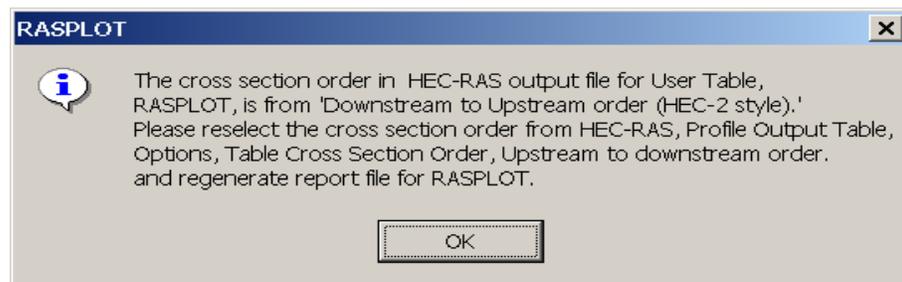
3. In the **Open File** window, as a default, HEC-RAS will be selected as the selected mode in the **Select a model** area. Locate the folder where the HEC-RAS files reside by browsing through the folders in the right box. All the HEC-RAS project files (files with extension “.prj”) in that folder will be displayed in the left box, as shown below.



4. Double click the HEC-RAS project file to be studied, or select the HEC-RAS project file and click **OK**. The following window will be displayed.

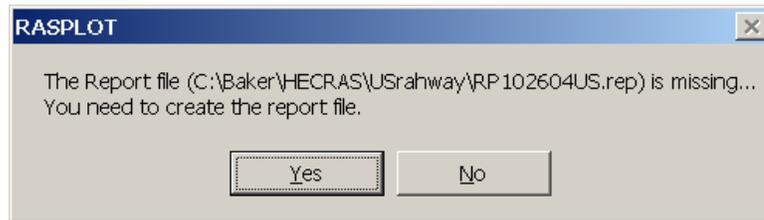


5. From the **RASPLOT Program** window, click the **Extract** button. If the cross-section order in the RASPLOT user-defined table is from downstream to upstream, the following message will be displayed.



- Click **OK**.
- Close the RASPLOT window.

- Open HEC-RAS, correct the cross-section order (see Table Cross Section Order under Section 1.6.2, RASPLOT User Table), and regenerate the report file (see Section 1.7, HEC-RAS Report File for RASPLOT).
  - Save the HEC-RAS project and close HEC-RAS.
  - Follow the procedure from step 1.
6. If the HEC-RAS project file does not include the Report File for RASPLOT (see Section 1.7), a message box stating that the Report File is missing will be displayed. Or, if the Report File does not include the RASPLOT user-defined table, a message box stating that the Report File does not have the right RASPLOT user-defined table will be displayed. In either case, the message box will state that “You need to create the report file.”



- Click the **Yes** button in the message box. The HEC-RAS main window for the version that was selected (see Section 1.5, HEC-RAS Program Setup) will be displayed with the selected HEC-RAS project.
  - Follow the instructions in Section 1.7 HEC-RAS Report File for RASPLOT to create the report file.
  - After the report file is created, save the HEC-RAS project and close the HEC-RAS main window.
7. Click the **Extract** button from the **RASPLOT** Program window. RASPLOT will create a Working Table, as shown below, if the HEC-RAS file includes a single reach.

river	reach	river station	structure	length chnl	cum dist	min ch el	low chord	high chord	label letter	label text	Prof 1
rw	rw	9.221		0	0	26.1					36.11
rw	rw	9.312		480	480	31.1					38.98
rw	rw	9.415		545	1025	31.2					40.51
rw	rw	9.528		600	1625	31.2			A		41.46
rw	rw	9.631		540	2165	34.3					43.75
rw	rw	9.653	BRIDGE-Dn	90	2255	34.3	40.5875	47		Garden State Par	47.88
rw	rw	9.653	BRIDGE-Up	50	2305	34.3	40.5875	47			48.25
rw	rw	9.675		90	2395	34.3			B		48.25
rw	rw	9.689		75	2470	34					48.19
rw	rw	9.6895	INLINE-Dn	0.5	2470.5	34		42		Dam	0
rw	rw	9.6895	INLINE-Up	4	2474.5	38		42			0
rw	rw	9.69		0.5	2475	38					49.09
rw	rw	9.788		520	2995	38.3					49.51
rw	rw	9.876		465	3460	38.8					49.07
rw	rw	9.878	BRIDGE-Dn	3	3463	38.8	51.1436	56.1436		Foot Bridge	48.99
rw	rw	9.878	BRIDGE-Up	14	3477	38.8	51.1436	56.1436			49.06
rw	rw	9.88		3	3480	38.8					49.31
rw	rw	9.893		70	3550	38.8			C		50.9
rw	rw	10.03		770	4270	38.4					51.05

See Section 2.5 for explanation of the Columns River, Reach, River Station, Structure, Length Chnl, Cum Dist, Min Ch El, Low Chord, High Chord, Label Letter, Label Text, Prof 1, Prof 2 ...

See Section 3.0 Navigating in RASPLLOT for a detailed explanation of the menus and the buttons. See Section 3.2 River/Reach Connection Dialog Box for HEC-RAS models with multiple streams and/or reaches.

### 2.3 How to Create a Working Table for HEC-2

You will need to open a HEC-2 input file on your computer hard disk or on a network by clicking File Menu and selecting Open command or by clicking Open Button.

In the Open File Dialog box, select HEC-2 from the 'Select a Model' box. Then select the Drive where the desired input file is located. In the folder list, double-click folders until you open the folder that contains the input file you want. Select the input file and click the "OK" button or double click the input file.

If you can't find the HEC-2 input file in the folder list, please see note below.

Note: To open a HEC-2 input file with a different extension than the default for a particular model, click the file type you want, and then double-click the input file name in the folder list. You can also type the extension in the File Type box; for example, type \*.HC2 to find HEC-2 input files with the HC2 extension.

Once the Input file is selected, RASPLLOT will run the HEC-2 program. Click on the "Extract Data" button and a profile table will be created.

#### Supercritical HEC-2 files

For engineered channels a supercritical flow analysis is allowed for the flood insurance studies. The HEC-2 program recognizes as a supercritical HEC-2 file if 1 is in the 4<sup>th</sup> field of J1 record. The starting cross section in the supercritical HEC-2 file is from the most upstream location and the cross sections are arranged in the upstream to downstream direction. The output information is also in upstream to downstream direction. For supercritical HEC-2 files, RASPLLOT will rearrange internally the results and plot the profile from downstream to upstream direction.

### 2.4 How to Create Working Table for non-HEC-RAS or non-HEC-2 hydraulic models?

You will need to open a folder on your computer hard disk or on a network by clicking File Menu and selecting Create Blank Database command.

Select the Drive where you want the file to be located. In the folders list, double click folders until you open the folder you want the file to be located. Type the primary name of the database file in the "File Name" box and click the "OK" button. RASPLLOT will assign '.mdb' as an extension to the newly created Profile Table.

Type number of profiles to be plotted in the pop-up window.

Open the table using Microsoft Access, and insert the data into table "Working"

**Please note:** The user should not modify the Landmark, Panel, or Work Header Tables outside of RASPLLOT. In addition, the data inside the table "Working" should not be sorted. To do so, may cause RASPLLOT to not function properly.

## 2.5 Working Table

The Working Table includes the columns, river, reach, river station, structure, length chnl, cum dist, min ch el, low chord, high chord, label letter, label text, and profile numbers.

### River

This is the river name from the HEC-RAS Report File. For HEC-2 the default is “1”. Any letters or numbers can be entered in this column.

### Reach

This is the reach name of the given river from the HEC-RAS Report File. For HEC-2 the default is “1”. Any letters or numbers can be entered in this column.

### River Station

This is the River Station from HEC-RAS or the SECNO from HEC-2 file. Every entry in this column must be numerical. Letters must not be entered.

### Structure

The type of structure, such as bridge, culvert, and inline weir, is shown under this column.

Please use:

- BRIDGE-Up or BRIDGE-Dn for Bridges
- CULVERT-Up or CULVERT-Dn for Culverts
- INLINE-Up or INLINE-Dn for Inline Weirs
- LID-Up or LID-Dn for long culverts and for culverts in series

### HEC-RAS

Bridge	BRIDGE-UP is labeled at the River Station where the bridge upstream internal section is located.
	BRIDGE-DN is labeled at the River Station where the bridge downstream internal section is located.
Culvert	CULVERT-UP is labeled at the River Station where the culvert upstream internal section is located.
	CULVERT-DN is labeled at the River Station where the culvert downstream internal section is located.
Inline Weir	INLINE-UP is labeled at the River Station for the upstream face of the weir where the inline weir profile data is specified.
	INLINE-DN is labeled at the same River Station for the downstream face of the weir.
Multiple Opening*	If the bridge is within the left and right channel bank stations the word ‘Bridge #-Up’ is labeled for the bridge upstream internal section at the River Station where the Multiple Opening is modeled.
	If the bridge is within the left and right channel bank stations the word ‘Bridge #-Dn’ is labeled for the bridge downstream internal section at the River Station where the Multiple Opening is modeled.

\* represents the number assigned to the bridge within the channel bank stations by the HEC-RAS program.

**HEC-2**

Special Bridge	The word 'Bridge-Up' is labeled at the cross-section immediately upstream (Section 3) of Special Bridge card. An additional cross section is inserted by the RASPLLOT program with the same section number as Section 3 and labeled as 'Bridge-Dn'.
	In some situations, inline weirs, dams, and culverts, are modeled as the Special Bridge routine in HEC-2. To change the type of structure, the name of the structure in the Profile Table should be changed according to the following: <ul style="list-style-type: none"> <li>• For culvert, replace BRIDGE-Up with CULVERT-Up and BRIDGE-Dn with CULVERT-Dn. and also check that low chord elevations of the culvert with the value given for the bridge under low chord column.</li> <li>• For Inline weir and Dam, replace BRIDGE-Up with INLINE-Up and BRIDGE-Dn with INLINE-Dn and remove the low chord elevation of the bridge from the low chord column.</li> </ul>
Special Culvert	RASPLLOT creates two additional cross sections for Special Culvert routine. One is for the culvert upstream internal section and labeled as 'Culvert-Up' and the other is for the culvert downstream internal section and labeled as 'Culvert-Dn'. The same section number for Section 3 of the Special Culvert routine is assigned for these sections.
Normal Bridge	The word 'Normal' is labeled for structures that are not modeled as Special Bridge or Special Culvert routines. The word 'Normal' is labeled at the cross sections with BT or X2 records.
	In some situations, inline weirs, dams, culverts, and bridges are modeled as the Normal Bridge routine in HEC-2 To change the type of structure, the name of the structure in the Profile Table should be changed according to the following: <ul style="list-style-type: none"> <li>• For bridge, replace 'Normal' with BRIDGE-Up and BRIDGE-Dn and check the low chord elevations of the bridge with the values given in the low chord column.</li> <li>• For culvert, replace 'Normal' with CULVERT-Up and CULVERT-Dn and check the low chord elevations of the culvert with the values given in the low chord column.</li> <li>• For Inline weir and Dam, replace 'Normal' with INLINE-Up and INLINE-Dn and remove the low chord elevation from the low chord column.</li> </ul>

**Length Channel (LENGTH CHNL)**

This is the length of the channel at the River Station from the downstream cross section.

**HEC-RAS**

Length channel is obtained from the user table RASPLLOT except, for the culvert and inline weir.	
Culvert	The length of the cross-section at Section 3 is equal to the Upstream Distance from culvert data. The length of the cross-section at Culvert-Up section is equal to the length of the culvert. The length of the cross-section at 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 Report file.

