DRAINAGE DESIGN MANAGEMENT SYSTEM FOR WINDOWS
VERSION 6.0.5

TUTORIAL # 6
CUSTOMIZING HEC-RAS TABLE FOR DDMSW

KVL Consultants, Inc.

CUSTOMIZING HEC-RAS TABLE FOR DDMSW

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CUSTOMIZING HEC-RAS TABLE FOR DDMSW

DATE UPDATED: APRIL 20, 2022

TUTORIAL TIME: 40 MINUTES

1.0 INTRODUCTION

This tutorial outlines the procedure in customizing a HEC-RAS table that identifies which hydraulic parameters are to be included in the table as well as the column wise order by which these parameters are defined. HEC-RAS can save the custom format defined by the user so that it serves as a template that can be accessed and used anytime. The imported data could be used for river mechanics analysis that includes scour, sediment yield, riprap sizing, launchable riprap, and lateral erosion.

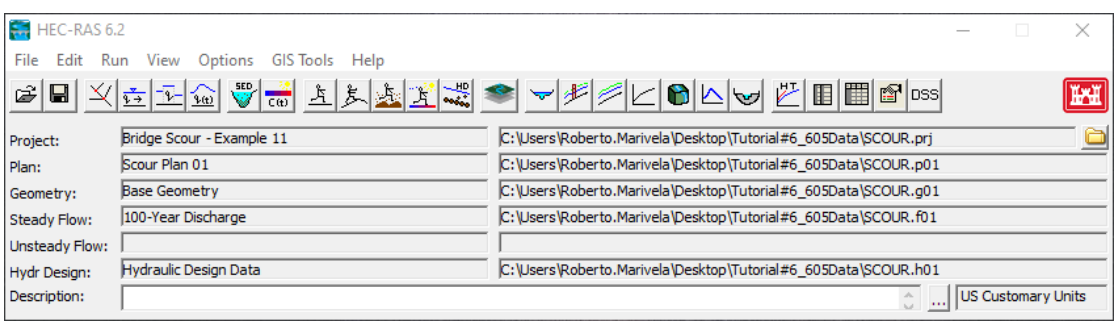
The content of this tutorial document was tested and updated using **HEC-RAS 6.2** and **DDMSW 6.0.5.**

2.0 PROJECT FILES

The project files needed for this tutorial are assembled in a compressed file called “SCOUR.zip”. The most important file is the “SCOUR.prj” which defines various addresses to access required project component files (e.g., *.p01, *.g01, *.f01, etc). If the “SCOUR.prj” and other associated files do not exist, unzip the provided “SCOUR.zip” file.

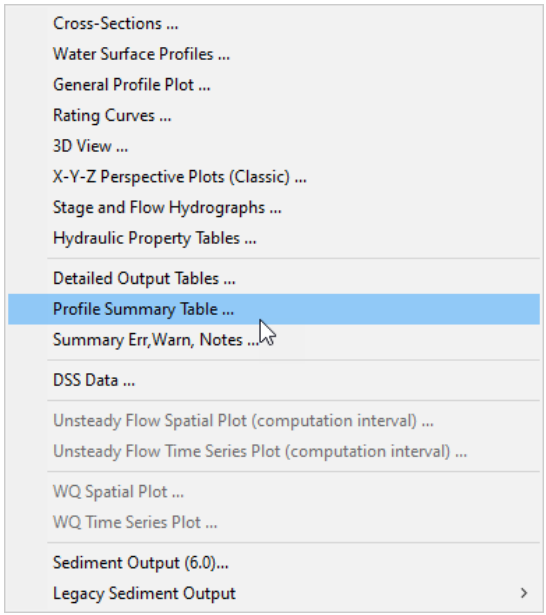
3.0 OPEN A HEC-RAS PROJECT

After launching the HEC-RAS program, open a HEC-RAS project. For purposes of illustration using this tutorial, let us use a pre-packaged HEC-RAS project called, “SCOUR.prj”. Make sure that the project has already been run.

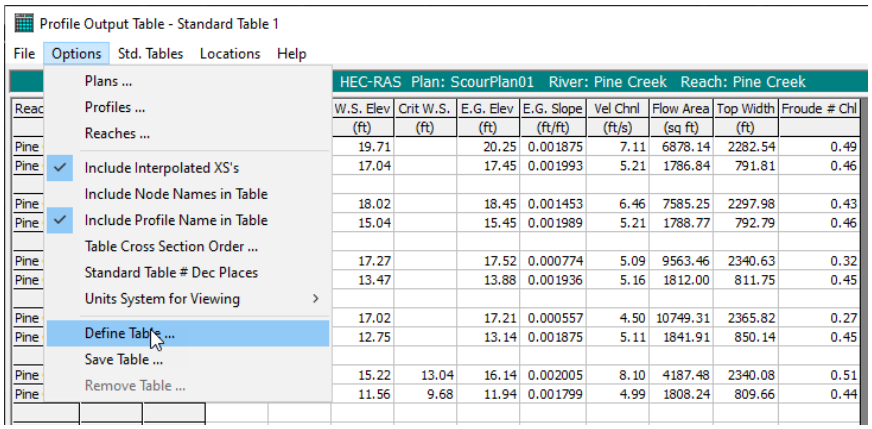


4.0 OPEN THE PROJECT OUTPUT TABLE AND CREATE A CUSTOM TABLE

4.1 To start the customization of the table, open the **PROFILE OUTPUT TABLE** form ***('View ➔ Profile Summary Table …')***.

