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and

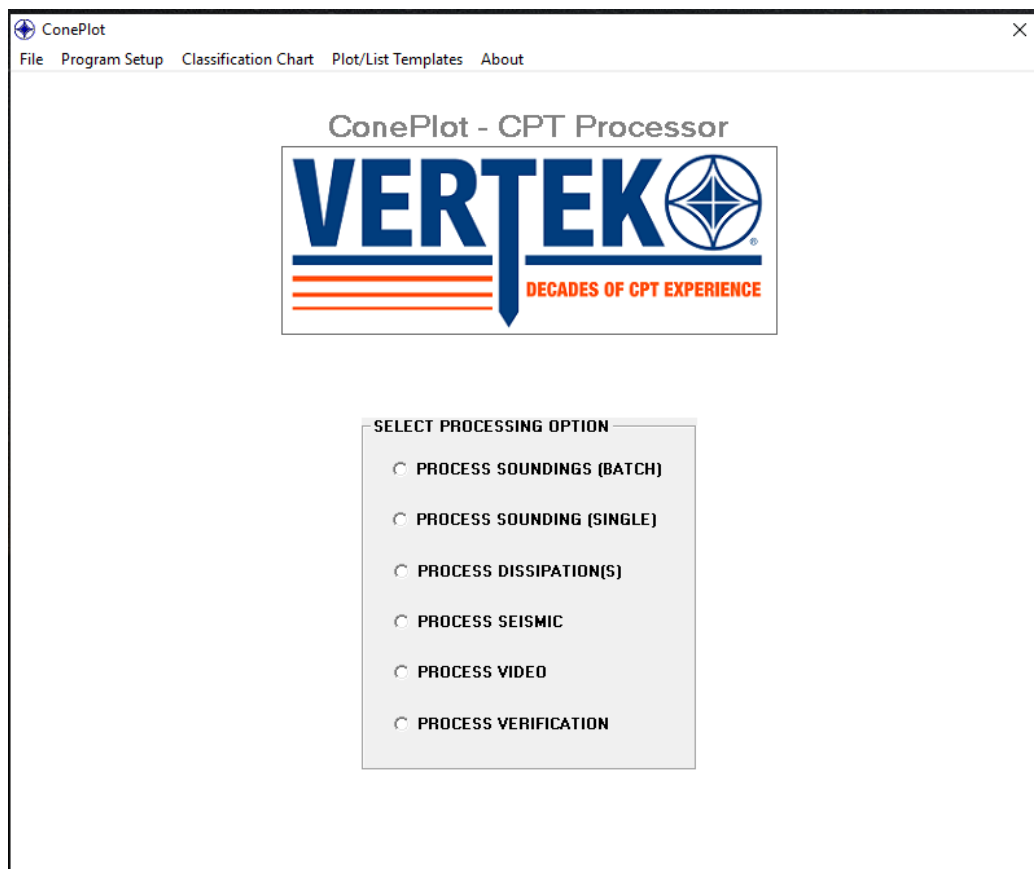
MADE IN

U. S. A.

ConePlot for CPTSND

Processing and Graphing Software for CPT data acquired using CPTSND or CPTDAS

Revision 1.0



VERTEK, Quality Products Manufactured by:
Applied Research Associates, Inc.
250 Beanville Road
Randolph, VT 05060 USA
Phone: 800-639-6315
www.vertekcpt.com

Revision Log

Date	Revision	Section	Change	Responsible Person
4/14/2020	1.0	All	Update to multiple sections	Carl Tracy

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Introduction

The VERTEK division of Applied Research Associates Inc., is proud to announce the release of this updated version of ConePlot for CPTSND. This version encompasses far greater flexibility in plotting and provides more options for a wide range of needs. This users guide is only intended to show the use of the software and does not have any instructions on data meaning and interpretation.

Figure 1 shows the opening screen. There are five types of tests that Coneplot can plot/process: cone soundings, pore pressure dissipations, seismic tests, video, and cone verifications. To plot/process a test, press the appropriate button listed in the middle of the screen. If ConePlot is being started for the first time, enter program set up and select general settings.