Inline Weir	The length of the cross-section at Section 3 is equal to the Distance from Deck/Roadway data. The length of the cross-section at Inline-Up section is equal to the Width from 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 Report file.
-------------	--

### HEC-2

Length channel is obtained from the SUMMARY Table, column XLCH, except for the Special Culvert routine.	
Special Culvert	The length of the cross-section at Culvert-Up section is equal to the length of the culvert and is obtained from the SC record in the input file. RASPLOT subtracts the culvert length from the channel length at Section 3 and divides by two. This length is assigned as the channel length at Section 3 and the channel length at Culvert-Dn section. The distances at the culvert cannot be zero or a negative number.
Special Bridge	The channel length at Bridge-Up section is equal to the channel length at Section 3. RASPLOT assigns a value of zero as channel length at Bridge-Dn section.

### Cumulative Distance (CUM DIST)

Cumulative distance is computed by the RASPLOT program by adding the Length Channel values from a downstream to an upstream direction.

### Minimum Channel Elevation (MIN CH EL)

This is the lowest ground elevation within the channel bank stations.

### HEC-RAS

Minimum Channel Elevation is obtained from the Min Ch El column from the user table RASPLOT except for the culvert, inline weir, and multiple opening.	
Culvert	Minimum Channel Elevation at the Culvert-Up and Culvert-Dn section is equal to the culvert invert elevation, and it is obtained from the culvert data in the HEC-RAS Report file.
Inline Weir	Minimum channel elevation at the Inline-Up section is equal to the minimum channel elevation at Section 3, and minimum channel elevation at the Inline-Dn section is equal to the minimum channel elevation at of the cross-section immediately downstream (Section 2).
Multiple Opening	RASPLOT first determines the type of structure within the channel bank stations. If it is a bridge, the Minimum Channel Elevation is obtained from the user table RASPLOT. If it is a culvert, the Minimum Channel Elevation is equal to the culvert invert elevation. The type of structure is obtained from the Multiple Opening data in the HEC-RAS Report file.

### HEC-2

Minimum Channel Elevation is obtained from the SUMMARY Table, ELMIN column except for the culvert.	
Culvert	Minimum channel elevation at the Culvert-Up section is equal to the ELCHU value from the SC record, and minimum channel elevation at the Culvert-Dn section is equal to the ELCHD value from the SC record.

### Low Chord

For the bridge, this is the elevation of the low chord. For the culvert, this is the elevation of the crown of the culvert. For inline weirs and dams, low chord elevation is assumed to be equal to the Minimum Channel Elevation.

### HEC-RAS

Bridge	The ground station with the minimum channel elevation between the channel bank stations of the bridge internal section is first determined by the RASPLOT program, then the low chord elevation at this station is determined from the Deck/Roadway data. Low chord elevation is determined in this manner for both Bridge-Up and Bridge-Dn sections.
Culvert	For a single culvert, the low chord elevation is computed by adding the Rise to the culvert invert elevation. Low chord elevation is determined in this manner for both culvert-Up and Culvert-Dn sections. For multiple culverts, RASPLOT selects the culvert with the centerline station nearest to the ground station with minimum channel elevation. Then low chord elevation is determined in the same manner as the single culvert.
Multiple Opening	RASPLOT first determines the type of structure within the channel bank stations. If it is a bridge, then the procedure to determine the low chord for the bridge is followed. If it is a culvert, then the procedure to determine the low chord for the culvert is followed.

### HEC-2

Special Bridge	The low chord elevation from the X2 record is used. The same value is used for both Bridge-Up and Bridge-Dn sections.
Special Culvert	The low chord elevation for Culvert-Up section is computed by adding the Rise to the ELCHU value and the low chord elevation for Culvert-Dn section is computed by adding the Rise to the ELCHD value.
Normal Bridge	The ground station with the minimum channel elevation between the channel bank stations of section 3 and 4 of normal bridge routine is first determined by the RASPLOT program. Then the low chord elevation at this station is determined from the BT and X2 data.

#### High Chord

For all the structures, the ground station with the minimum channel elevation between the channel bank stations is first determined by the RASPLOT program. For HEC-RAS, the high chord elevation at this station is determined from the Deck/Roadway data. High chord elevation is determined in this manner for both Upstream and Downstream sections. For HEC-2, the high chord elevation at this station is determined from the BT or X2 data.

The RASPLOT creates the profile along the center line of the stream. The centerline of the stream is assumed to follow the minimum channel elevation between the channel bank stations. The high chord and low chord elevations shown in RASPLOT are at the location where the stream centerline crosses the structures. The user needs to review the FIRM and/or the model to determine the type of flow at the structure. The profile should not be used to determine the type of flow.

#### Label Letter

This column is used to place letters at various River Stations on the profile. For a given River Station, type the letter you wish to show. No more than three letters or numbers can be shown in this column.

#### Label Text

This column is used to place a label at any River Station on the profile. For example, corporate limits, road names, confluence of stream, etc., can be placed in this column.

## Profiles

Water-surface elevations of the profiles from HEC-RAS, HEC-2, or user inserted values are shown in these columns.

### HEC-RAS

Water-surface elevations for the selected profiles are obtained from the RASPLOT user table, except for the culvert and the inline weir.	
Culvert	<p>The water surface profile through the culvert is selected by the RASPLOT program, depending upon the type of flow:</p> <ul style="list-style-type: none"><li>• If the type of flow is low flow, the water-surface elevation at the Culvert-Up section is equal to the Culv WS In value from the RASPLOT table, and the water-surface elevation at the Culvert-Dn section is equal to the Culv WS Out value from the RASPLOT table.</li><li>• 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 RASPLOT table.</li><li>• 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 Culvert-Dn section is obtained by adding the depth of weir flow over the upstream Deck/Roadway profile to the downstream high chord elevation.</li></ul>
Inline Weir	The water-surface elevations at the Inline-Up and the Inline-Dn are equal to the water-surface elevation at Section 3.

### HEC-2

Water-surface elevations for the selected profiles are obtained from the SUMMARY Table except for the culvert.	
Culvert	The water-surface elevation at Section 3 is used at Culvert-Up and Culvert-Dn sections.
Inline Weir	The water-surface elevations at the Inline-Up the Inline-Dn are equal to the water-surface elevation at Section 3.

### Drawdown

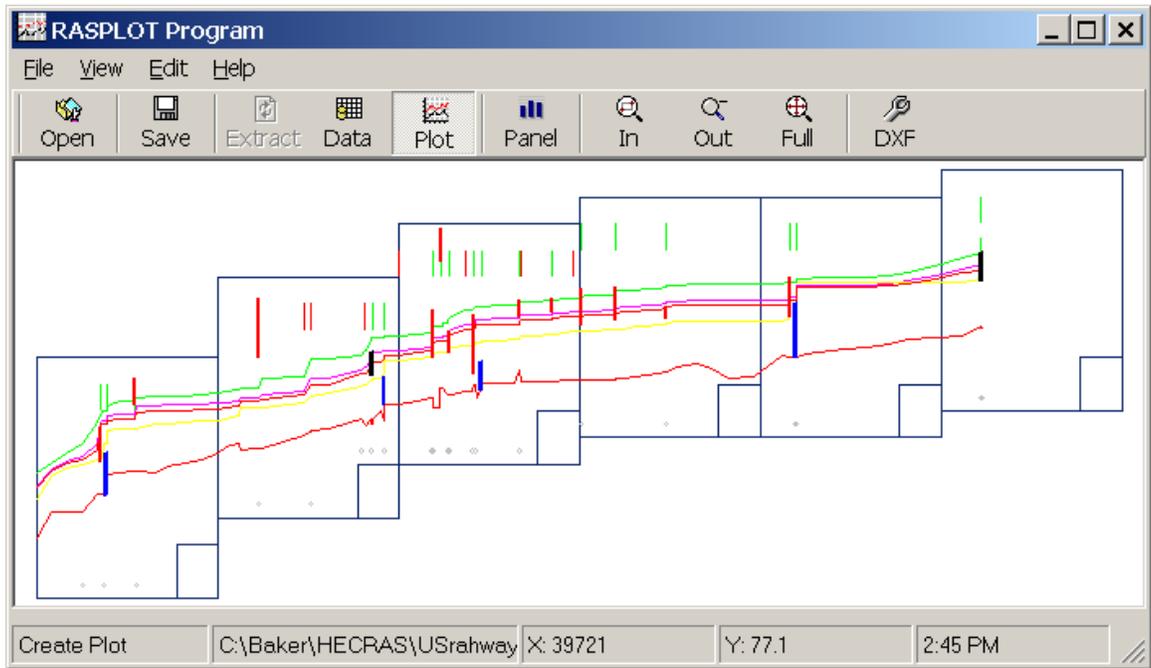
Drawdown is defined as a situation where the upstream water-surface elevation (WSEL) is lower than the downstream WSEL. For flood insurance studies drawdowns should be eliminated from the profiles. RASPLOT will eliminate the drawdown by drawing a horizontal line from the downstream WSEL until it intersects with the original profile, thus removing the upstream WSEL that is lower than the downstream WSEL.

### 3.0 Navigating in RASPLLOT

This chapter explains the Menu Bar and Tool Bar in the RASPLLOT program, how to select river and reaches from a stream network with multiple rivers and reaches, how node names from HEC-RAS are displayed, how to assign backwater elevations, how to select profiles if the Working table has multiple profiles and only some profiles are to be plotted, what data should be entered in the Header Information, how to tailor the panel information, how to insert horizontal or vertical notes, what HEC-RAS project information is stored, and how the structure and stream bed symbols are displayed.

#### 3.1 RASPLLOT Program Window

This window has the Menu Bar and the Tool Bar as shown in the following figure.



##### 3.1.1 File Menu

The File menu includes the following commands:

Open	This command opens the 'Open File' dialog box to select HEC-RAS or HEC-2 files or to open an existing Profile Table Database.
Extract Data	This command extracts data of the currently selected HEC-RAS project file or HEC-2 input file.
Print Data	This command prints the RASPLLOT profile table.
Save Database	This command saves the open profile database file.
Save DXF File	This command creates a DXF file.
DXF Editor	This command opens the DXF editor program.
Setup Program	This command opens a dialog box that allows the user to locate <i>ras.exe</i> , <i>hec2.exe</i> files, and set-up a default directory.
Create Blank Database	This command creates a user defined database to be used for non-HEC-RAS or non-HEC-2 hydraulic models.
Exit	This command exits RASPLLOT.

##### 3.1.2 View Menu

The View menu includes the following commands:

HECRAS Project Info	This command displays the following information about the HECRAS project file: <ul style="list-style-type: none"> <li>Title of the Project file and its original path</li> <li>Title of the Plan file and its original path</li> <li>Title of the Geometry file and its original path</li> <li>Title of the Flow file and its original path</li> <li>Project description</li> </ul>
Zoom In	This command allows you to draw a window around an area you wish to view at a closer scale.
Zoom Out	This command allows you to reduce the picture size by 10%.
Full Extent	This command allows you to restore the profile to its original size.

### **3.1.3 Edit Menu**

The Edit menu includes the following commands:

Setup Profile	This command opens the ‘Select Profile(s)’ dialog box and allows the user to select the profiles from current profile database.
Setup Backwater	This command opens the ‘Backwater Setup’ dialog box and allows the user to enter backwater elevations for each selected profile.
Setup Stream	This command will display the ‘River/Reach Connection’ diagram window and allows the user to select the stream or reaches to plot the profile. This command is only available for HEC-RAS project files with multiple streams and reaches.
Re-compute Cumulative Distance	This command allows the user to re-compute the cumulative distances in the profile database if the starting cumulative distance is to be changed or if a cross section is added or deleted or the channel length at a cross section is changed.
Edit Database	This command allows the user to view and/or edit the Profile Table Database.
Edit Title Info	This command allows the user to edit and change the community, county, state, and stream names, and the stream distance.
Edit Panel Info	This command displays the ‘Panel Setup Information’ dialog box and allows the user to modify the following: Starting Station, Ending Station, Unit, Horizontal Scale, Vertical Scale, Horizontal offset of each panel, and Vertical offset of each panel.
Edit Landmark	This command displays the ‘Landmark Table’ window and allows the user to insert horizontal or vertical notes at any point on the profile. This is not limited to cross-section locations.
Paneling/Plotting	This command allows the user to view the Profile Plot window

### **3.1.4 Help Menu**

The Help Menu provides the user with the following options.