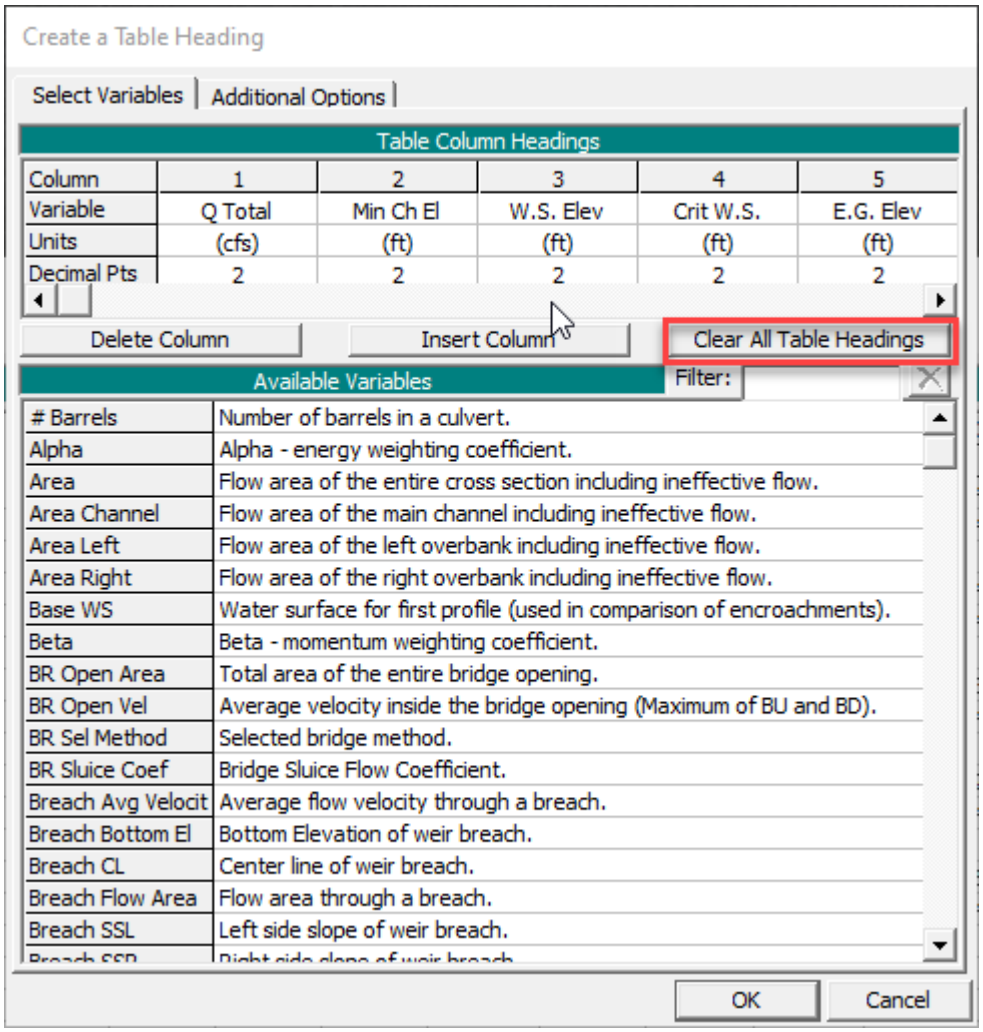


4.2 On the **PROFILE OUTPUT TABLE** form, open the Create a Table Heading form ***('Options ➔ Define Table …')***.

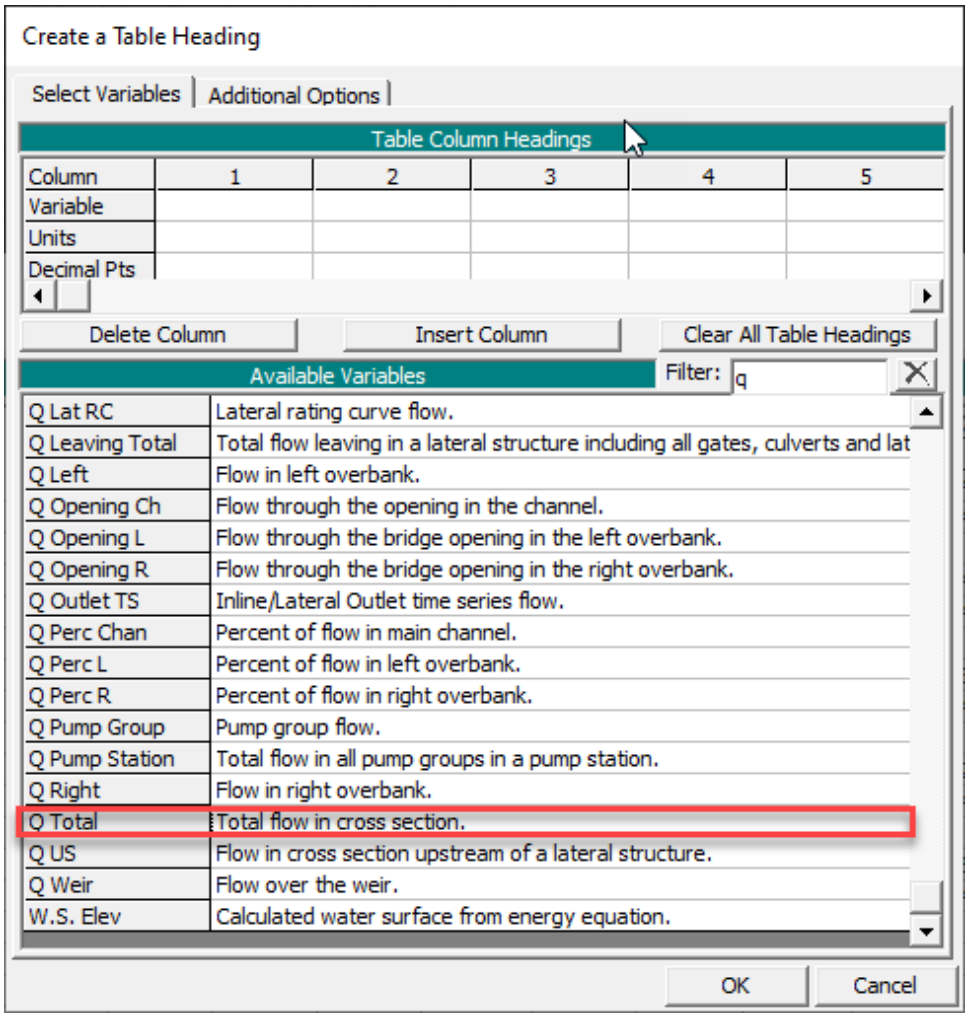


Reac	W.S. Elev (ft)	Crit W.S. (ft)	E.G. Elev (ft)	E.G. Slope (ft/ft)	Vel Chnl (ft/s)	Flow Area (sq ft)	Top Width (ft)	Froude # Chl
Pine	19.71		20.25	0.001875	7.11	6878.14	2282.54	0.49
Pine	17.04		17.45	0.001993	5.21	1786.84	791.81	0.46
Pine	18.02		18.45	0.001453	6.46	7585.25	2297.98	0.43
Pine	15.04		15.45	0.001989	5.21	1788.77	792.79	0.46
Pine	17.27		17.52	0.000774	5.09	9563.46	2340.63	0.32
Pine	13.47		13.88	0.001936	5.16	1812.00	811.75	0.45
Pine	17.02		17.21	0.000557	4.50	10749.31	2365.82	0.27
Pine	12.75		13.14	0.001875	5.11	1841.91	850.14	0.45
Pine	15.22	13.04	16.14	0.002005	8.10	4187.48	2340.08	0.51
Pine	11.56	9.68	11.94	0.001799	4.99	1808.24	809.66	0.44

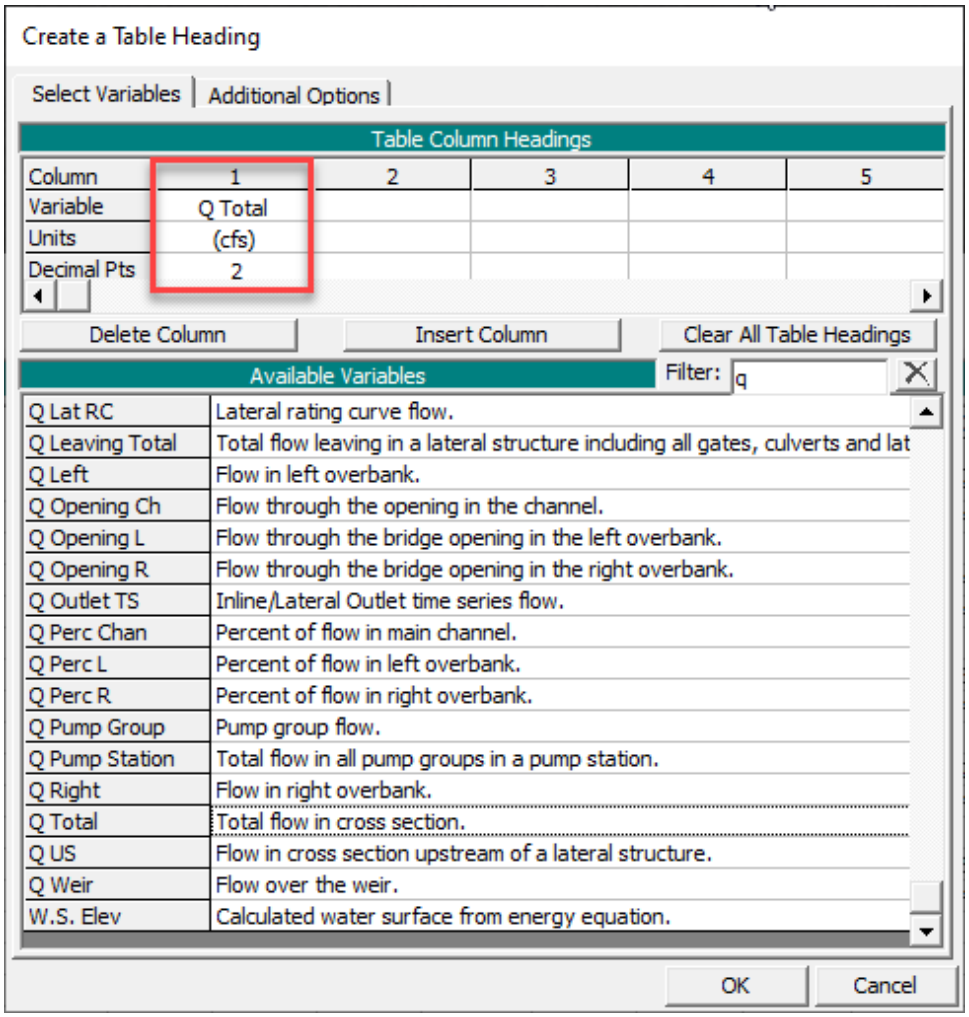
4.3 On the **CREATE A TABLE HEADING** form, click the ***'Clear All Table Headings'*** button at the middle of the form.



4.4 Once all the table headings have been cleared, find the *"Q Total"* variable in the list of available variables shown below.



4.5 Double-click on the *"Q Total"* variable. This action should insert the *"Q Total"* variable in the first available column of the table (Column 1). Please note that the default number of decimal points is 2.



4.6 Repeat Steps 4.4 and 4.5 for the following variables: *"E.G. Slope"*, *"Mann Wtd Chnl"*, *"Mann Wtd Left"*, *"Mann Wtd Rght"*, *"Flow Area"*, *"W.P. Total"*, *"Top Width"*, *"Hydr Depth"*, *"Max Chl Dpth"*, *"Vel Total", "Hydr Depth C", "Vel Chnl"*, and *"Froude# Chnl"*. **IMPORTANT:** The variables must be entered in the listed order; otherwise, the DDMSW program will not be able to import the data correctly. Click the ***'OK'*** button to return to the **PROFILE OUTPUT TABLE** form.

The **PROFILE OUTPUT TABLE FORM** should look like the one shown below.

Profile Output Table - Standard Table 1

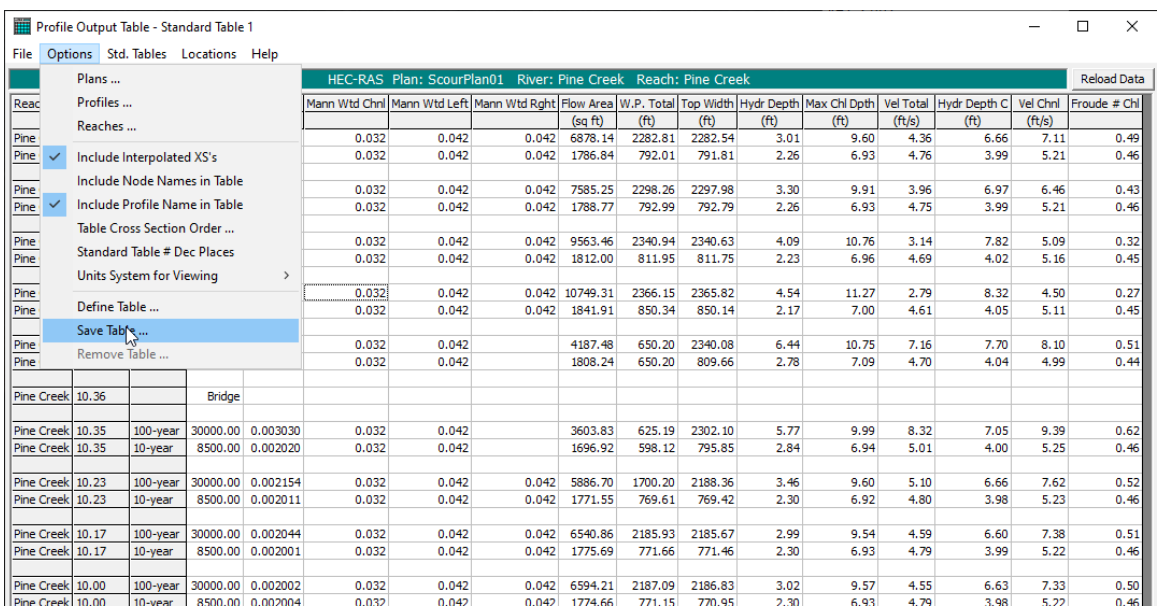
File Options Std. Tables Locations Help

HEC-RAS Plan: ScourPlan01 River: Pine Creek Reach: Pine Creek

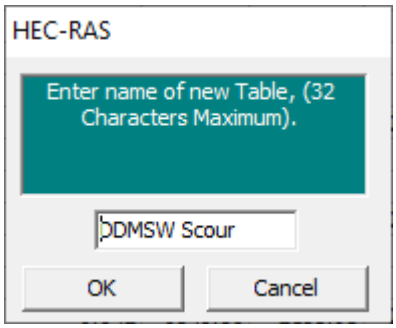
Reload Data

Reach	River Sta	Profile	Q Total	E.G. Slope	Mann Wtd Chnl	Mann Wtd Left	Mann Wtd Rght	Flow Area	W.P. Total	Top Width	Hydr Depth	Max Chl Dpth	Vel Total	Hydr Depth C	Vel Chnl	Froude # Chl
			(cfs)	(ft/ft)				(sq ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)	(ft/s)	
Pine Creek	10.90	100-year	30000.00	0.001875	0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.60	4.36	6.66	7.11	0.49
Pine Creek	10.90	10-year	8500.00	0.001993	0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	3.99	5.21	0.46
Pine Creek	10.71	100-year	30000.00	0.001453	0.032	0.042	0.042	7585.25	2298.26	2297.98	3.30	9.91	3.96	6.97	6.46	0.43
Pine Creek	10.71	10-year	8500.00	0.001989	0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	3.99	5.21	0.46
Pine Creek	10.55	100-year	30000.00	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	7.82	5.09	0.32
Pine Creek	10.55	10-year	8500.00	0.001936	0.032	0.042	0.042	1812.00	811.95	811.75	2.23	6.96	4.69	4.02	5.16	0.45
Pine Creek	10.48	100-year	30000.00	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	8.32	4.50	0.27
Pine Creek	10.48	10-year	8500.00	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7.00	4.61	4.05	5.11	0.45
Pine Creek	10.37	100-year	30000.00	0.002005	0.032	0.042		4187.48	650.20	2340.08	6.44	10.75	7.16	7.70	8.10	0.51
Pine Creek	10.37	10-year	8500.00	0.001799	0.032	0.042		1808.24	650.20	809.66	2.78	7.09	4.70	4.04	4.99	0.44
Pine Creek	10.36		Bridge													
Pine Creek	10.35	100-year	30000.00	0.003030	0.032	0.042		3603.83	625.19	2302.10	5.77	9.99	8.32	7.05	9.39	0.62
Pine Creek	10.35	10-year	8500.00	0.002020	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	4.00	5.25	0.46
Pine Creek	10.23	100-year	30000.00	0.002154	0.032	0.042	0.042	5886.70	1700.20	2188.36	3.46	9.60	5.10	6.66	7.62	0.52
Pine Creek	10.23	10-year	8500.00	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.30	6.92	4.80	3.98	5.23	0.46
Pine Creek	10.17	100-year	30000.00	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	6.60	7.38	0.51
Pine Creek	10.17	10-year	8500.00	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.30	6.93	4.79	3.99	5.22	0.46
Pine Creek	10.00	100-year	30000.00	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	6.63	7.33	0.50
Pine Creek	10.00	10-year	8500.00	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.30	6.93	4.79	3.98	5.22	0.46