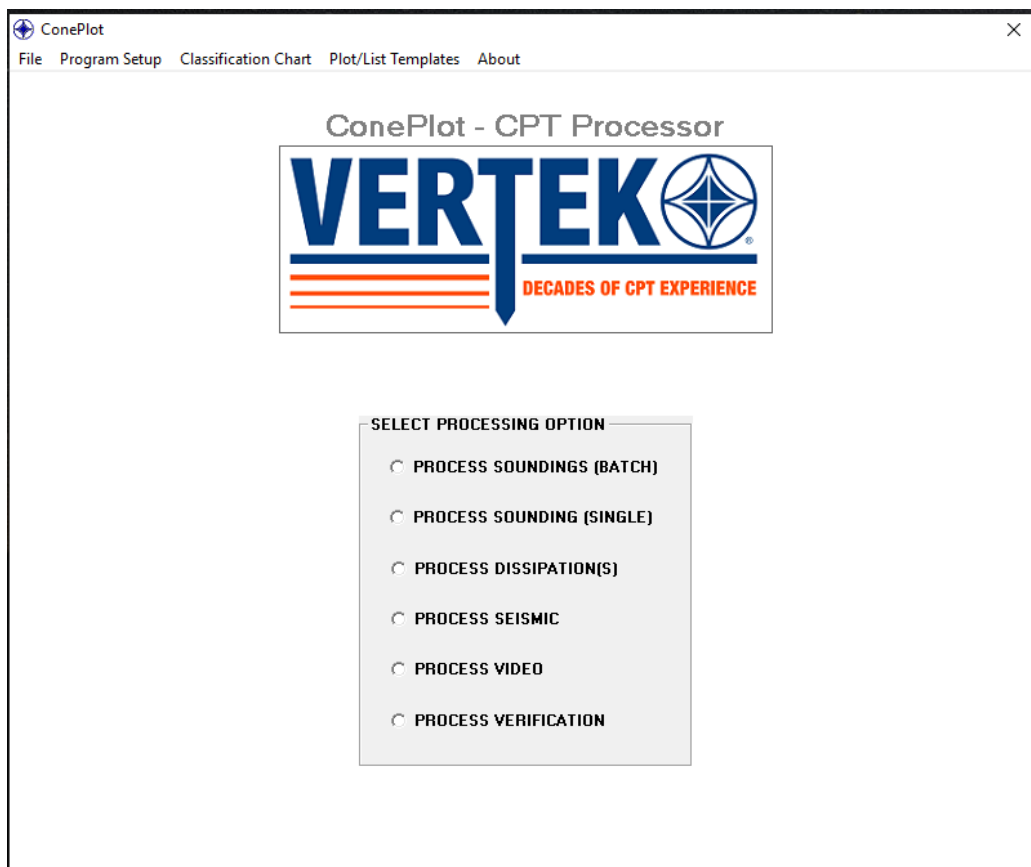


Figure 1 Opening Screen

1. Program Setup

The program setup screen is shown in Figure 2.