About	“About” gives the user information about RASLOT and the computer’s “System Information.”
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Online Help	Online Help allows the user to access RASPLOT Hypertext Help file for help and definitions of RASPLOT functions.
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### **3.1.5 Status Bar**

This bar displays the current program and the cumulative distance and corresponding elevation of the point where the mouse pointer is located.

### **3.1.6 RASPLOT Toolbar**

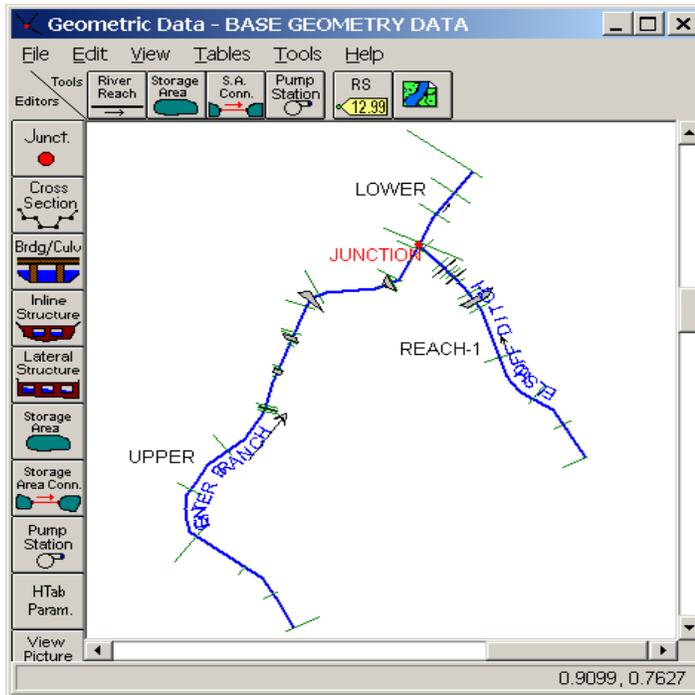
The RASPLOT toolbar contains the following:

Open	This button opens the 'Open File' dialog box to select HEC-RAS or HEC-2 files or to open an existing Profile Table Database.
Save	This button allows the user to save the RASPLOT profile database.
Extract Data	This button extracts data after you select HEC-RAS project file or HEC-2 input file.
Data	This button opens allows the user to view table "Working" from the RASPLOT database.
Plot	This button opens the Profile Plot Window.
Panel Info*	This button displays the 'Panel Setup' dialog box and allows the user to modify the following: Community Name, County Name, State, Stream Name, Stream Distance, Starting Station, Ending Station, Unit, Horizontal Scale, Vertical Scale, Horizontal offset of each panel, and Vertical offset of each panel.
Zoom In*	This button allows you to draw a window around an area you wish view at a closer scale.
Zoom Out*	This button allows you to reduce the picture size in order to see the entire profile.
Full Extent*	This button allows you to restore the profile to its original size.
DXF*	This button creates a DXF file.

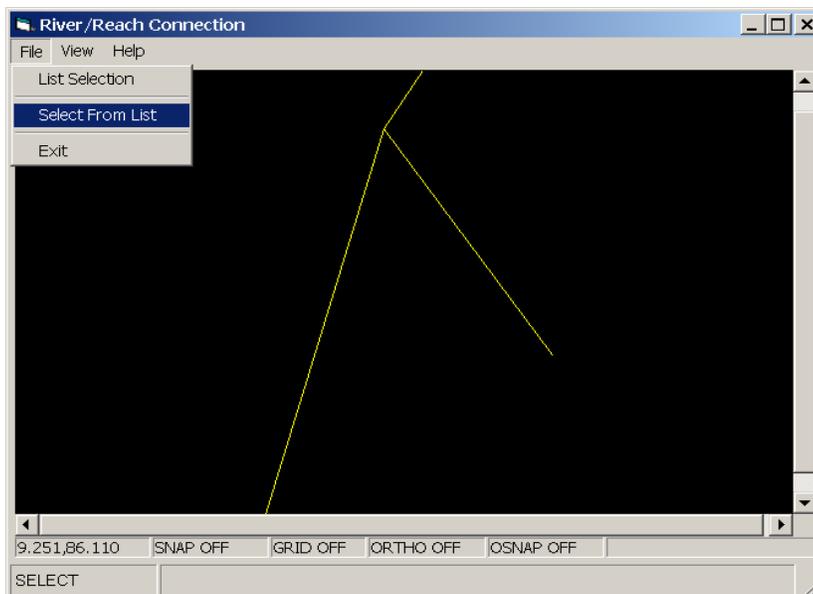
\*These buttons are not available until the profile plot window is open.

### 3.2 River/Reach Connection Dialog Box

The multiple streams and reaches for a Plan in HEC-RAS is shown in the following figure, as an example.

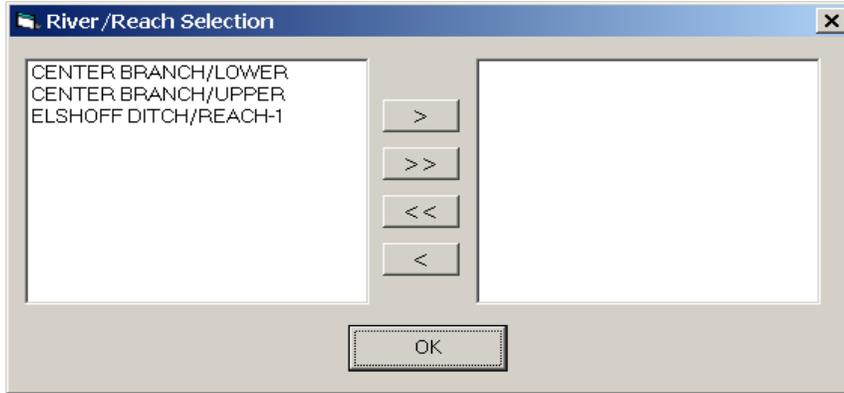


For HEC-RAS models with multiple streams and/or reaches, the following window will be displayed after the data is extracted from the HEC-RAS Report File by the RASPLOT program. (See Section 2.2 How to Create a Working Table for HEC-RAS).

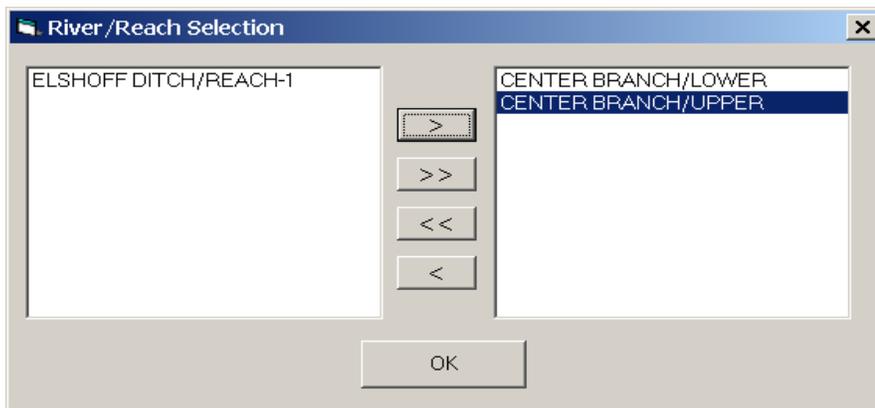


- Click **File** menu
- Click **Select From List** from the displayed options.

The following dialog box, shown as an example, with all the streams and reaches in the HEC-RAS Plan will be displayed in the left box.



In the above example, if the Center Branch is to be plotted as one continuous profile the user must select the most downstream stream segment (reach) first by clicking the stream and reach name and click the ' > ' button. The selected stream segments will be shown in the right box as shown in the following figure.

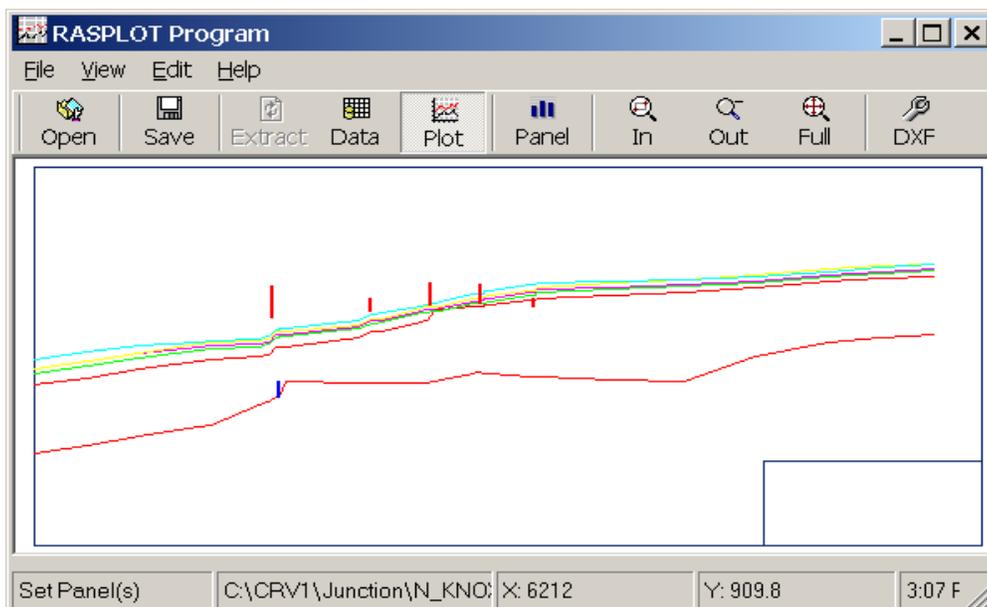


- Click the **OK** button.

As an example, the following Working Table window will be displayed for the selected stream and reaches.

RIVER	REACH	River	Structure	Length Chnl	Cum Dist	Min Ch El	Low Chord	High Chord	Label Letter	Label Te
CENTER BRANCH	LOWER	2691		0	0	881				
CENTER BRANCH	LOWER	3062		365	365	882				
CENTER BRANCH	LOWER	3419		348	713	883				
CENTER BRANCH	LOWER	3840		418	1131	884.1				
CENTER BRANCH	UPPER	3919		82	1213	884.3				
CENTER BRANCH	UPPER	4247		328	1541	886.7				
CENTER BRANCH	UPPER	4303		59	1600	887.1				
CENTER BRANCH	UPPER	4343	BRIDGE-Dn	3	1603	887.1	897.0728	900.7428		
CENTER BRANCH	UPPER	4343	BRIDGE-Up	55	1658	887.7	897.1428	900.8128		
CENTER BRANCH	UPPER	4380		17	1675	887.7				
CENTER BRANCH	UPPER	4381	INLINE-Dn	0	1675	887.7		889.56		
CENTER BRANCH	UPPER	4381	INLINE-Up	1	1676	887.7		889.56		

- Click the **Plot** button.
- As an example, the following window will be displayed.