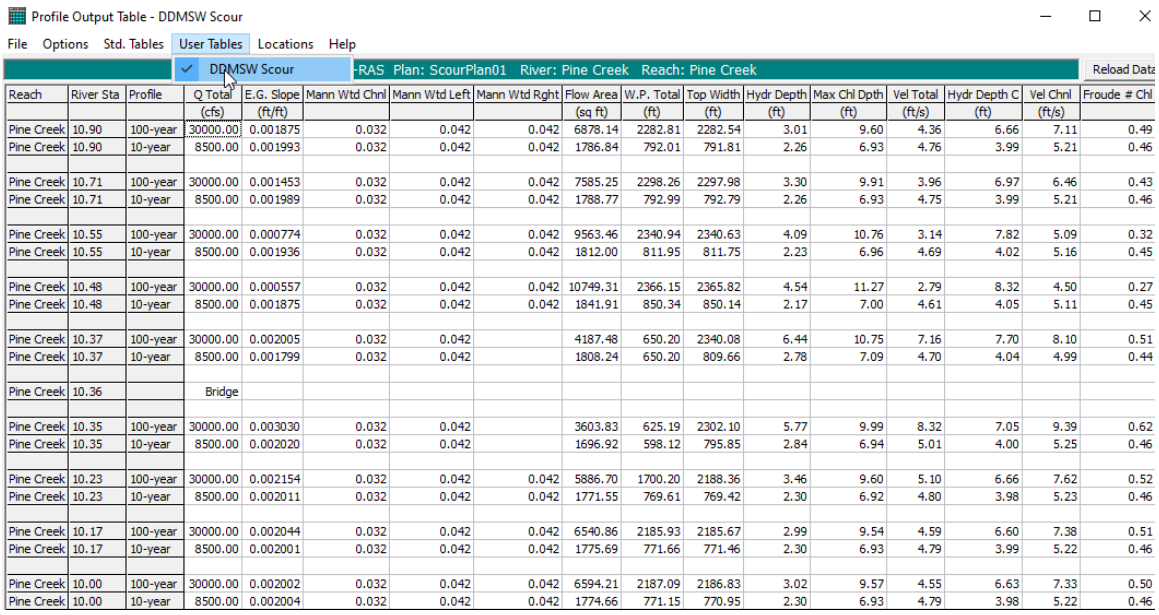
4.7 To save this Table, click on the ***'Save Table …'*** (***'Options ➔ Save Table …'***).



4.8 Name the Table, such as *"DDMSW Scour"*, and click ***'OK'.*** The format of the custom Table is now saved in the computer's memory.



4.9 When HEC-RAS is started again, the ***"DDMSW Scour"*** table can be selected from the ***"User Tables"*** menu on the **PROFILE OUTPUT TABLE** form.

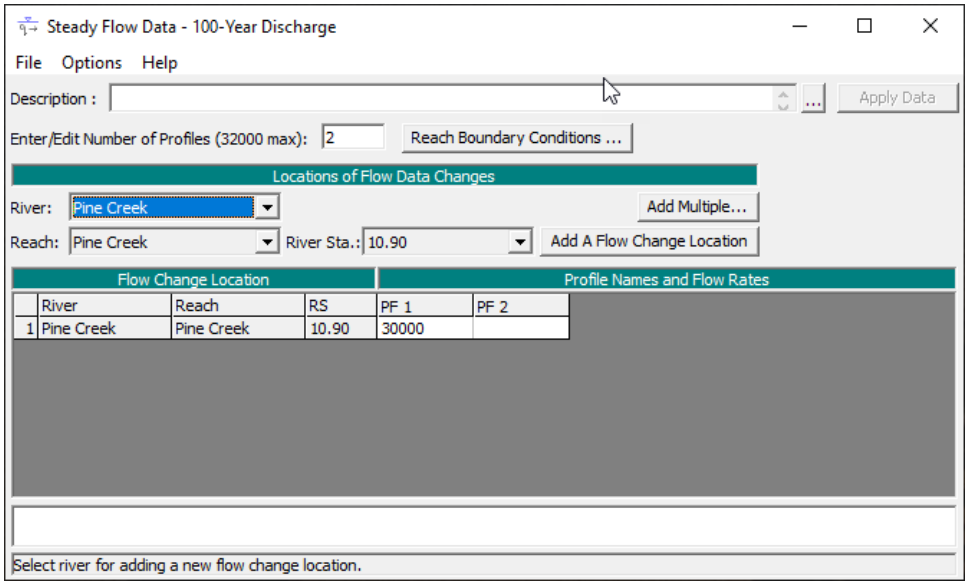


Reach	River Sta	Profile	Q Total	E.G. Slope	Mann Wtd Chnl	Mann Wtd Left	Mann Wtd Rght	Flow Area	W.P. Total	Top Width	Hydr Depth	Max Chl Dpth	Vel Total	Hydr Depth C	Vel Chnl	Froude # Chl
			(cfs)	(ft/ft)				(sq ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)	(ft/s)	
Pine Creek	10.90	100-year	30000.00	0.001875	0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.60	4.36	6.66	7.11	0.49
Pine Creek	10.90	10-year	8500.00	0.001993	0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	3.99	5.21	0.46
Pine Creek	10.71	100-year	30000.00	0.001453	0.032	0.042	0.042	7585.25	2298.26	2297.98	3.30	9.91	3.96	6.97	6.46	0.43
Pine Creek	10.71	10-year	8500.00	0.001989	0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	3.99	5.21	0.46
Pine Creek	10.55	100-year	30000.00	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	7.82	5.09	0.32
Pine Creek	10.55	10-year	8500.00	0.001936	0.032	0.042	0.042	1812.00	811.95	811.75	2.23	6.96	4.69	4.02	5.16	0.45
Pine Creek	10.48	100-year	30000.00	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	8.32	4.50	0.27
Pine Creek	10.48	10-year	8500.00	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7.00	4.61	4.05	5.11	0.45
Pine Creek	10.37	100-year	30000.00	0.002005	0.032	0.042		4187.48	650.20	2340.08	6.44	10.75	7.16	7.70	8.10	0.51
Pine Creek	10.37	10-year	8500.00	0.001799	0.032	0.042		1808.24	650.20	809.66	2.78	7.09	4.70	4.04	4.99	0.44
Pine Creek	10.36		Bridge													
Pine Creek	10.35	100-year	30000.00	0.003030	0.032	0.042		3603.83	625.19	2302.10	5.77	9.99	8.32	7.05	9.39	0.62
Pine Creek	10.35	10-year	8500.00	0.002020	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	4.00	5.25	0.46
Pine Creek	10.23	100-year	30000.00	0.002154	0.032	0.042	0.042	5886.70	1700.20	2188.36	3.46	9.60	5.10	6.66	7.62	0.52
Pine Creek	10.23	10-year	8500.00	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.30	6.92	4.80	3.98	5.23	0.46
Pine Creek	10.17	100-year	30000.00	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	6.60	7.38	0.51
Pine Creek	10.17	10-year	8500.00	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.30	6.93	4.79	3.99	5.22	0.46
Pine Creek	10.00	100-year	30000.00	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	6.63	7.33	0.50
Pine Creek	10.00	10-year	8500.00	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.30	6.93	4.79	3.98	5.22	0.46

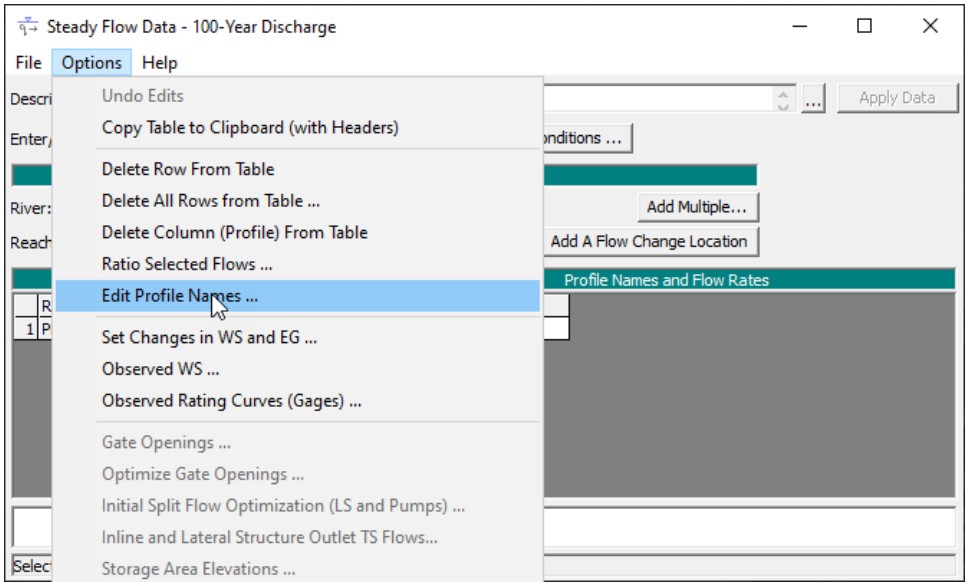
5.0 PRE-PROCESSING OF THE HEC-RAS DATA BEFORE IMPORT

The following steps show additional pre-processing within the HEC-RAS program before the table can be imported into the DDMSW program.