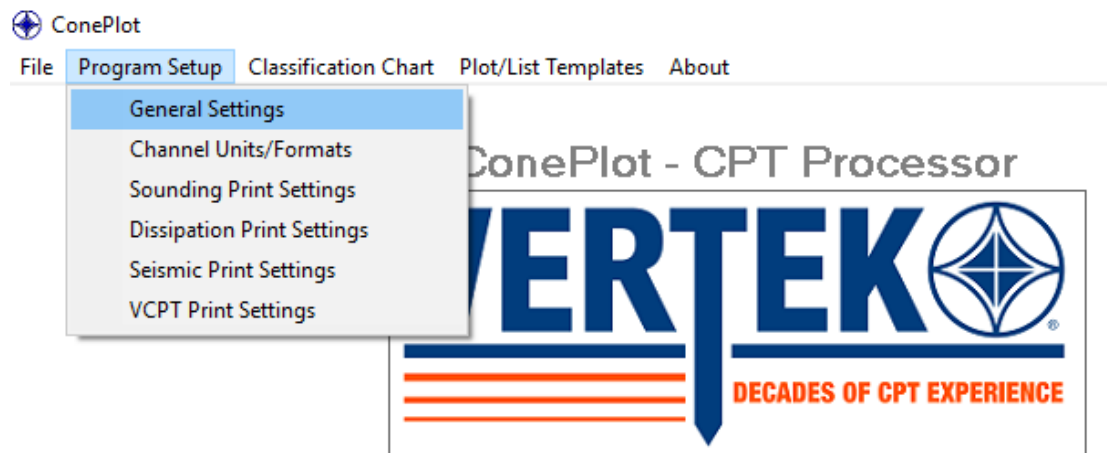


Figure 2 Program Setup Menu

The Channel Units/Formats tab allows users to set different units and formats on the graphs and on the different export options available in the LIST function.

The various print settings allow user to customize each type of report with different styles and configuration of the headers and associated information with different looks available for plots and list with the same data. This will be covered later in this manual.

2. General Settings

GENERAL SETTINGS


	TITLE	NAME
CONEPLOT CUSTOMER	CONTRACTOR	Vertek
DEFAULT SYSTEM	ALL SYSTEMS	
DEFAULT DEPTH UNITS	METERS	
SOIL DENSITY (MANUAL)	115	(lb/ft ³)
SOIL DENSITY UNITS	(lb/ft ³)	
NET AREA RATIO	.8	
BALL TIP AREA CALCULATION	Cross Sectional	
SUPPRESS DUPLICATE DEPTHS	<input checked="" type="radio"/> YES <input type="radio"/> NO	
DUPLICATE DEPTH THRESHOLD	.001 (m)	
SUPPRESS 'NOT CONNECTED' CHANNELS	<input checked="" type="radio"/> YES <input type="radio"/> NO	
SBT GRAPH BRIGHTNESS FACTOR	<input type="text"/> Lower 0 Higher	
REMOVE ROD BREAKS	<input checked="" type="radio"/> YES <input type="radio"/> NO	
ROD BREAK THRESHOLD	<input type="text"/> 3 sec. 3 60 sec	
	SELECT LOGO	
	REMOVE LOGO	
LOGO SCALE FACTOR	<input type="text"/> 100% 122% 150%	
OK CANCEL		

Figure 3 General Settings

Following is a brief explanation of the fields and how to set them up:

- **ConePlot Customer:** Intended to allow for customizing reports with either the users or clients information
- **Default System:** Coneplot will process files from either our VTK series or the HT series cone systems. This allow user choice.
- **Default Depth Units:** Select either meters or feet
- **Soil Density:** Normally set between 100 and 120 lbs/cu ft. (this can be changed to suit local conditions)
- **Net Area Ratio:** All Vertek cones are designed with 0.80 net area ratio

- **Ball Tip Area Calculation:** Select either Cross Sectional or Half Sphere – this changes the area used in calculation
- **Suppress Duplicate Depths:** Suppresses plotting of duplicate depth entries in data files
- **Duplicate Depth Tolerance:** Defines the distance minimum for duplicate
- **Suppress ‘Not Connected’ Channels:** Keeps not connected channels from displaying in “LIST” function
- **SBT Graph Brightness Factor:** Allows adjustment of colors on graph (some pdf writers do not provide the expected color response for the soil behavior type graphing)
- **Remove Rod Breaks: YES / NO** ‘Yes’ will automatically remove obvious rod spikes. ‘No’ will allow user to remove them manually. This only works for .dat files (VTK series)
- **Rod Break Threshold:** Greatly reduces rod change spikes caused by the release of pressure when adding rods. Best results are found with smaller settings
- **Select / Remove Logo:** Opens a browser window to allow searching for a jpg Logo file to insert / and allows Logo to be removed easily.

Click OK to return to main screen

3. Processing Sounding (Single)

Select Processing Option, 'Process Sounding (Single)'. (BATCH Processing is covered in Section 8 starting on page 37)

This will open a browser window. Navigate to the directory the test files are saved in and select the appropriate test. Note that the system setting in General Settings limits the file types seen on screen.