- Review the connectivity of the profile between the selected reaches.
- If it is satisfactory, click the **Data** button to get back to the Working Table window and prepare the following to create a DXF file for the selected reaches.
- If the lettered sections and the structure names are not in the Node Names table in HEC-RAS (see Section 3.3 Node Names from HEC-RAS) add the lettered sections under **Label Letter** column and structure names under **Label Text** column in the Working Table window.
- Add back water (see Section 3.4 Backwater Setup Dialog Box) if applicable.
- Select 10%, 2%, 1%, and 0.2% annual chance flood profile names (see Section 3.4 Select Profile Dialog Box) if the number of profiles is not equal to four and/or the sequence of floods in the HEC-RAS flow file are not from the more frequent floods to less frequent floods. For example, the flow file may have floods shown in the order of 1%, 10%, 2%, and

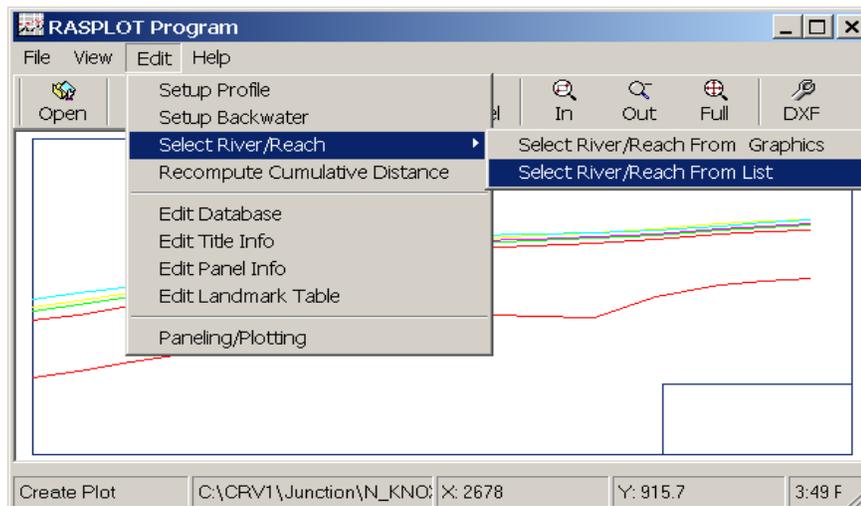
0.2% annual chance floods. In that case, the user needs to assign the correct flood profile names to the profiles from Select Profile Dialog box.

- Select Header Information (see Section 3.5 Header Information).
- Select panel scheme (see Section 3.6 Panel Setup Information Dialog Box).
- Save as DXF file (see Section 3.3 Node Names from HEC-RAS)..

#### Selection of Another Stream

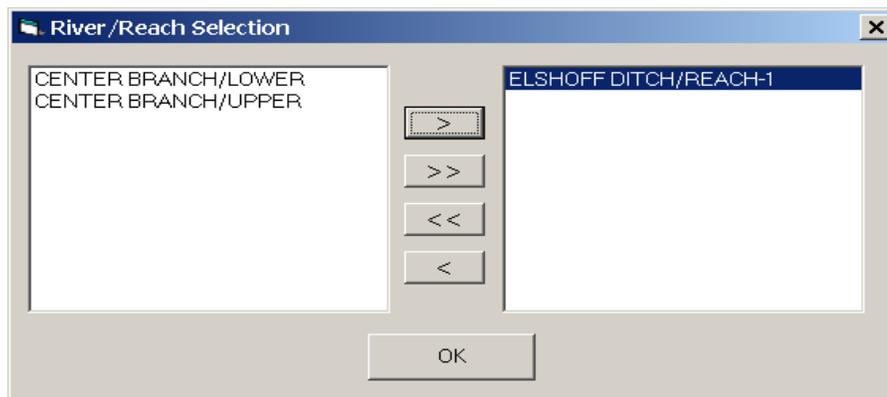
To select another stream or the combination of other stream lines:

- Click **Edit** menu in the RASLOT Program window.



- Point to **Select River Reach** and click **Select River/Reach From List**.

As an example, the following dialog box will be first displayed with all the streams and reaches in the HEC-RAS Plan on the left box. The user then selects another stream and reach by first click on the stream and the reach and click on the ' > ' button. The selected stream(s) and reach(es) will be displayed in the right box.

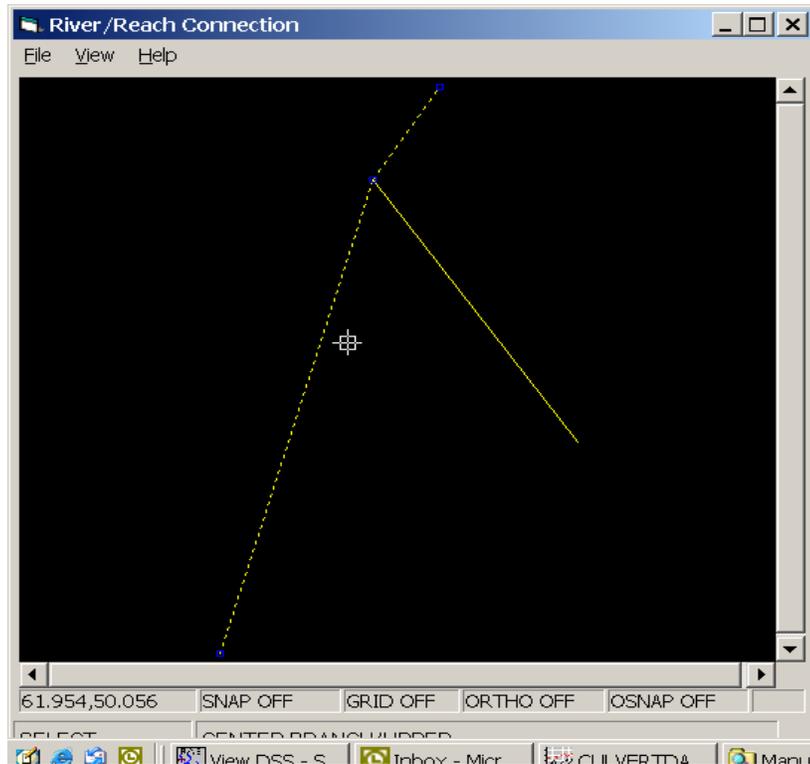


- Click the **OK** button.

Follow the same procedure as described before to create the DXF file for the newly selected stream and the reach.

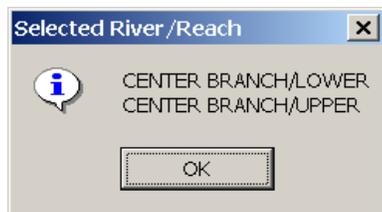
### Second Alternative

For the HEC-RAS models with multiple streams and/or reaches the following window will be displayed after the **Extract** button is clicked in the RASPLOT Program window.



- Use the cross hair and click on the stream segments to be combined as a continuous profile. Click the most downstream stream segment first.
- Click **File** menu and click **List Selection** from the displayed options.

The selected stream and reaches from the previous step will be displayed as shown below.



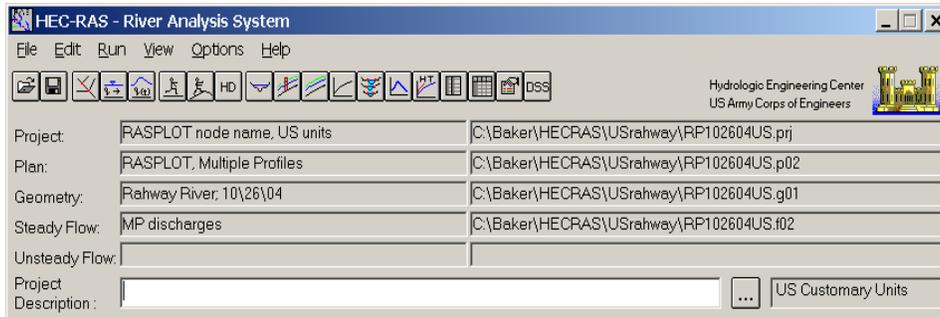
- Click the **OK** button.
- Click the **File** menu and click **Exit** from the displayed options.

The Working Table window will then be displayed.

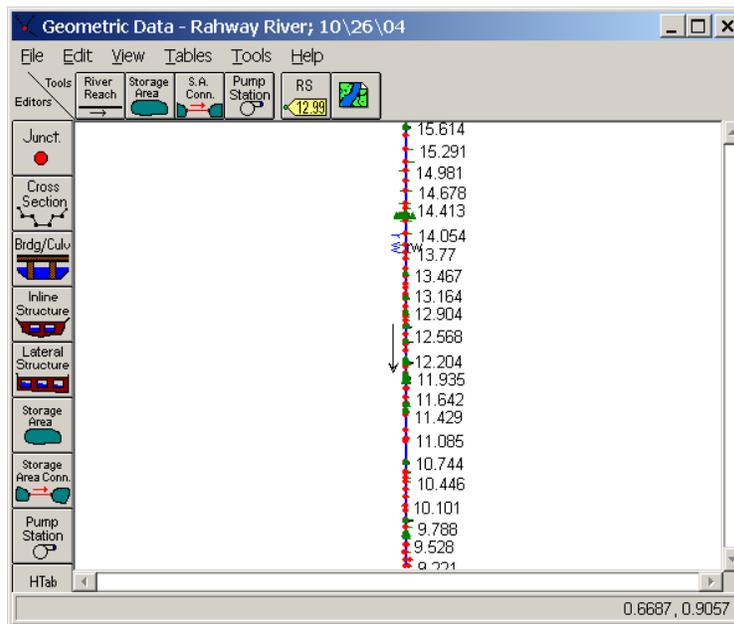
### 3.3 Node Names from HEC-RAS

This section explains how RASPLOT extracts node names from HEC-RAS and places them under the **Label Letter** column for the lettered cross sections and under the **Label Text** column for the structures in the Working Table. The following procedure can be applied to HEC-RAS versions with the option for **Node Names**.

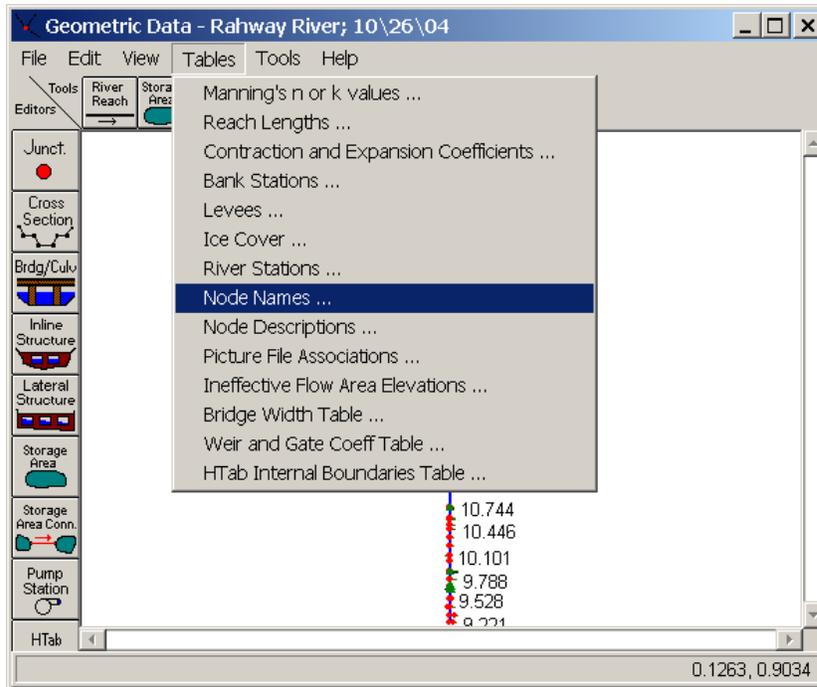
1. From the HEC-RAS main window, click the **Geometric Data** button (third button from the left in HEC-RAS Version 3.1.2).