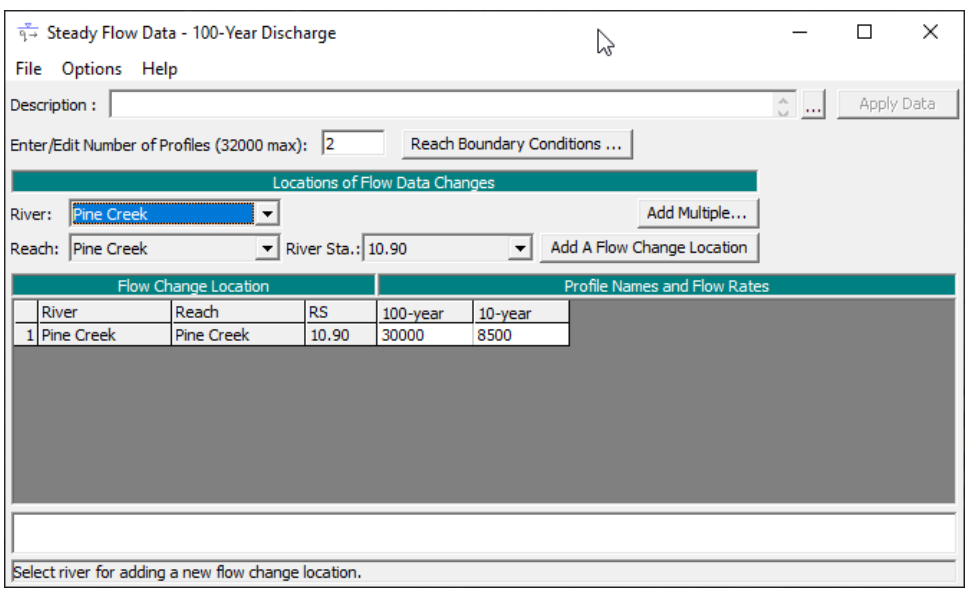
5.1 Two profiles in the HEC-RAS model must be specified. One profile for the design discharge (usually the 100-year flow rate), and the bankfull discharge (usually taken as the 10-year flow rate). This can be done by entering *"2"* in the ***"Enter/Edit Number of Profiles (25000 max):"*** textbox field on the **STEADY FLOW DATA** form (***'Edit ➔ Steady Flow Data …'***) and press the ***'Apply Data'*** button. Note: Enter/Edit Number of profiles is 32000 in HEC-RAS 5.0.3.



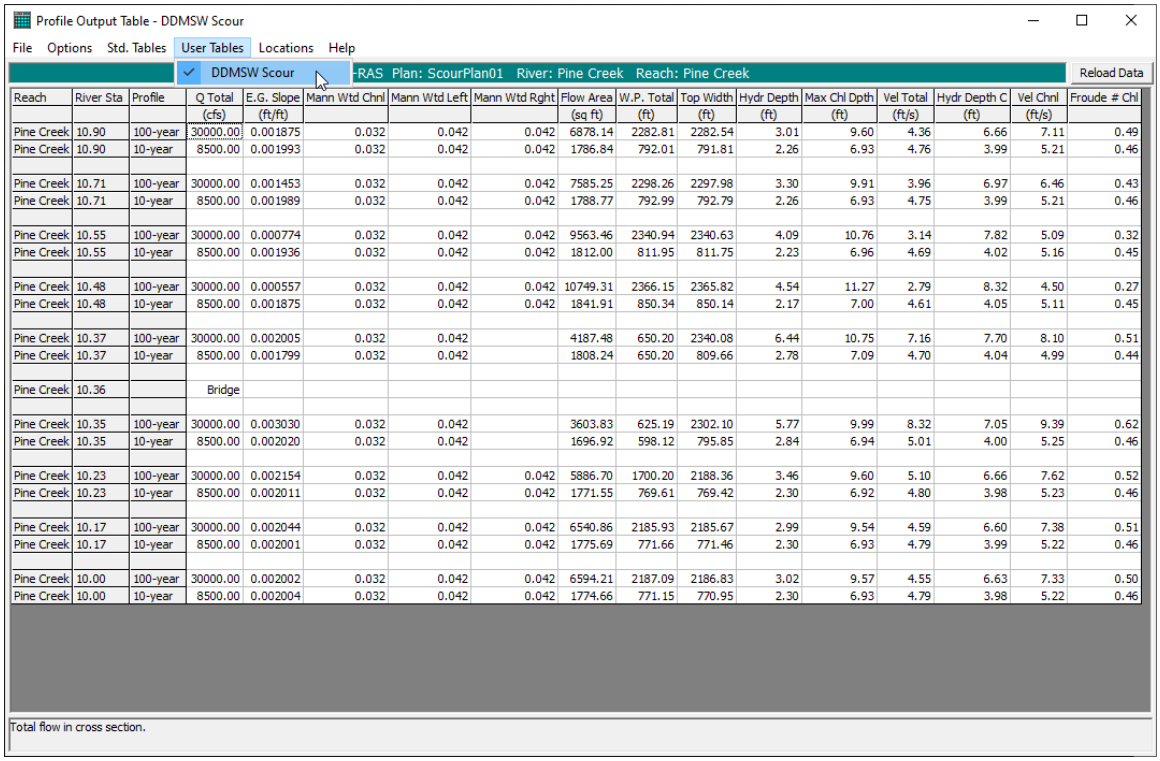
The profiles can be given more descriptive names by using the ***"Edit Profile Names …"*** (***'Options ➔ Edit Profile Names …'***).



5.2 Enter *'100-year'* and *'10-year'* as Profile Names for Profile #1 (PF 1) and Profile #2 (PF 2), respectively. Click ***'OK'*** to save. The data should look similar to the figure below. If the data is already shown as below, proceed to step 5.3.

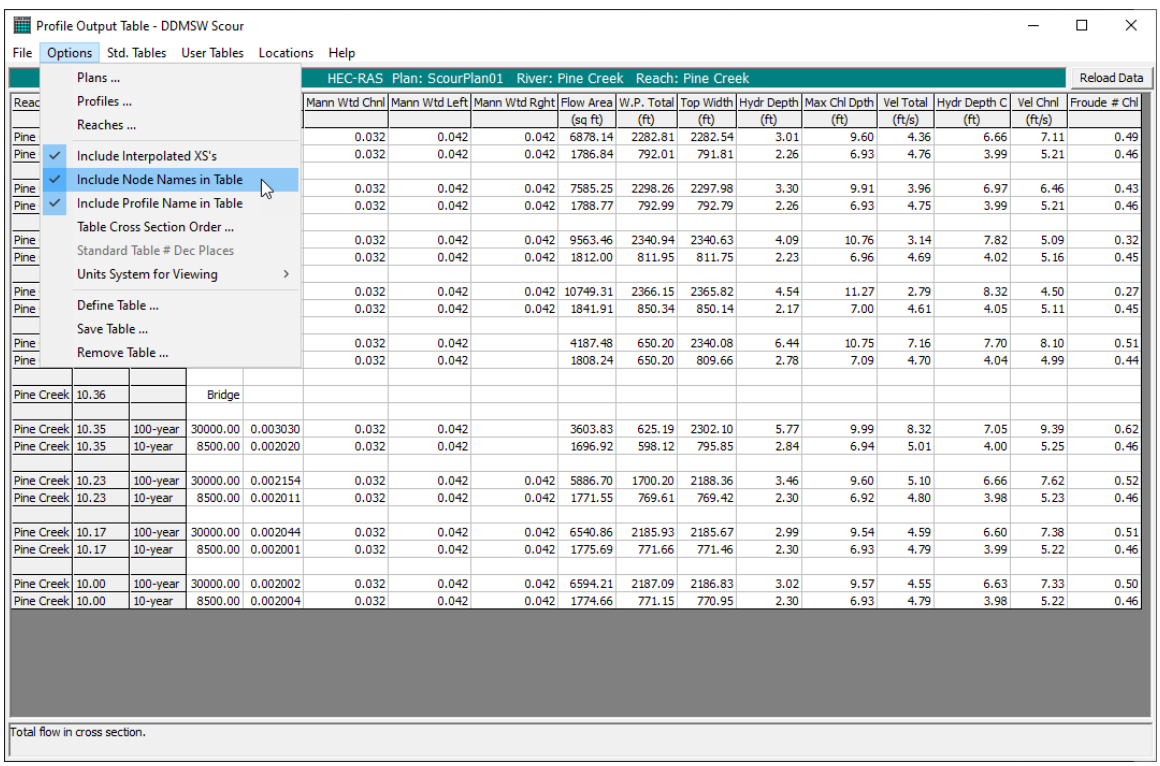


5.3 On the main menu of HEC-RAS, open the **PROFILE OUTPUT TABLE** form (***'View ➔ Profile Summary Table ...'***) to access the ***"DDMSW Scour"*** template (***'User Tables ➔ DDMSW Scour'***). If the ***"DDMSW Scour"*** table is not the active table (i.e., not checked), please repeat Step 4.9.

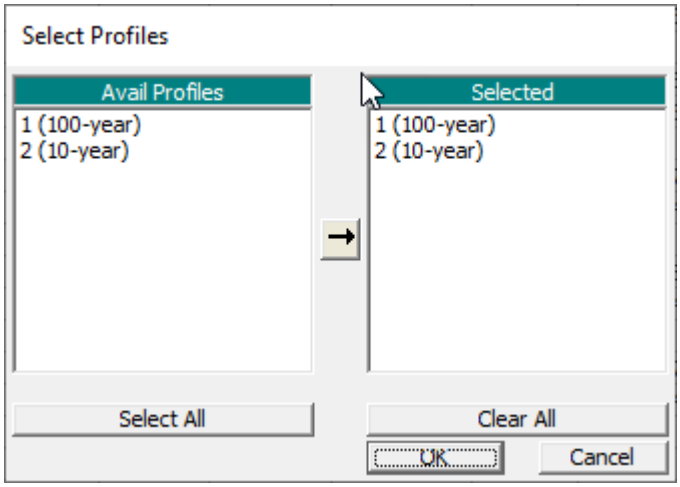


Reach	River Sta	Profile	Q Total	E.G. Slope	Mann Wtd Chnl	Mann Wtd Left	Mann Wtd Rght	Flow Area	W.P. Total	Top Width	Hydr Depth	Max Chl Dpth	Vel Total	Hydr Depth C	Vel Chnl	Froude # Chl
			(cfs)	(ft/ft)				(sq ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)	(ft/s)	
Pine Creek	10.90	100-year	30000.00	0.001875	0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.60	4.36	6.66	7.11	0.49
Pine Creek	10.90	10-year	8500.00	0.001993	0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	3.99	5.21	0.46
Pine Creek	10.71	100-year	30000.00	0.001453	0.032	0.042	0.042	7585.25	2298.26	2297.98	3.30	9.91	3.96	6.97	6.46	0.43
Pine Creek	10.71	10-year	8500.00	0.001989	0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	3.99	5.21	0.46
Pine Creek	10.55	100-year	30000.00	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	7.82	5.09	0.32
Pine Creek	10.55	10-year	8500.00	0.001936	0.032	0.042	0.042	1812.00	811.95	811.75	2.23	6.96	4.69	4.02	5.16	0.45
Pine Creek	10.48	100-year	30000.00	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	8.32	4.50	0.27
Pine Creek	10.48	10-year	8500.00	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7.00	4.61	4.05	5.11	0.45
Pine Creek	10.37	100-year	30000.00	0.002005	0.032	0.042		4187.48	650.20	2340.08	6.44	10.75	7.16	7.70	8.10	0.51
Pine Creek	10.37	10-year	8500.00	0.001799	0.032	0.042		1808.24	650.20	809.66	2.78	7.09	4.70	4.04	4.99	0.44
Pine Creek	10.36		Bridge													
Pine Creek	10.35	100-year	30000.00	0.003030	0.032	0.042		3603.83	625.19	2302.10	5.77	9.99	8.32	7.05	9.39	0.62
Pine Creek	10.35	10-year	8500.00	0.002020	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	4.00	5.25	0.46
Pine Creek	10.23	100-year	30000.00	0.002154	0.032	0.042	0.042	5886.70	1700.20	2188.36	3.46	9.60	5.10	6.66	7.62	0.52
Pine Creek	10.23	10-year	8500.00	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.30	6.92	4.80	3.98	5.23	0.46
Pine Creek	10.17	100-year	30000.00	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	6.60	7.38	0.51
Pine Creek	10.17	10-year	8500.00	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.30	6.93	4.79	3.99	5.22	0.46
Pine Creek	10.00	100-year	30000.00	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	6.63	7.33	0.50
Pine Creek	10.00	10-year	8500.00	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.30	6.93	4.79	3.98	5.22	0.46

5.4 Go to the ***"Options"*** menu and make sure a check mark is shown next to the ***"Include Profile Name in Table"*** option.