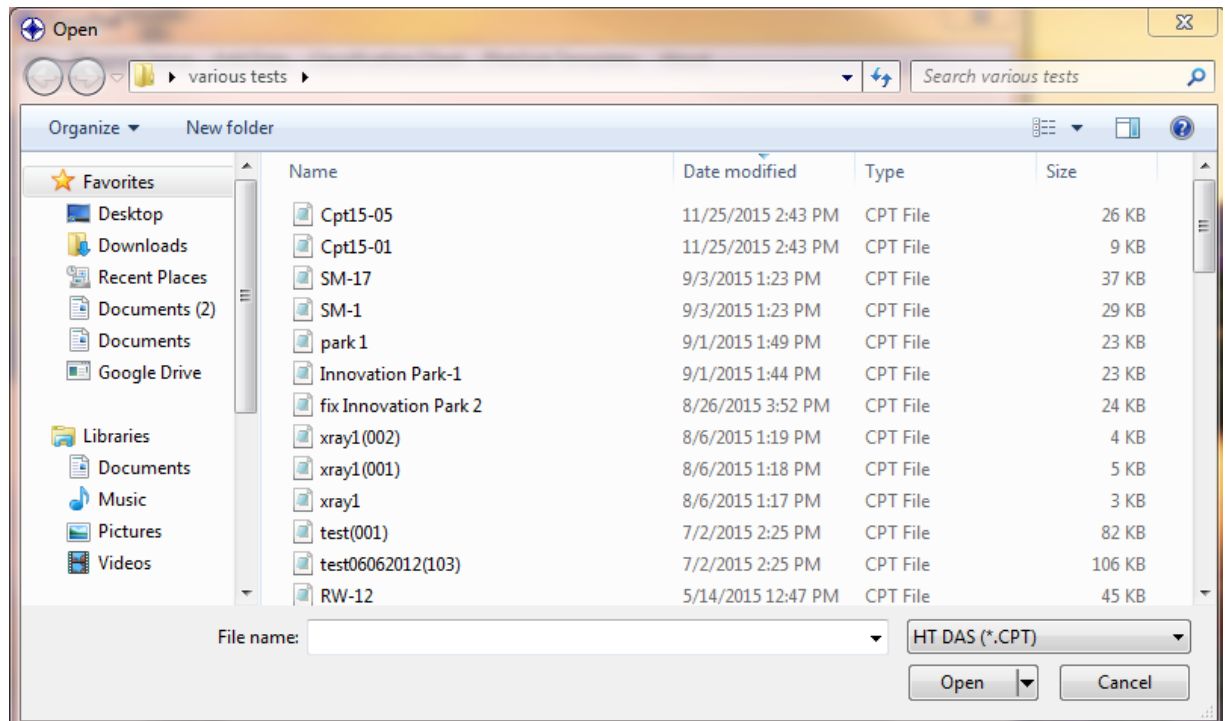


Figure 4 Selecting a File

Click open

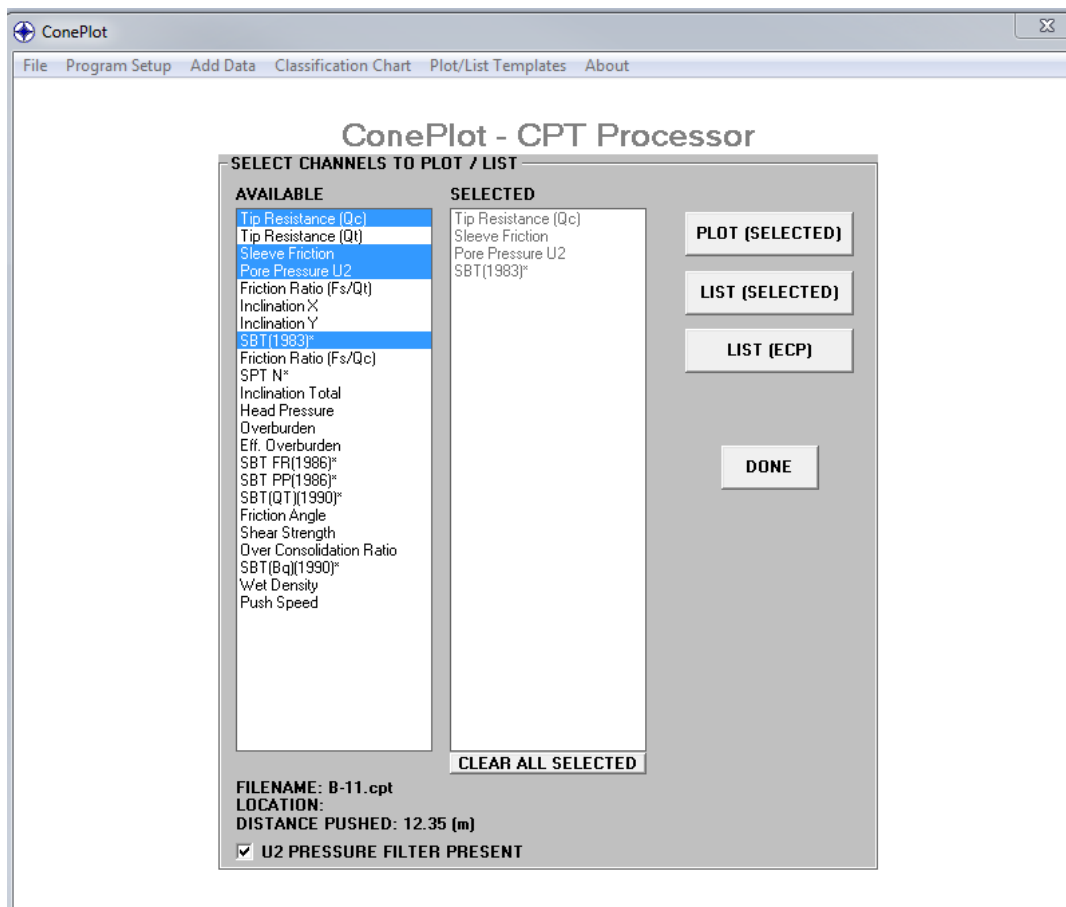


Figure 5 Selecting Channels to Plot/List

ConePlot imports the data file and displays the channels available to process or display. Additional file data can be added to this list by clicking on **ADD DATA** in the tool bar and browsing to a compatible file. See **Section 6** for a seismic example. **Figure 5** shows the automatic selection that was chosen in a template.

Highlight the channels desired for graphing and click on template to save the settings so that each sounding can be presented the same way if desired. Clicking again on channel will unselect it. Graphs are arranged in the order selected. **Select Plot** to display a graphical view of the data selected. See **Figure 7**. Selecting **List** will provide the results shown in **Figure 8**. Selecting **EDIT** will be discussed later.

Figure 6 shows the template save/selection screens.