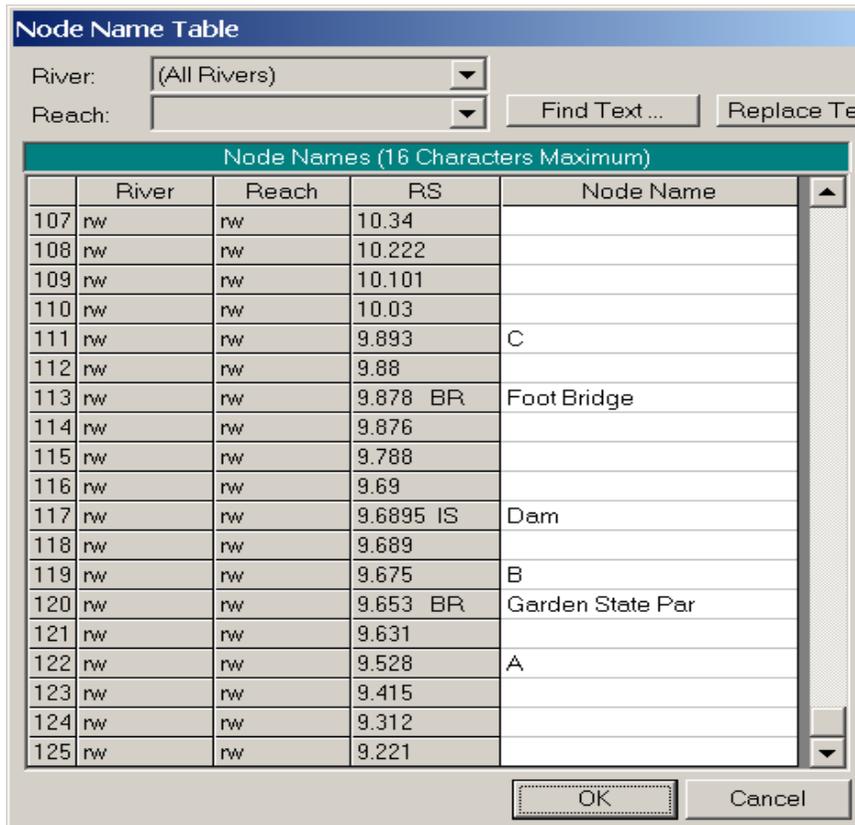
The following window will appear.



2. Click the **Tables** menu.
3. From the list of displayed options, click **Node Names**.



The following window will appear. (It will be blank when it first appears.)



In order for RASPLLOT to differentiate between the lettered cross section and structure name, type in upper case up to three letters for cross sections and any name (upper or

lower case) up to 16 characters for the structure name at the desired River Stations under the **Node Name** column. The final product from the DXF editor in RASPLOT will display in upper case for both the cross sections and the structures.

(The user must type in the lettered sections from downstream to upstream direction, and they must be in alphabetical order. RASPLOT will not check the order of the letters. If a structure name has only three letters, such as “Dam,” at least one letter must be in lower case for RASPLOT to differentiate the name as a structure. Please note that “Garden State Parkway” was cut off at “Par” because of the 16 characters limitation in HEC-RAS. The user can edit the names in RASPLOT after the Node Names are extracted.)

4. Click the **OK** button.

Please refer to Section 1.7 HEC-RAS Report File for RASPLOT to generate a report file for RASPLOT from HEC-RAS. After generating the report, please refer to Section 2.2 How to Create a Working Table for HEC-RAS to create profiles in RASPLOT. If the HEC-RAS file includes multiple rivers and reaches, please refer to Section 3.2 River/Reach Connection Dialog Box to select, one at a time, the rivers and/or reaches to create a continuous profile for a single stream in RASPLOT.

After the procedure in Section 2.2 or 3.2, RASPLOT will display the Working Table with the data extracted from HEC-RAS, as the continuation of the above HEC-RAS window, as shown in the following figure.

river station	structure	length chnl	cum dist	min ch el	low chord	high chord	label letter	label text	Prof 1	Prof 2	Prc
9.221		0	0	26.1					36.11	33.61	35
9.312		480	480	31.1					38.98	37.89	38
9.415		545	1025	31.2					40.51	39.35	40
9.528		600	1625	31.2			A		41.46	39.84	40
9.631		540	2165	34.3					43.75	40.73	42
9.653	BRIDGE-D	90	2255	34.3	40.5875	47		Garden State Par	47.88	40.73	47
9.653	BRIDGE-U	50	2305	34.3	40.5875	47			48.25	41	47
9.675		90	2395	34.3			B		48.25	43.96	47
9.689		0.5	2395.5	34					48.19	43.96	47
9.6895	INLINE-Dn	70.5	2466	38		42		Dam	0	0	
9.6895	INLINE-Up	4	2470	34		42			0	0	
9.69		5	2475	38					49.09	46.44	48
9.788		520	2995	38.3					49.51	46.52	48
9.876		465	3460	38.8					49.07	46.45	48
9.878	BRIDGE-D	3	3463	38.8	51.1436	56.1436		Foot Bridge	48.99	46.4	48
9.878	BRIDGE-U	14	3477	38.8	51.1436	56.1436			49.06	46.44	48
9.88		3	3480	38.8					49.31	46.47	48
9.893		70	3550	38.8			C		50.9	46.76	49

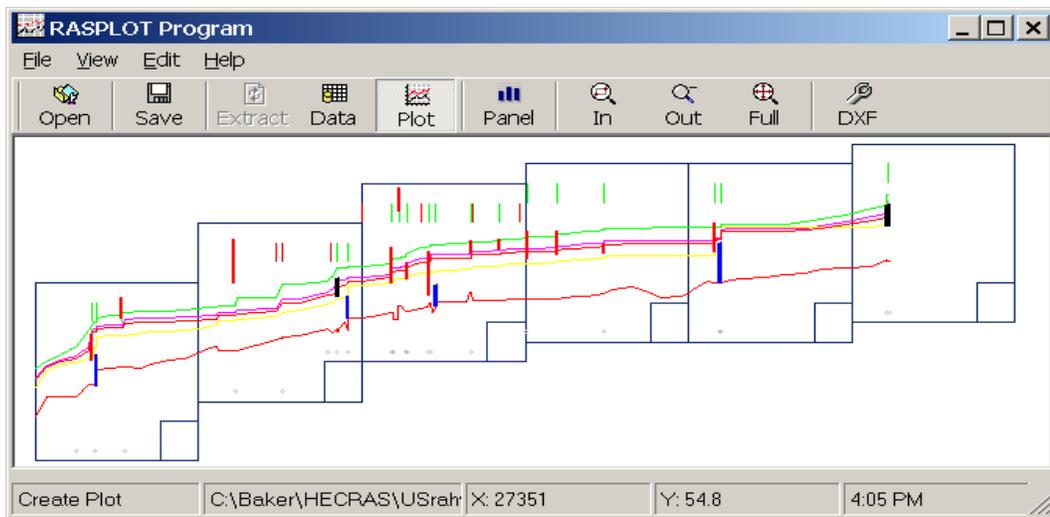
Please note that lettered cross sections are placed under the **label letter** column and the structure names are placed under the **label text** column. As a default, the structure names at the structures are placed at the downstream section of the structures. This arrangement allows RASPLOT to display the name of the structure on the left side of the vertical line at the structure in DXF Editor (see Chapter 4.0 DXF Editor). The user must not change the location of the names in the Working Table window; however, the user can move the location of the names in the DXF Editor. The name of the structures, such as “Garden State Par” can be edited as “Garden State Parkway” in the Working Table window.

The following is a brief demonstration of the steps that can be taken to visualize the final product related to the lettered cross sections and the structure names using DXF Editor. (The user must read the other sections to create a complete profile database before creating a DXF file).

First, the structure name “Garden State Par” is corrected to “Garden State Parkway” in the Working Table, as shown below.

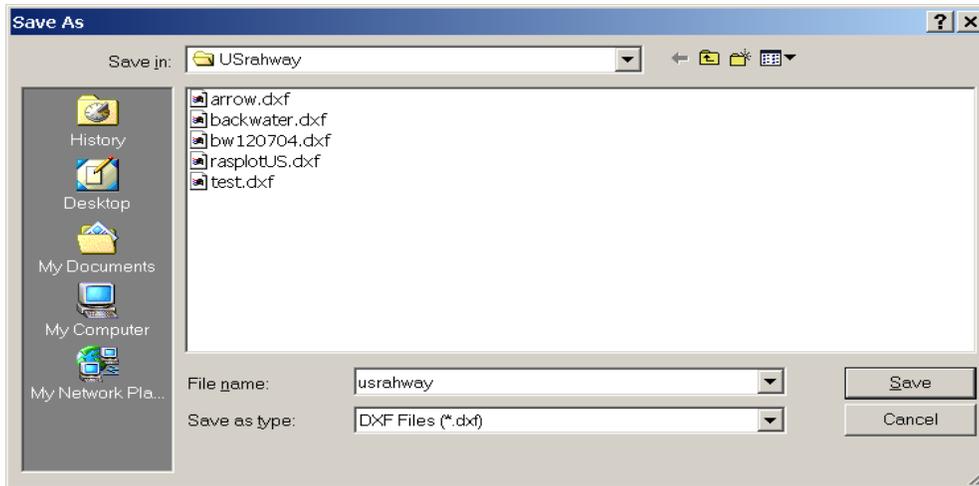
river	reach	river station	structure	length chnl	cum dist	min ch el	low chord	high chord	label letter	label text
rw	rw	9.221		0	0	26.1				
rw	rw	9.312		480	480	31.1				
rw	rw	9.415		545	1025	31.2				
rw	rw	9.528		600	1625	31.2			A	
rw	rw	9.631		540	2165	34.3				
rw	rw	9.653	BRIDGE-D	90	2255	34.3	40.5875	47		Garden State Parkway
rw	rw	9.653	BRIDGE-U	50	2305	34.3	40.5875	47		
rw	rw	9.675		90	2395	34.3			B	
rw	rw	9.689		75	2470	34				
rw	rw	9.6895	INLINE-Dn	0.5	2470.5	34		42		Dam
rw	rw	9.6895	INLINE-Up	4	2474.5	38		42		

1. Click the **Plot** button. The following window will be displayed.



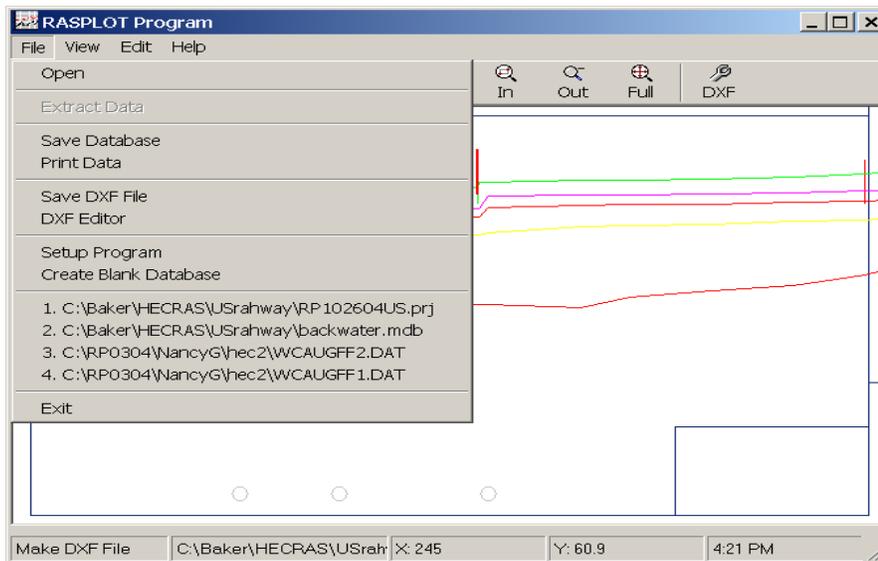
The above window shows the overall layout of the profiles, structures, lettered sections, and panels.