5.5 Go to the ***"Options"*** menu and select the ***"Profiles …"*** option. This brings up the **SELECT PROFILES** form from which Profiles can be selected for HEC-RAS to display. Make sure that both the Design profile (shown as 100-year) and the Bank full profile (shown as 10-year) are shown in the ***"Selected"*** column.



Press ***'OK'*** to close the **SELECT PROFILES** form. The Table should now look similar to the following table.

Profile Output Table - DDMSW Scour

File Options Std. Tables User Tables Locations Help

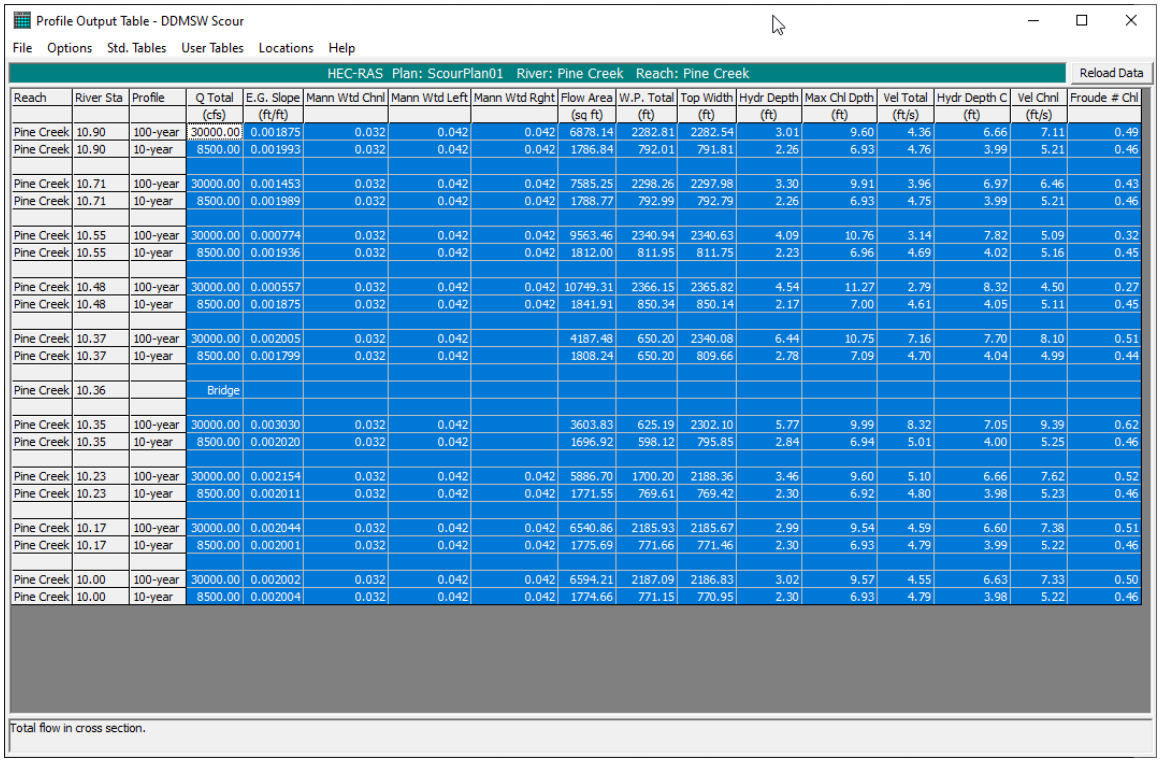
HEC-RAS Plan: ScourPlan01 River: Pine Creek Reach: Pine Creek

Reload Data

Reach	River Sta	Profile	Q Total	E.G. Slope	Mann Wtd Chnl	Mann Wtd Left	Mann Wtd Rght	Flow Area	W.P. Total	Top Width	Hydr Depth	Max Chl Dpth	Vel Total	Hydr Depth C	Vel Chnl	Froude # Chl
			(cfs)	(ft/ft)				(sq ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)	(ft/s)	
Pine Creek	10.90	100-year	30000.00	0.001875	0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.60	4.36	6.66	7.11	0.49
Pine Creek	10.90	10-year	8500.00	0.001993	0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	3.99	5.21	0.46
Pine Creek	10.71	100-year	30000.00	0.001453	0.032	0.042	0.042	7585.25	2298.26	2297.98	3.30	9.91	3.96	6.97	6.46	0.43
Pine Creek	10.71	10-year	8500.00	0.001989	0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	3.99	5.21	0.46
Pine Creek	10.55	100-year	30000.00	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	7.82	5.09	0.32
Pine Creek	10.55	10-year	8500.00	0.001936	0.032	0.042	0.042	1812.00	811.95	811.75	2.23	6.96	4.69	4.02	5.16	0.45
Pine Creek	10.48	100-year	30000.00	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	8.32	4.50	0.27
Pine Creek	10.48	10-year	8500.00	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7.00	4.61	4.05	5.11	0.45
Pine Creek	10.37	100-year	30000.00	0.002005	0.032	0.042		4187.48	650.20	2340.08	6.44	10.75	7.16	7.70	8.10	0.51
Pine Creek	10.37	10-year	8500.00	0.001799	0.032	0.042		1808.24	650.20	809.66	2.78	7.09	4.70	4.04	4.99	0.44
Pine Creek	10.36		Bridge													
Pine Creek	10.35	100-year	30000.00	0.003030	0.032	0.042		3603.83	625.19	2302.10	5.77	9.99	8.32	7.05	9.39	0.62
Pine Creek	10.35	10-year	8500.00	0.002020	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	4.00	5.25	0.46
Pine Creek	10.23	100-year	30000.00	0.002154	0.032	0.042	0.042	5886.70	1700.20	2188.36	3.46	9.60	5.10	6.66	7.62	0.52
Pine Creek	10.23	10-year	8500.00	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.30	6.92	4.80	3.98	5.23	0.46
Pine Creek	10.17	100-year	30000.00	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	6.60	7.38	0.51
Pine Creek	10.17	10-year	8500.00	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.30	6.93	4.79	3.99	5.22	0.46
Pine Creek	10.00	100-year	30000.00	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	6.63	7.33	0.50
Pine Creek	10.00	10-year	8500.00	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.30	6.93	4.79	3.98	5.22	0.46

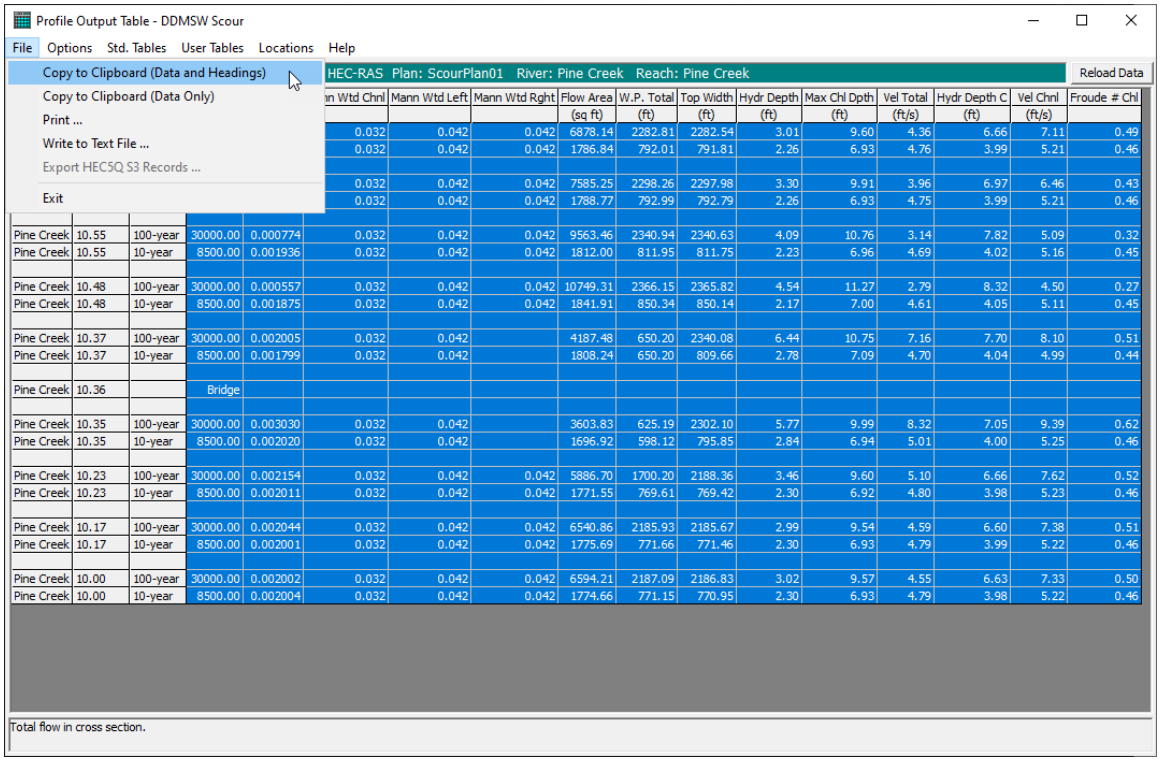
Top width of the wetted cross section.

5.6 Highlight the data in the entire table (all the data are highlighted in blue). Click the "***Copy to Clipboard (Data and Headings)"*** option (***'File ➔ Copy to Clipboard (Data and Headings)'***) to copy the highlighted data and the headings to the clipboard.