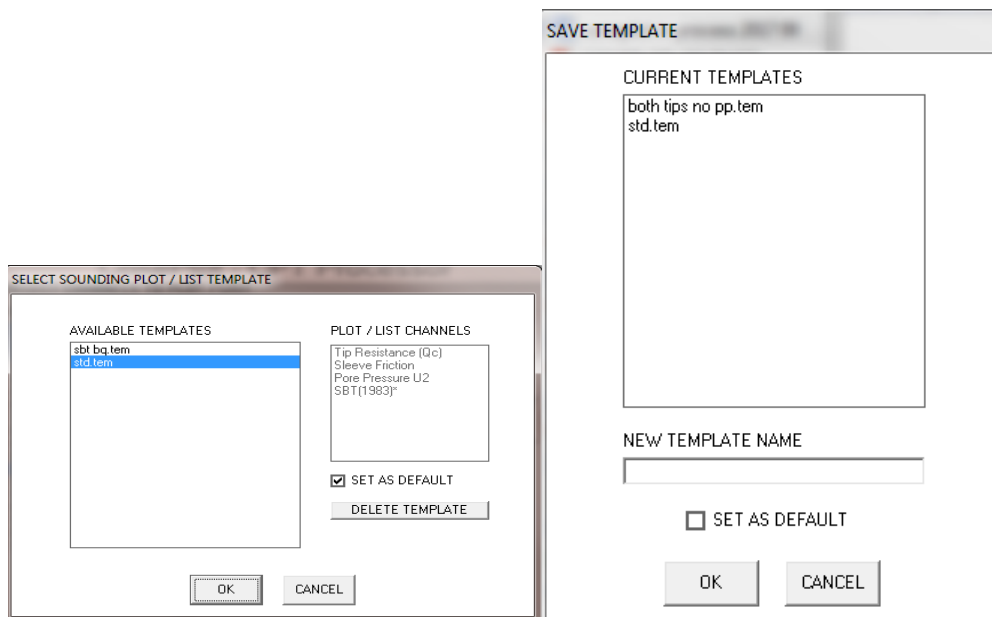


Figure 6 Plotting Templates

This provides the initial graphical plot (**Figure 7**) on the screen with the parameters chosen in the previous step. (Logo shown using the watermark selection)

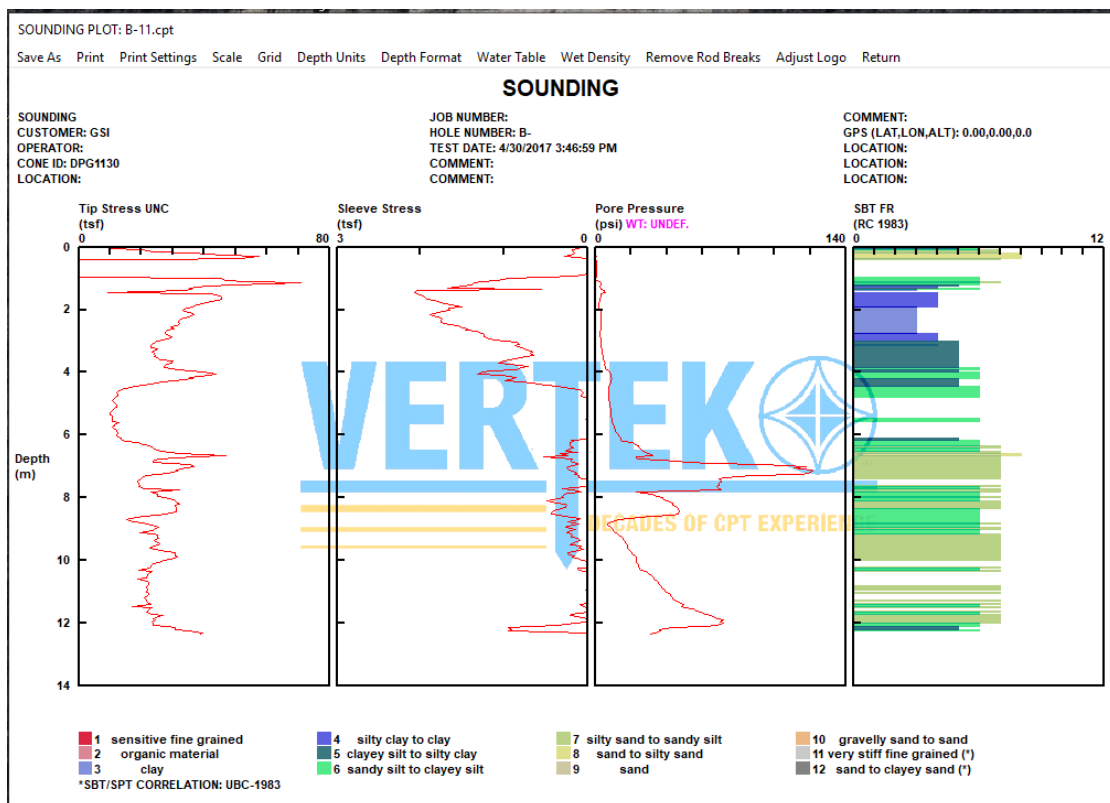


Figure 7 Graphical Plot (watermark logo)