2. Click the **DXF** button to create a dxf file. The following window will be displayed.

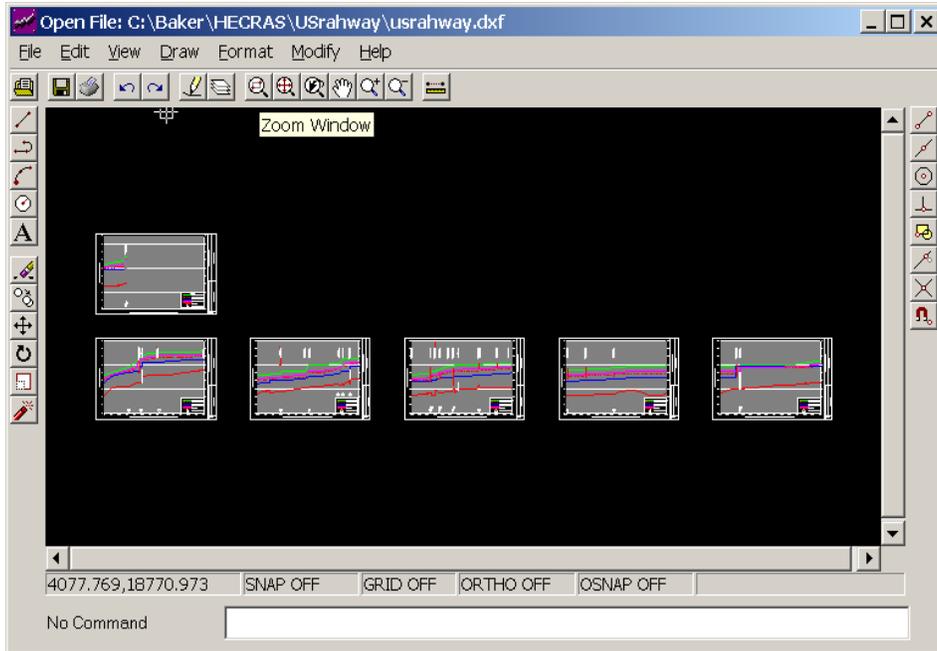


Locate the folder where the dxf file will be stored. Type in the primary name of the dxf file in the Filename box. (The extension dxf will be appended automatically).

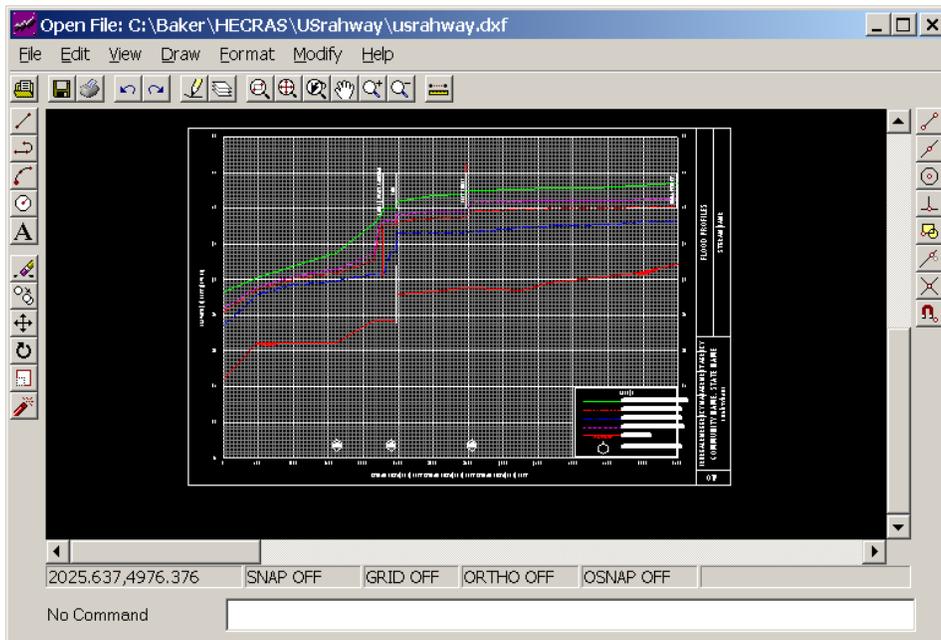
3. Click the **Save** button.
4. Click the **File** menu from the RASPLOT Program window.



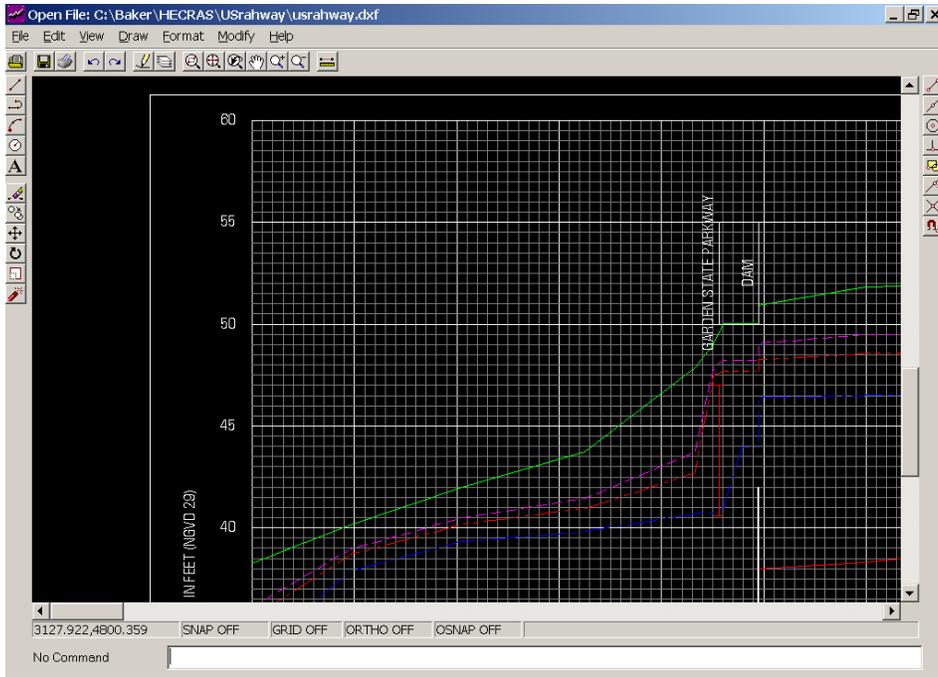
5. From the list of displayed options, click **DXF Editor**. As a default, DXF Editor will extract the data from the saved dxf file from the previous step, and the following window will be displayed.



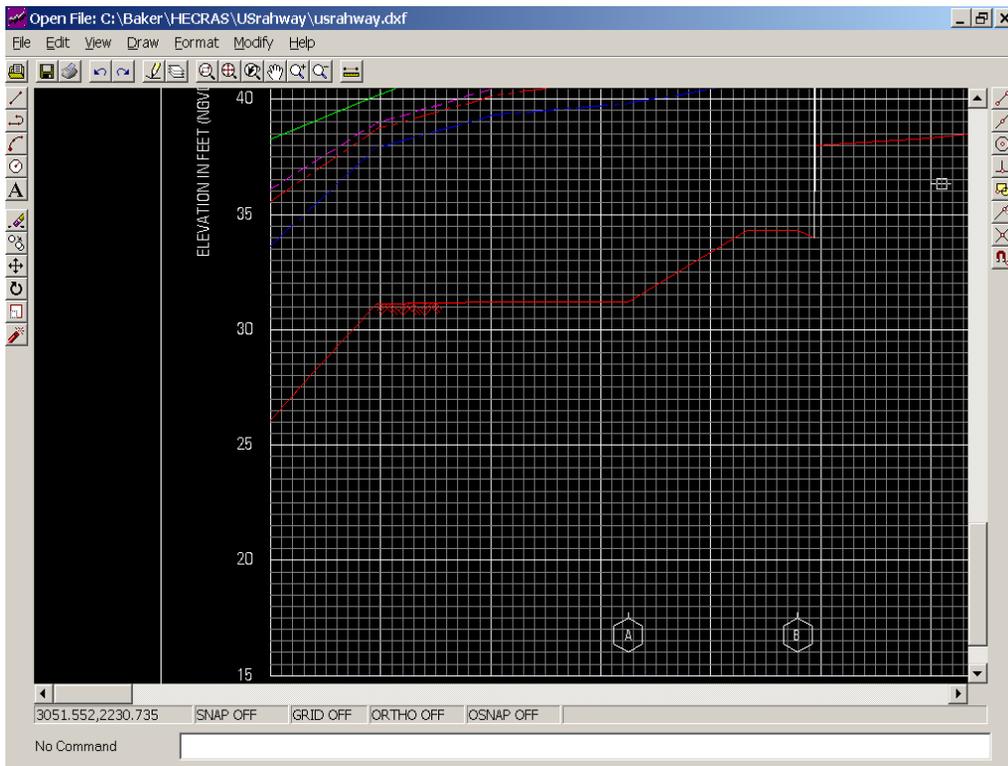
- Click on the **Zoom Window** button (7th button from right on the horizontal button bar). A Cross-hair line symbol will appear. Drag the symbol and encompass the panel to view. The following is an example of the selected panel.



- Use the **Zoom Window** button or click the **Zoom In** button (3rd button from right on the horizontal button bar) to zoom in on the name of the structure and the lettered sections. The following figure is shown as an example for the name of the structures.

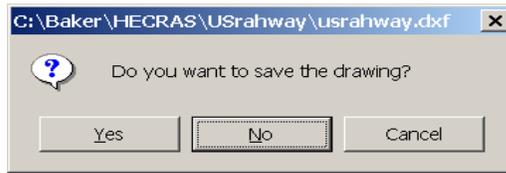


Please note that the names of the structures are displayed in upper case. The following figure shows the letters displayed in the hexagon.



8. Click the **File** menu.

9. From the displayed options, click **Exit**. The following dialog box will be displayed.

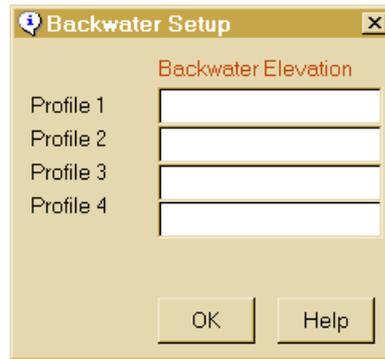


10. Click the **No** button in this case because a full-fledged profile database has not yet been created.

11. Close the RASPLOTT program window.

### 3.4 Backwater Setup Dialog Box

Backwater Setup command in Edit Menu will open the “Backwater Setup” dialog box. Enter backwater elevations for the corresponding profile. Once backwater elevations are entered click the “OK” button.

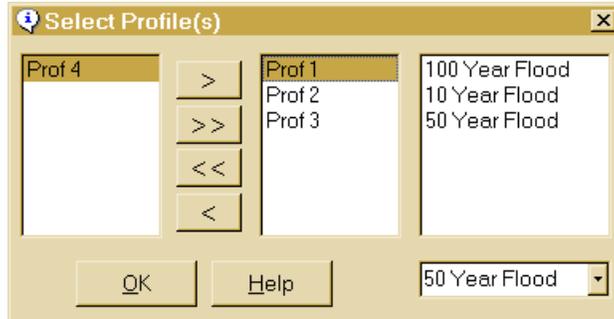


### 3.4 Select Profile Dialog Box

Select Profile command in the Edit Menu which will open the “Select Profile(s)” window and allows you to select the profiles to be printed.

The “Select Profile(s)” window shows a list of the available profiles. Use the double forward arrows (>>) to select all the profiles to be printed. Otherwise, click on one profile at a time and use the single forward arrow (>) to select the profiles you want to print. If you change your mind and do not want to print that profile click on the profile and select the single backward arrow (<). If you do not want to print all the profiles use the double backward arrows (<<).

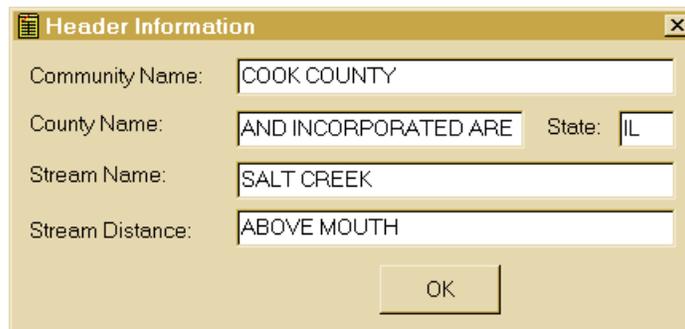
To Change the name of a profile, click the profile and use the drop down window at the bottom of the screen to change its name. For example, if Profile 1 is labeled 10 Year Flood, and it should be 100 Year Flood, first click on 10 Year Flood and then select 100 Year Flood from the drop down window.