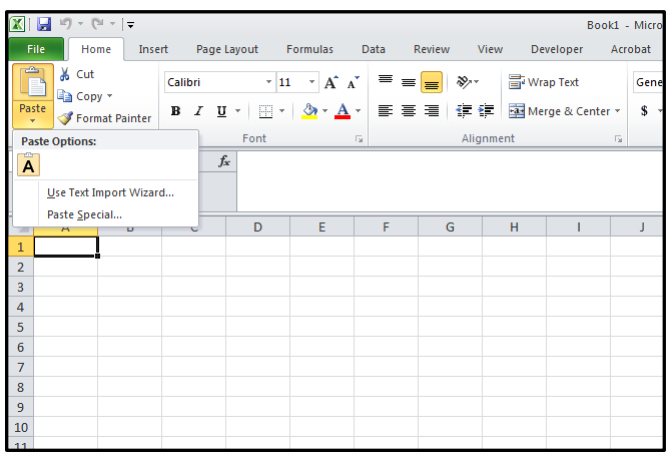
Reach	River Sta	Profile	Q Total	E.G. Slope	Mann Wtd Chnl	Mann Wtd Left	Mann Wtd Rght	Flow Area	W.P. Total	Top Width	Hydr Depth	Max Chl Dpth	Vel Total	Hydr Depth C	Vel Chnl	Froude # Chl
			(cfs)	(ft/ft)				(sq ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(ft)	(ft/s)	
Pine Creek	10.90	100-year	30000.00	0.001875	0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.60	4.36	6.66	7.11	0.49
Pine Creek	10.90	10-year	8500.00	0.001993	0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	3.99	5.21	0.46
Pine Creek	10.71	100-year	30000.00	0.001453	0.032	0.042	0.042	7585.25	2298.26	2297.98	3.30	9.91	3.96	6.97	6.46	0.43
Pine Creek	10.71	10-year	8500.00	0.001989	0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	3.99	5.21	0.46
Pine Creek	10.55	100-year	30000.00	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	7.82	5.09	0.32
Pine Creek	10.55	10-year	8500.00	0.001936	0.032	0.042	0.042	1812.00	811.95	811.75	2.23	6.96	4.69	4.02	5.16	0.45
Pine Creek	10.48	100-year	30000.00	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	8.32	4.50	0.27
Pine Creek	10.48	10-year	8500.00	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7.00	4.61	4.05	5.11	0.45
Pine Creek	10.37	100-year	30000.00	0.002005	0.032	0.042		4187.48	650.20	2340.08	6.44	10.75	7.16	7.70	8.10	0.51
Pine Creek	10.37	10-year	8500.00	0.001799	0.032	0.042		1808.24	650.20	809.66	2.78	7.09	4.70	4.04	4.99	0.44
Pine Creek	10.36		Bridge													
Pine Creek	10.35	100-year	30000.00	0.003030	0.032	0.042		3603.83	625.19	2302.10	5.77	9.99	8.32	7.05	9.39	0.62
Pine Creek	10.35	10-year	8500.00	0.002020	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	4.00	5.25	0.46
Pine Creek	10.23	100-year	30000.00	0.002154	0.032	0.042	0.042	5886.70	1700.20	2188.36	3.46	9.60	5.10	6.66	7.62	0.52
Pine Creek	10.23	10-year	8500.00	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.30	6.92	4.80	3.98	5.23	0.46
Pine Creek	10.17	100-year	30000.00	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	6.60	7.38	0.51
Pine Creek	10.17	10-year	8500.00	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.30	6.93	4.79	3.99	5.22	0.46
Pine Creek	10.00	100-year	30000.00	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	6.63	7.33	0.50
Pine Creek	10.00	10-year	8500.00	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.30	6.93	4.79	3.98	5.22	0.46

Please note that if the "***Copy to Clipboard (Data only)"*** option is chosen, the columns will not be in the correct format and DDMSW will not be able to import the results.

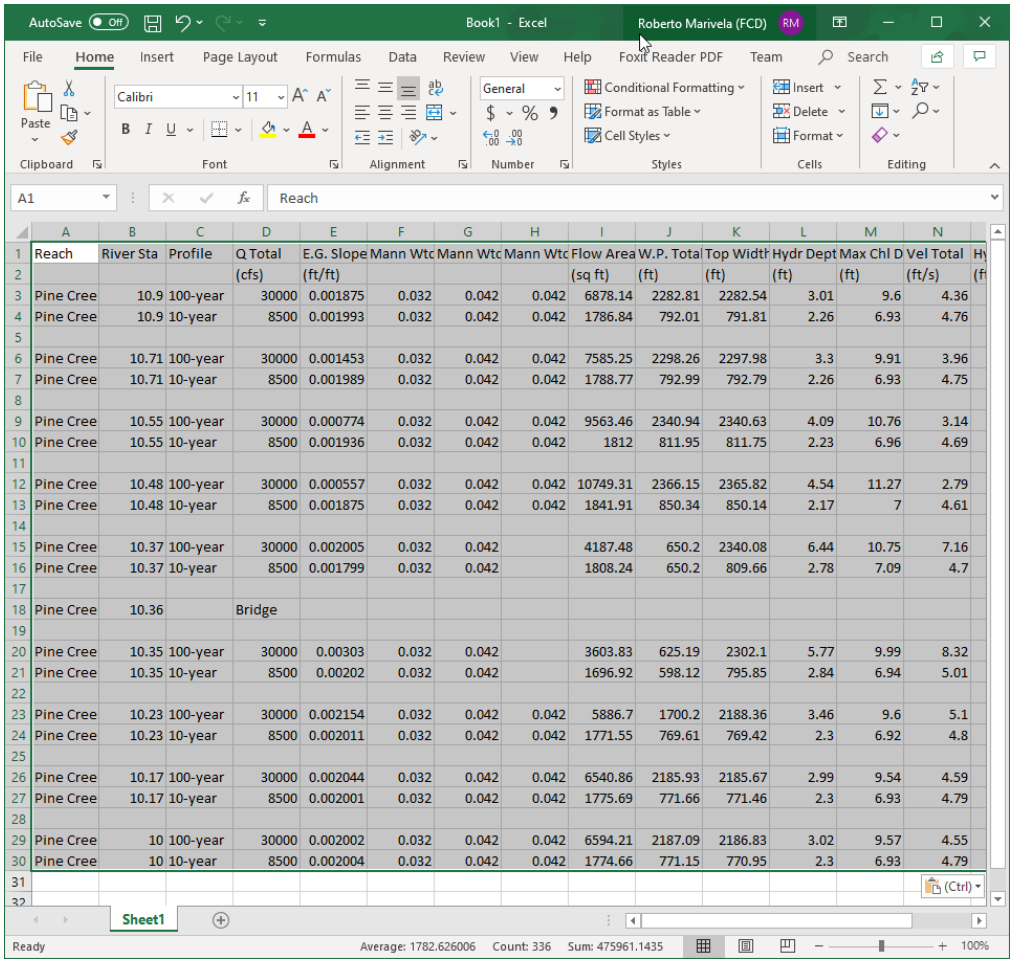


					n Wtd Chnl	Mann Wtd Left	Mann Wtd Rght	Flow Area (sq ft)	W.P. Total (ft)	Top Width (ft)	Hydr Depth (ft)	Max Chl Dpth (ft)	Vel Total (ft/s)	Hydr Depth C (ft)	Vel Chnl (ft/s)	Froude # Chl
					0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.60	4.36	6.66	7.11	0.49
					0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	3.99	5.21	0.46
					0.032	0.042	0.042	7585.25	2298.26	2297.98	3.30	9.91	3.96	6.97	6.46	0.43
					0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	3.99	5.21	0.46
Pine Creek	10.55	100-year	30000.00	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	7.82	5.09	0.32
Pine Creek	10.55	10-year	8500.00	0.001936	0.032	0.042	0.042	1812.00	811.95	811.75	2.23	6.96	4.69	4.02	5.16	0.45
Pine Creek	10.48	100-year	30000.00	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	8.32	4.50	0.27
Pine Creek	10.48	10-year	8500.00	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7.00	4.61	4.05	5.11	0.45
Pine Creek	10.37	100-year	30000.00	0.002005	0.032	0.042		4187.48	650.20	2340.08	6.44	10.75	7.16	7.70	8.10	0.51
Pine Creek	10.37	10-year	8500.00	0.001799	0.032	0.042		1808.24	650.20	809.66	2.78	7.09	4.70	4.04	4.99	0.44
Pine Creek	10.36		Bridge													
Pine Creek	10.35	100-year	30000.00	0.003030	0.032	0.042		3603.83	625.19	2302.10	5.77	9.99	8.32	7.05	9.39	0.62
Pine Creek	10.35	10-year	8500.00	0.002020	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	4.00	5.25	0.46
Pine Creek	10.23	100-year	30000.00	0.002154	0.032	0.042	0.042	5886.70	1700.20	2188.36	3.46	9.60	5.10	6.66	7.62	0.52
Pine Creek	10.23	10-year	8500.00	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.30	6.92	4.80	3.98	5.23	0.46
Pine Creek	10.17	100-year	30000.00	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	6.60	7.38	0.51
Pine Creek	10.17	10-year	8500.00	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.30	6.93	4.79	3.99	5.22	0.46
Pine Creek	10.00	100-year	30000.00	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	6.63	7.33	0.50
Pine Creek	10.00	10-year	8500.00	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.30	6.93	4.79	3.98	5.22	0.46

5.7 Open a blank Excel sheet and make sure cell A1 is selected. Click the ***"Paste"*** option under the ***"Home"*** menu.

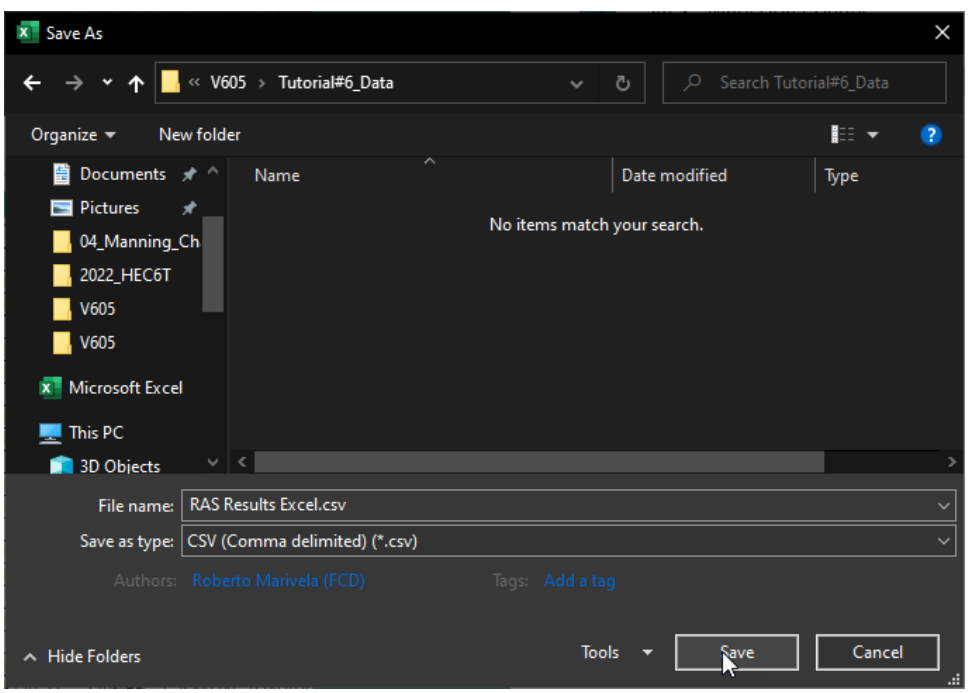


The Excel file should now look similar to the following file.