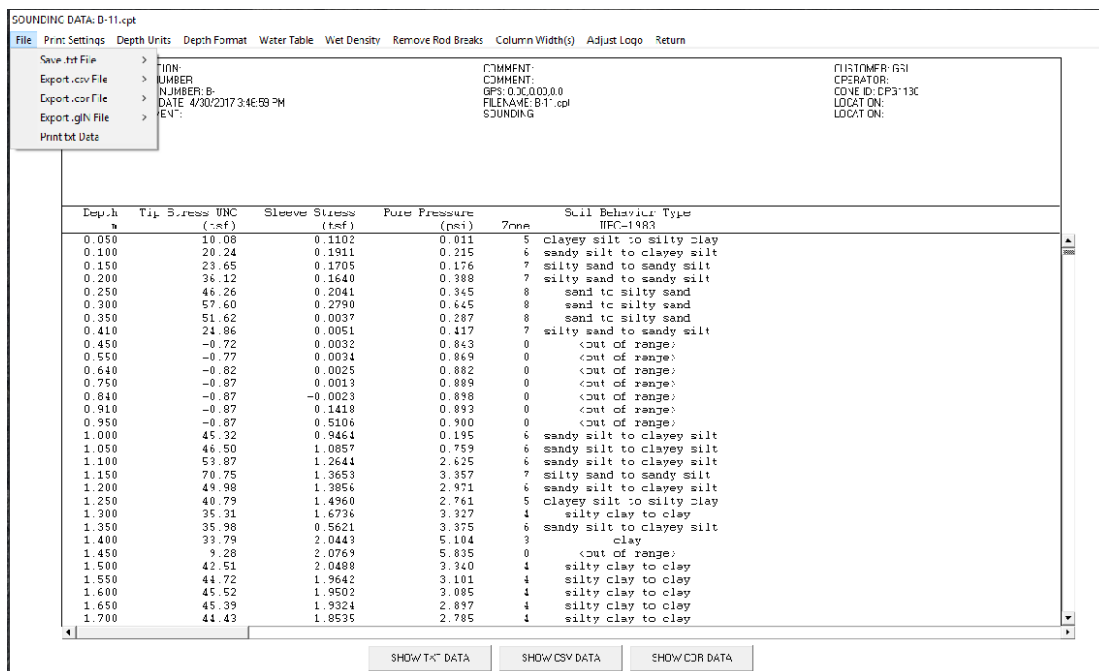


Figure 8 Sample LIST option

From the list screen you can export the data in different formats for third party software use or .csv for standard spread sheet use. Units can be set and saved for each output type (from the main screen select program setup, then Channel Units/Formats)

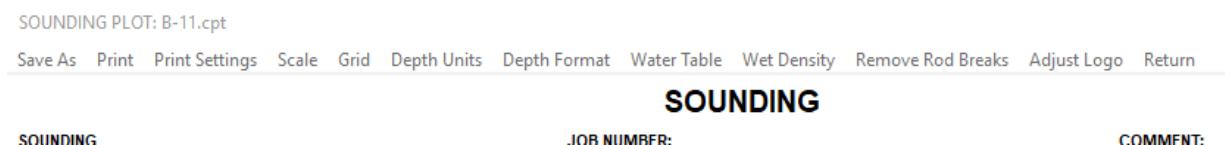


Figure 9 Plot Options Toolbar

Across the top of the plot screen (**Figure 9**) there are tabs to complete the following selections:

PRINT: to access the PRINT SETTINGS

SCALE: for each graph or depth

Add or remove **GRID** lines to the display

Change the **DEPTH UNITS** (feet or meters)

Change the **DEPTH FORMAT** from normal to elevation

Input a **WATER TABLE** depth (to change the hydrostatic blue line)

Change **WET DENSITY**

Access the **REMOVE ROD BREAKS** function

Adjust **LOGO**

RETURN to previous screen

PRINT: The same as any program, provides user with available print options. CPT graphs usually print best to PDF format so they can be used electronically in reports. Not all PDF printers are created equally! This software may not work with some free PDF printer options available and some older versions of PDF printers may need to be updated.