### 3.5 Header Information

The following information can be changed by either clicking “Edit” and “Edit Title Info,” “Edit” and “Edit Panel Info”, or the “Panel Button.”

Community Name	Type the name of the community. For Counties and/or County Wide Studies, type the County name. For example, “Village of Northbrook” or “Cook County”
County Name	Type the name of the County. For Counties, type “Unincorporated Areas” or “Incorporated Areas” as appropriate.
State Name	Type the 2 letter abbreviation for the State. For example, “VA” for Virginia, “IL” for Illinois, etc.
Stream Name	Type the Name of the Stream.
Stream Distance	Type where the stream’s channel distance is measured from. For example, “ABOVE CONFLUENCE WITH DEWEY RIVER,” or “ABOVE MOUTH.” When the DXF file is created, RASPLLOT will add “STREAM DISTANCE IN” and selected unit (i.e., “STREAM DISTANCE IN FEET ABOVE MOUTH”).



### 3.6 Panel Setup Information Dialog Box

Panel Info command in the Edit Menu or the Panel button will open the Panel Setup Information dialog box.

The user can view and edit the Community Name, County Name, State, Stream Name, Stream Distance, Starting Station, End Station, Panel Starting Elevation, and Ending Elevation of each panel. If the user wants to reduce the length of the first panel retype the end station. Same station should be retyped as the starting station of the next panel.

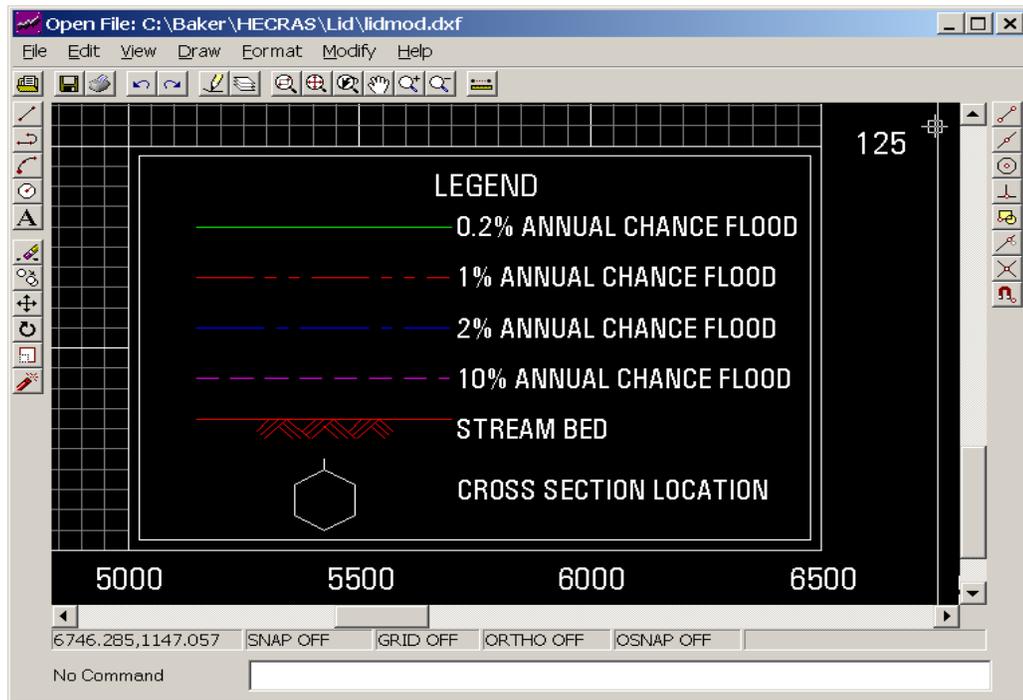
The user is given the option of plotting the profile in different units. “Feet”, “Hundred Feet”, “Thousand Feet”, “Mile”, “Meters”, and “Kilometers” are available for use.

The user can view and edit the Horizontal Scale and Vertical Scale of each panel. For units of Feet, the horizontal scale of 100, 200, 400, 500, 1000, and 2000 feet and vertical scale of 5, 10, and 20 feet are given in the pull down window. Use the pull down windows to select both horizontal and vertical scales. For the units of Miles, in order to calculate the horizontal scale, use the formula,  $\text{Horizontal Scale} = \text{Desired Interval} * 5280$  (i.e.,  $528 = 0.1 * 5280$ ). The user needs to type horizontal scales of 528, 1056, and 2640 feet in order for the horizontal labels to be exactly 0.1, 0.2, and 0.5 mile, respectively. When selecting Meters or Kilometers, RASLOT assumes the input from HEC-2 and HEC-RAS is in meters.

Only Vertical scales can be changed for individual panels.

The user can select the Vertical Datum between NAVD 88 and NGVD 29 from the **Vertical Datum** box using the pull down arrow.

The user can select between New and Old legend from the Legend Option box using the pull down arrow. If the New legend is selected it will be seen in the DXF Editor as shown below.



X and Y Origins allows the user to move the panel vertically, or horizontally. For example, for a vertical scale of 5, reduce the existing number by 10 in the Y Origin column for a selected panel and click OK. The panel will move up 2 inches.

**Panel Setup Information**

**General** | Detail

Community Name: community name

Stream Name: stream name

Stream Distance: above confluence with another stream

County Name: county name State: state n

Start Station: -2965 End Station: 4965

Horizontal Scale: 500 Vertical Scale: 5

Selected Unit: 1 inch = Feet Start Panel No. 1

Vertical Datum: NAVD 88 (selected), NGVD 29, NAVD 88

Legend Option: New

Apply OK Cancel Help

**Panel Setup Information**

General | **Detail**

Panel	Start Station	End Station	Start Elevation	End Elevation	Orgin X	Orgin Y	Vertical Scale
1	0	6500	570	615	0	570	5
2	6500	13000	585	630	6500	585	5

Apply OK Cancel

### 3.7 LandmarkTable

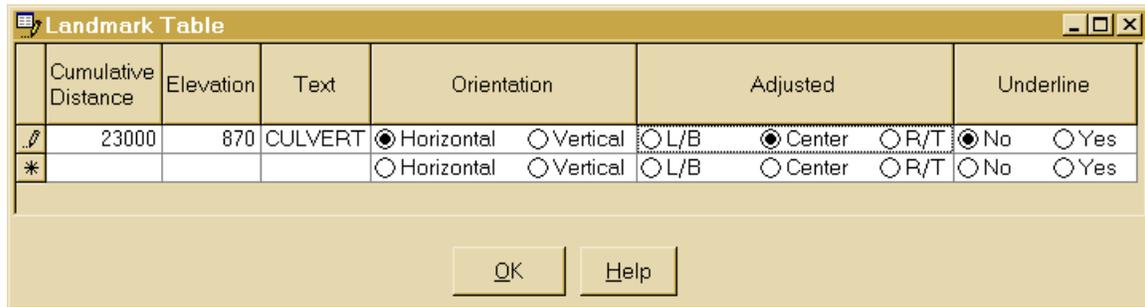
The 'Landmark Table' dialog box allows the user to insert horizontal or vertical notes at any point on the profile. This is not limited to cross-section locations.

To automatically insert the location of a note, right click on the Profile Plot window and click on “Insert Landmark Point.” Select the point on the Profile Plot window in which you desire to place a note. RASPLOT will automatically add the cumulative distance and elevation you select.

To Delete any point, select the row you desire to be deleted, and press the Delete key.

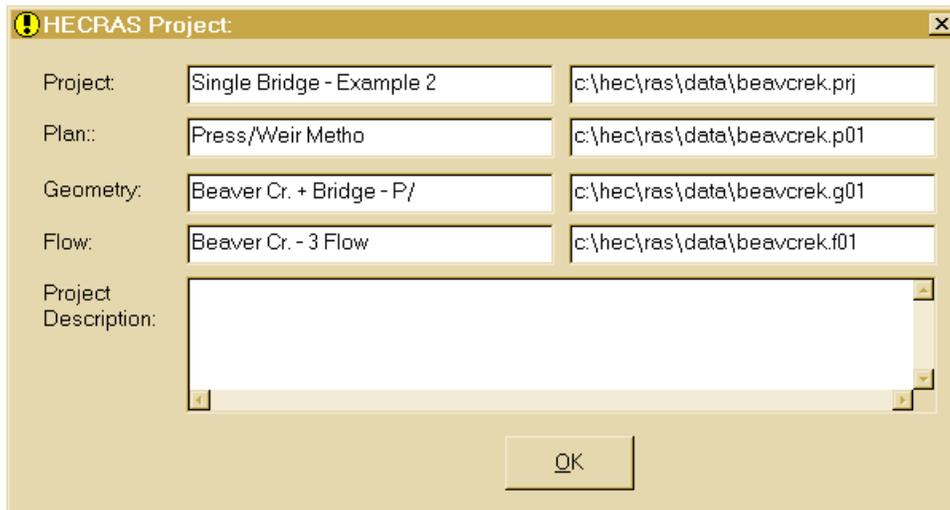
The Landmark Table consists of the following columns:

Cumulative Distance	This is the horizontal starting point along the profile at which the user wishes the text to be located.
Elevation	Elevation at which the text is to be located.
Text	Text the user wishes to be printed.
Orientation	This field contains whether the user wants the text to be printed Vertically or Horizontally.
Adjusted	This field contains how the user wants the text to be oriented. For Left Justified, select “L/B”, for Center Justified, select “Center”, and for Right Justified, select “R/T”.
Underline	This options allows the user to underline the text.



### 3.8 HEC-RAS Project Information

This window stores project information from the HEC-RAS project file into the RASPLOT Profile Database.



### 3.9 Structure and Stream Bed Symbols

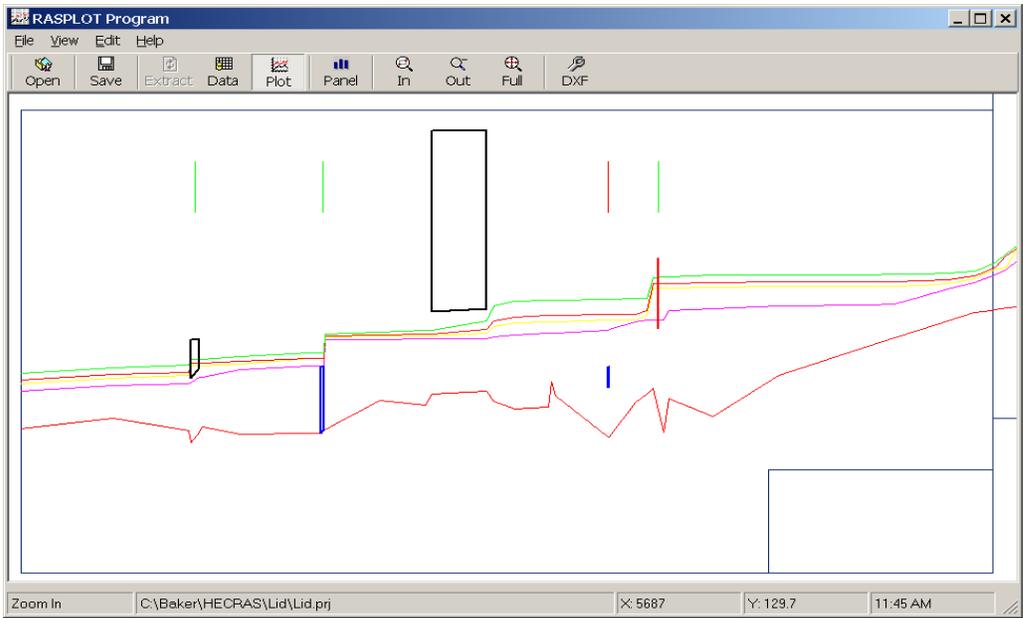
#### Structure Symbol

RASPLOT will identify structures with different colors in the RASPLOT Program window when the **Plot** button is clicked. The bridge is identified as a red vertical line, culvert is identified as a black box, dam (inline weir) is identified as a blue box attached to the channel bottom, and lid (HEC-RAS option) is identified as a blue box. RASPLOT will indicate the River Stations where the lid option is used in HEC-RAS as Lid under the **structure** column, as shown in the following figure.