Reach	River Sta	Profile	Q Total	E.G. Slope	Mann Wtc	Mann Wtc	Mann Wtc	Flow Area	W.P. Total	Top Width	Hydr Dept	Max Chl D	Vel Total	Hy
			(cfs)	(ft/ft)				(sq ft)	(ft)	(ft)	(ft)	(ft)	(ft/s)	(f
Pine Cree	10.9	100-year	30000	0.001875	0.032	0.042	0.042	6878.14	2282.81	2282.54	3.01	9.6	4.36	
Pine Cree	10.9	10-year	8500	0.001993	0.032	0.042	0.042	1786.84	792.01	791.81	2.26	6.93	4.76	
Pine Cree	10.71	100-year	30000	0.001453	0.032	0.042	0.042	7585.25	2298.26	2297.98	3.3	9.91	3.96	
Pine Cree	10.71	10-year	8500	0.001989	0.032	0.042	0.042	1788.77	792.99	792.79	2.26	6.93	4.75	
Pine Cree	10.55	100-year	30000	0.000774	0.032	0.042	0.042	9563.46	2340.94	2340.63	4.09	10.76	3.14	
Pine Cree	10.55	10-year	8500	0.001936	0.032	0.042	0.042	1812	811.95	811.75	2.23	6.96	4.69	
Pine Cree	10.48	100-year	30000	0.000557	0.032	0.042	0.042	10749.31	2366.15	2365.82	4.54	11.27	2.79	
Pine Cree	10.48	10-year	8500	0.001875	0.032	0.042	0.042	1841.91	850.34	850.14	2.17	7	4.61	
Pine Cree	10.37	100-year	30000	0.002005	0.032	0.042		4187.48	650.2	2340.08	6.44	10.75	7.16	
Pine Cree	10.37	10-year	8500	0.001799	0.032	0.042		1808.24	650.2	809.66	2.78	7.09	4.7	
Pine Cree	10.36		Bridge											
Pine Cree	10.35	100-year	30000	0.00303	0.032	0.042		3603.83	625.19	2302.1	5.77	9.99	8.32	
Pine Cree	10.35	10-year	8500	0.00202	0.032	0.042		1696.92	598.12	795.85	2.84	6.94	5.01	
Pine Cree	10.23	100-year	30000	0.002154	0.032	0.042	0.042	5886.7	1700.2	2188.36	3.46	9.6	5.1	
Pine Cree	10.23	10-year	8500	0.002011	0.032	0.042	0.042	1771.55	769.61	769.42	2.3	6.92	4.8	
Pine Cree	10.17	100-year	30000	0.002044	0.032	0.042	0.042	6540.86	2185.93	2185.67	2.99	9.54	4.59	
Pine Cree	10.17	10-year	8500	0.002001	0.032	0.042	0.042	1775.69	771.66	771.46	2.3	6.93	4.79	
Pine Cree	10	100-year	30000	0.002002	0.032	0.042	0.042	6594.21	2187.09	2186.83	3.02	9.57	4.55	
Pine Cree	10	10-year	8500	0.002004	0.032	0.042	0.042	1774.66	771.15	770.95	2.3	6.93	4.79	

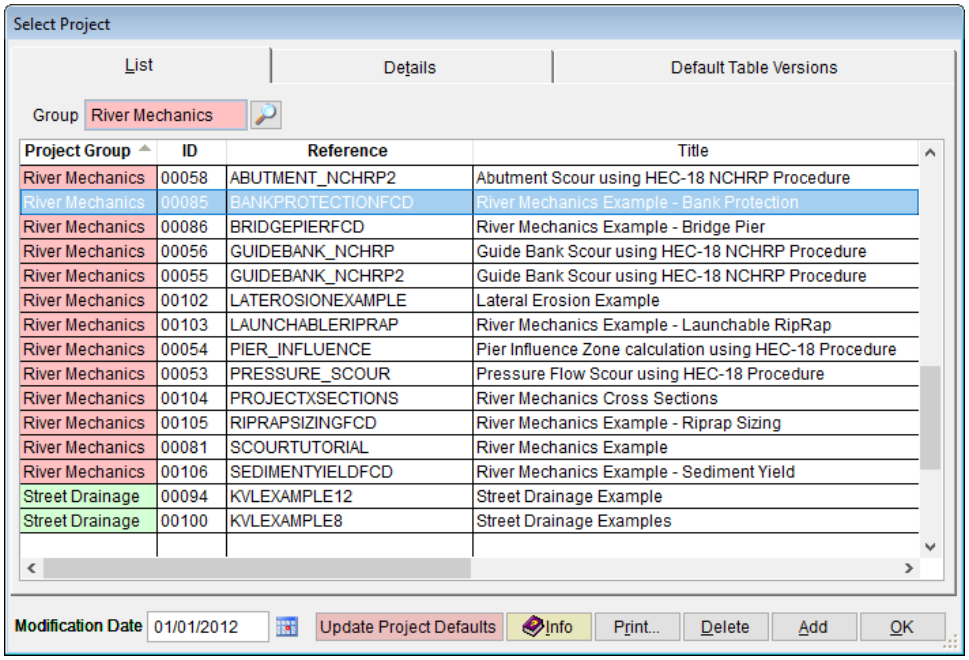
5.8 Click the ***"Save As…"*** option under the ***"File"*** menu.



Give the file a descriptive name (say, *"RAS Results"*) and save the file in the ***CSV (Comma delimited)(*.csv)*** format.

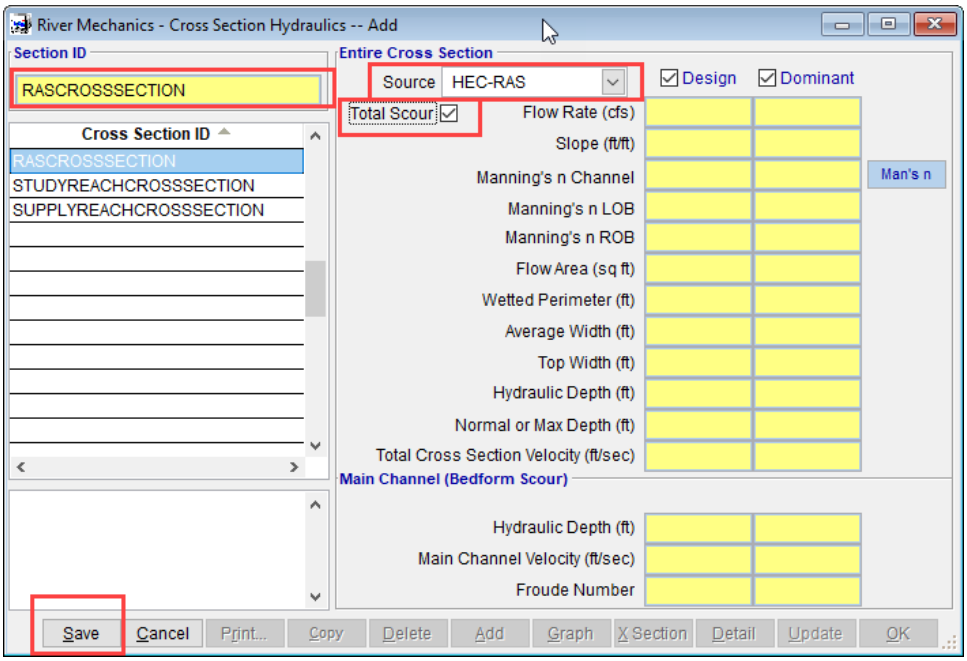
6.0 IMPORT THE HEC-RAS DATA INTO DDMSW.

6.1 Launch the DDMSW program and open the **SELECT PROJECT** form (***'File ➔ Select Project'***). Select the *'BANKPROTECTIONFCD'* Project and click ***'OK'*** close the form.