river	reach	river station	structure	length chnl	cum dist	min ch el	low chord	high chord	label letter	label text
Judd_Hum Br	Study Reach	-2965		0	0	129				
Judd_Hum Br	Study Reach	-2345		620	620	130				
Judd_Hum Br	Study Reach	-1840		505	1125	128.8				
Judd_Hum Br	Study Reach	-1800	CULVERT-Dn	12	1137	127.7	133.95	137.7		culvert
Judd_Hum Br	Study Reach	-1800	CULVERT-Up	57	1194	128.7	134.95	137.6945		
Judd_Hum Br	Study Reach	-1755		16	1210	129.2				
Judd_Hum Br	Study Reach	-1500		255	1465	128.5				
Judd_Hum Br	Study Reach	-1040		460	1925	128.6				
Judd_Hum Br	Study Reach	-980	INLINE-Dn	81	2006	128.6		135		dam
Judd_Hum Br	Study Reach	-980	INLINE-Up	20	2026	128.9		135		
Judd_Hum Br	Study Reach	-935		4	2030	128.9				
Judd_Hum Br	Study Reach	-565		370	2400	131.8				
Judd_Hum Br	Study Reach	-255		310	2710	131.3				
Judd_Hum Br	Study Reach	-155	CULVERT-Dn	41	2751	132.4	140.4	158		
Judd_Hum Br	Study Reach	-155	CULVERT-Up	364	3115	132.7	140.7	158		
Judd_Hum Br	Study Reach	200		50	3165	131.7				
Judd_Hum Br	Study Reach	335		135	3300	130.9				
Judd_Hum Br	Study Reach	565		230	3530	131.1				
Judd_Hum Br	Study Reach	585		20	3550	133.6				
Judd_Hum Br	Study Reach	610		25	3575	132.2				
Judd_Hum Br	Study Reach	964	Lid	354	3929	128.2	133.0371	135.0371		lid
Judd_Hum Br	Study Reach	970	Lid	6	3935	128.2	133.0371	135.0371		
Judd_Hum Br	Study Reach	1145		175	4110	131.6				
Judd_Hum Br	Study Reach	1220		75	4185	132.4				
Judd_Hum Br	Study Reach	1280	BRIDGE-Dn	40	4225	132.9	138.7	147.1		bridge
Judd_Hum Br	Study Reach	1280	BRIDGE-Up	73	4298	128.7	138.8	144.16		
Judd_Hum Br	Study Reach	1365		32	4330	131.9				

As an example, to indicate the type of structure, culvert, dam, lid, and bridge are shown as name of the structure under label text column.

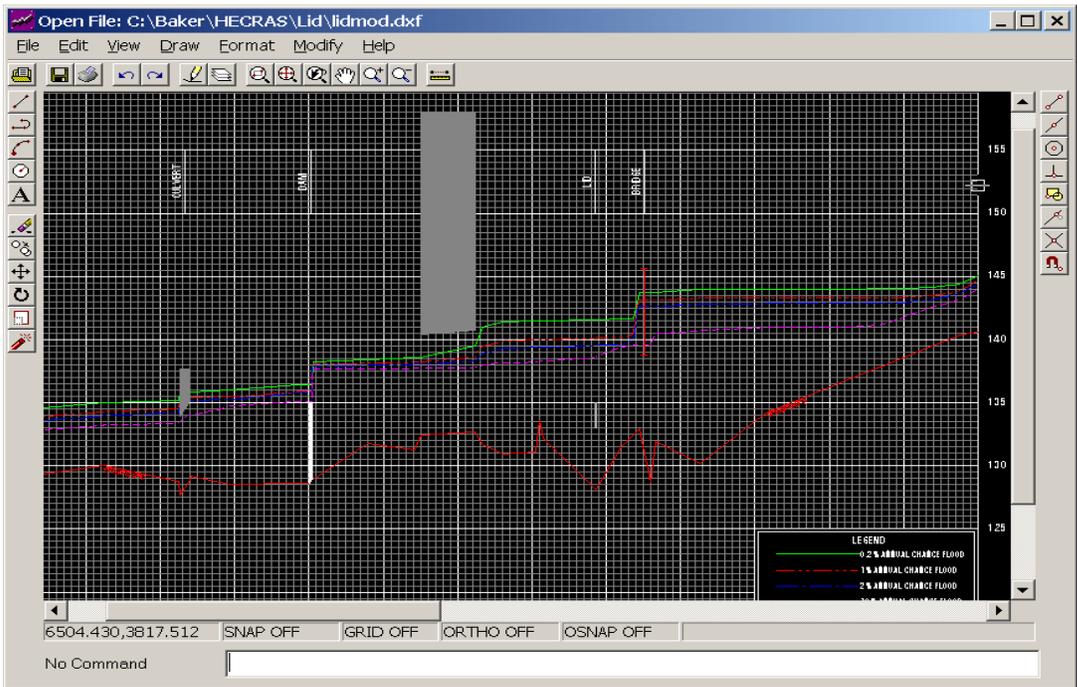
When the Plot button is clicked the following window will be shown.



Click the **DXF** button to create the DXF file.

Click **File** menu and click **DXF Editor**.

The following window shows the type of shading applied to each type of structure.



The culvert and lid are shown in grey shading, dam is shown in opaque shading, and the bridge is shown as an I shape.

Stream Bed Symbol

Two stream bed symbols per panel will be inserted by the RASPLOT program as shown in the above figure.

## 4.0 DXF Editor

### 4.1 What is 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, scale, copy, move, and format objects. In addition, the DXF editor allows the user to save any changes in either DXF or DWG formats which are AutoCAD 13/14/2000 compliant.

### 4.2 Open an Existing DXF file

By default, after the user creates a DXF file in RASPLOT, when the DXF editor is opened it will automatically open 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, click “File” and “DXF Editor.”

Click either “File” and “Open” or the “Open Button” to open the “Open” dialog box. Under “Files of type:”, select either “AutoCAD files (\*.DWG)” or “DXF files (\*.DXF)”. Browse the computer to locate the file of the selected file type. Click the “Open button” to open the selected file.

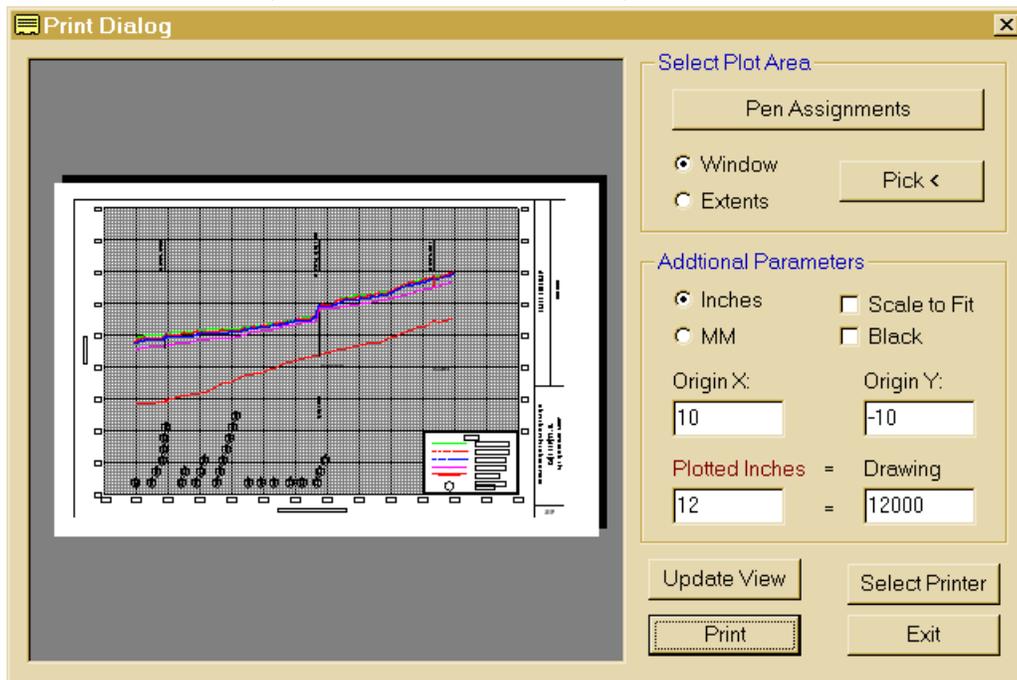
### 4.3 Save changes in DXF format

If the drawing is named, RASPLOT saves the drawing under the specified name. If the drawing is unnamed, RASPLOT displays the “Save Drawing As” dialog box. Enter a file name and save the drawing.

By default, RASPLOT will save the drawing as a DXF file.

### 4.4 Print the DXF file

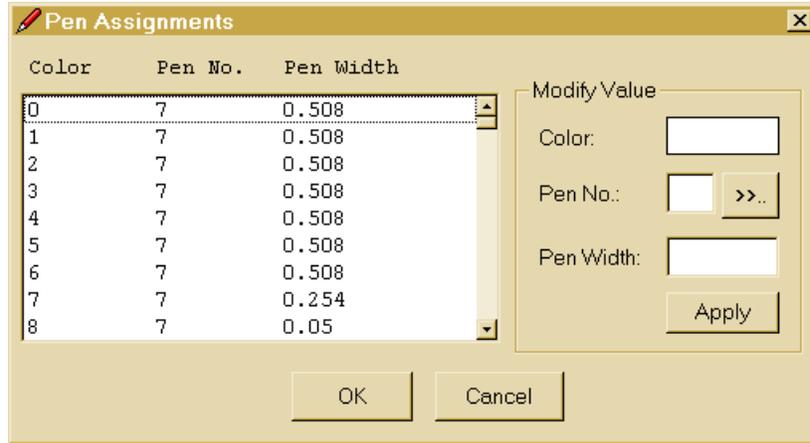
From the “File” menu, click “Print”. From the tool bar, click the “Print” button.



## Select Plot Area

### Pen Assignments

This button Displays the Pen Assignments dialog box. It sets the pen number and pen width associated with each color.



### Pen Assignments dialog box

Select the entry or entries to modify from the list.

### Modify Value

Modifies parameters for pen and width.

- Color
- Pen
- Width

Use the >> button to determine which pen is assigned to a specific color.

### Pen Width

Enter the line width to instruct the printer how many lines are required to fill a solid area. Some devices that do not have physical pens rely on the pen width to fill solid areas with lines. Pen width is not available for some plot devices.

### Window

Plots any portion of the drawing. Chose the Pick < button to specify two corners of the area to be plotted by using the mouse to designate the window if the whole area you want to specify is visible on the screen.

### Extents

Plots the portion of the current space of the drawing that contains objects. This option is similar to ZOOM Extents.

## Additional Parameters

### Scaled to Fit

Scales the plot so that the view chosen and the portion of the drawing to be plotted, is made as large as possible for the specified paper size. When Scaled to Fit is selected, the text boxes display the actual scale used. RASPLOT will update this scale whenever you make any entry that affects the scale. When Scaled to Fit is turned off, the text boxes

default to 12 =12 except when the scale has been previously set to other values. In that case, DXF Editor will display that scale in the text boxes.

When millimeters are chosen, the label reads Plotted MM. = Drawing Units.  
When Inches are chosen, the label reads Plotted Inches = Drawing Units.

Origin X: / Origin Y:

The plot normally begins in the lower-left corner of the paper (the home position). Enter the plot origin in the X Origin and Y Origin boxes to place the plot origin at another location on the paper. On some plotters you can use negative coordinates.