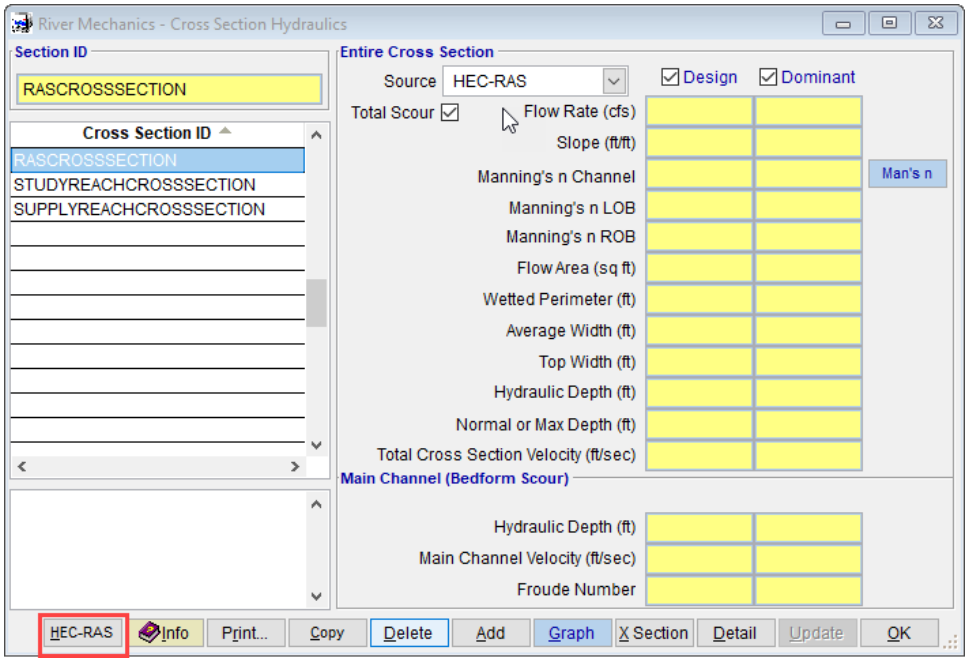


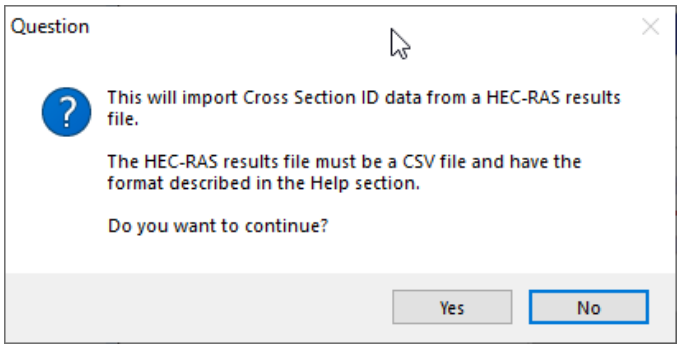
Project Group	ID	Reference	Title
River Mechanics	00058	ABUTMENT_NCHRP2	Abutment Scour using HEC-18 NCHRP Procedure
River Mechanics	00085	BANKPROTECTIONFCD	River Mechanics Example - Bank Protection
River Mechanics	00086	BRIDGEPIERFCD	River Mechanics Example - Bridge Pier
River Mechanics	00056	GUIDEBANK_NCHRP	Guide Bank Scour using HEC-18 NCHRP Procedure
River Mechanics	00055	GUIDEBANK_NCHRP2	Guide Bank Scour using HEC-18 NCHRP Procedure
River Mechanics	00102	LATEROSIONEXAMPLE	Lateral Erosion Example
River Mechanics	00103	LAUNCHABLERIPRAP	River Mechanics Example - Launchable RipRap
River Mechanics	00054	PIER_INFLUENCE	Pier Influence Zone calculation using HEC-18 Procedure
River Mechanics	00053	PRESSURE_SCOUR	Pressure Flow Scour using HEC-18 Procedure
River Mechanics	00104	PROJECTXSECTIONS	River Mechanics Cross Sections
River Mechanics	00105	RIPRAPSIZINGFCD	River Mechanics Example - Riprap Sizing
River Mechanics	00081	SCOURTUTORIAL	River Mechanics Example
River Mechanics	00106	SEDIMENTYIELDFCD	River Mechanics Example - Sediment Yield
Street Drainage	00094	KVLEXAMPLE12	Street Drainage Example
Street Drainage	00100	KVLEXAMPLE8	Street Drainage Examples

6.2 Open the **RIVER MECHANICS – CROSS SECTION HYDRAULICS** form (***'River Mechanics ➔ Cross Section Hydraulics'***). Press the ***'Add'*** button to add additional data. Enter *'RASCROSSSECTION'* in the **Section ID** textbox field. On the ***"Source"*** drop down list, select *'HEC-RAS' and check the* ***"Total Scour*** **checkbox**. Press ***"Save"*** to save the data entered.

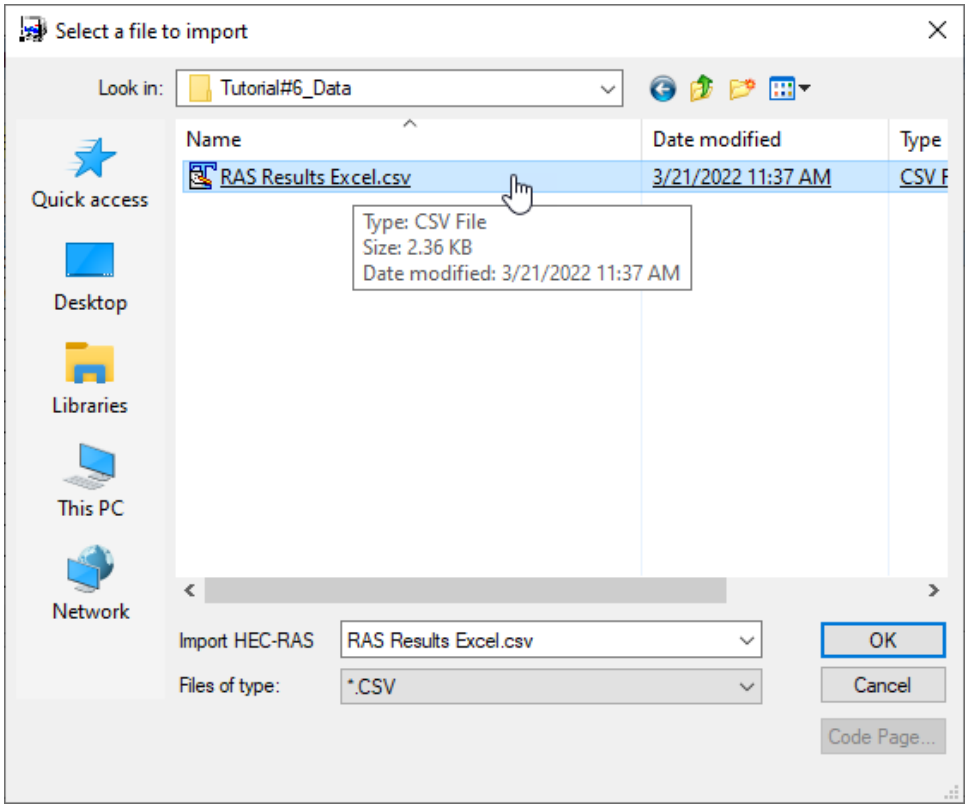


6.3 Press the ***'HEC-RAS'*** button at the bottom left of the form to import the "*RAS Results.csv*". Click ***'Yes'*** to continue.

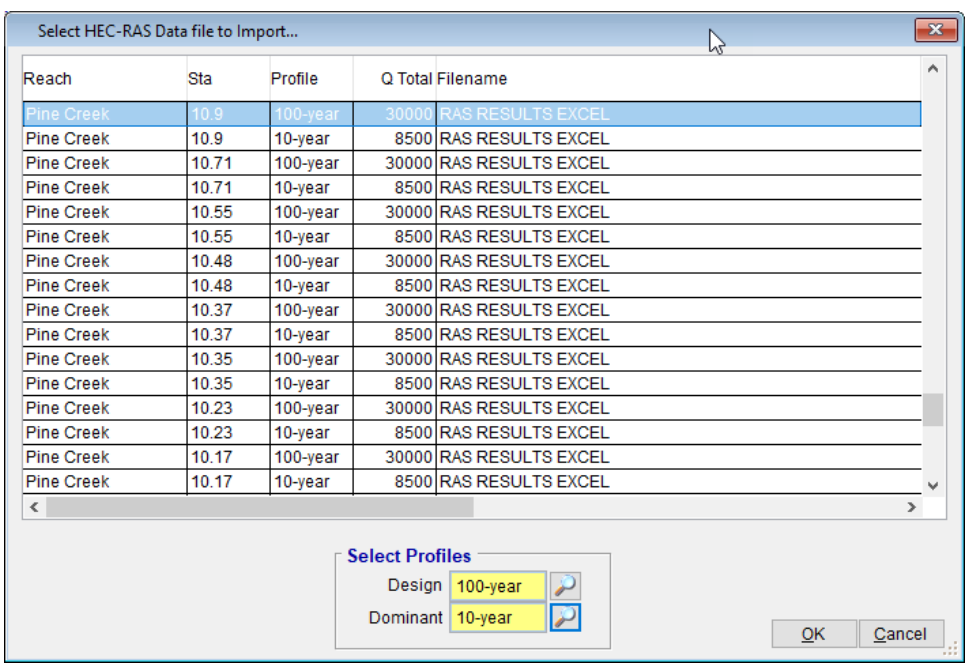




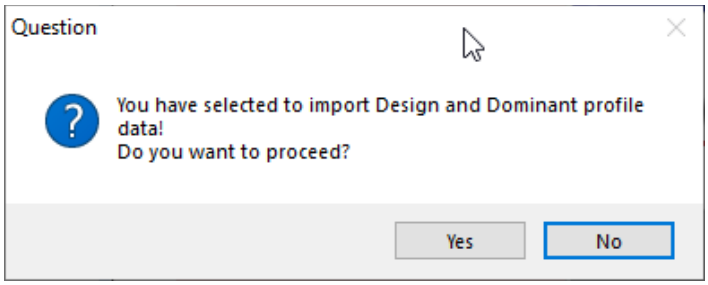
6.4 Select the Data File to Import. On the **SELECT A FILE TO IMPORT** form, go to the folder where the ***'RAS Results Excel.csv'*** **file** was saved earlier and select the file. Click ***'OK'*** to continue. Click ***'OK'*** if a **WARNING** windows shows up to continue.



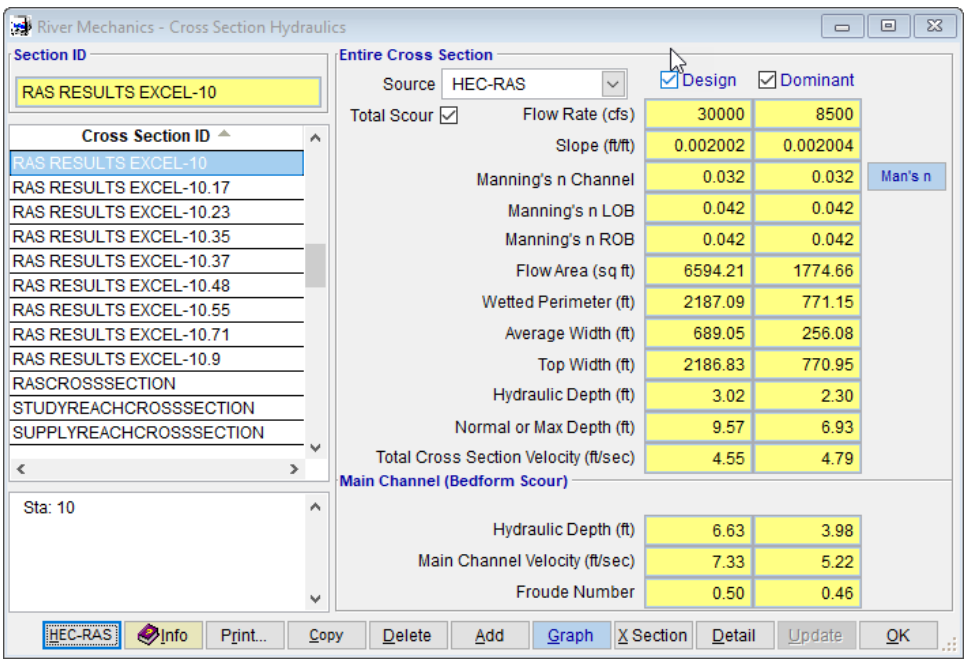
6.5 Select the Design and Dominant Profiles. On the **IMPORT HEC-RAS DATA** form, click the magnifying glass on the right side of the **Design** textbox field and select *'100-year'*. For the **Dominant** Profile, select *'10-year'*.



Press ***'OK'*** to proceed and click ***'Yes'*** to import the data.



The **RIVER MECHANICS – CROSS SECTION HYDRAULICS** form provided below shows the results of the successful import. The user can now select from the list of cross section IDs to use for his or her River Mechanics analysis. Click ***'OK'*** to close the form.



This ends this tutorial.