PRINT SETTINGS or SCREEN SET UP (a.k.a Headers)

Screen setup can be modified to three different styles (header layouts) by entering into print settings. Print settings can be accessed from Figure 9 example screen or from the initial screen under **Program Setup**.

See Figure 10 -12 depict screen shots of the three styles available for this function. The drop down boxes allow arranging the multiple available fields in sequences to suit individual requirements. This information is primarily entered in each individual test set up for this purpose.

Please note that the logo selection can be used as a **small header** field or as a **watermark** background. To change the intensity of the watermark logo requires altering the JPG file imported. This program does not have the capability to change the image.

The upper section of this screen is for the appearance of the **LIST** headers and the lower section is for the appearance of the **PLOT** headers. In the plot section on the right side of the screen are some alignment and display options to allow for customizing the view to suit individual preferences.

The screenshot displays the 'SOUNDING PRINT SETTINGS' window, which is divided into two main sections: 'HT DAS SOUNING LIST SETTINGS' and 'HT DAS SOUNING PLOT SETTINGS'.

HT DAS SOUNING LIST SETTINGS:

- System:** Set Custom Headers, Save HT DAS Settings, Return
- TOP HEADER:** LOCATION (dropdown)
- HEADER STYLE:**
 - ☒ STYLE 1
 - ☐ STYLE 2
 - ☐ STYLE 3
- HEADERS COLUMN 1:** LOCATION, JOB NUMBER, HOLE NUMBER, TEST DATE, HEADER (dropdowns)
- HEADERS COLUMN 2:** FOOTER1, FOOTER2, GPS DATA, FILENAME, "SOUNDING DATA" (dropdowns)
- HEADERS COLUMN 3:** CUSTOMER(DATAFI), OPERATOR, CONE ID, LOCATION (dropdowns)
- PRINT HEADER:** First Page (dropdown)
- PRINT LOGO:** First Page (dropdown)
- PRINT IN COLOR:** No (dropdown)
- INCLUDE FINAL BASELINES:** Yes (dropdown)
- BORDER LINE WIDTH:** 1 (dropdown)
- Margins:** TOP MARGIN, BOTTOM MARGIN, LEFT MARGIN, RIGHT MARGIN (all set to 1)

HT DAS SOUNING PLOT SETTINGS:

- TOP HEADER:** "SOUNDING PLOT" (dropdown)
- HEADER STYLE:**
 - ☒ STYLE 1
 - ☐ STYLE 2
 - ☐ STYLE 3
- HEADERS COLUMN 1:** CUSTOM HEADER 1, CUSTOM HEADER 2, OPERATOR, CONE ID, CUSTOM HEADER 3 (dropdowns)
- HEADERS COLUMN 2:** JOB NUMBER, HOLE NUMBER, TEST DATE, HEADER, FOOTER1 (dropdowns)
- HEADERS COLUMN 3:** FOOTER2, GPS DATA, LOCATION, LOCATION (dropdowns)
- FOOTNOTE:** (BLANK) (dropdown)
- PRINT VALUES ON STEP GRAPHS:** No (dropdown)
- SBT ROLLING AVERAGE:** 1 (dropdown)
- PLOT HYDROSTATIC PRESS:** Yes (dropdown)
- ENLARGED TIP GRAPH:** No (dropdown)
- TIP PLOT ALIGNMENT:** Left to Right (dropdown)
- FRIC. PLOT ALIGNMENT:** Right to Left (dropdown)
- FRIC. RATIO PLOT ALIGNMENT:** Left to Right (dropdown)
- SOIL BEHAVIOR GRAPH STYLE:** Color Bar (dropdown)
- PRINT LOGO:** All Pages (watermark) (dropdown)
- PRINTOUT STYLE:** 1 (dropdown)
- INCLUDE FINAL BASELINES:** No (dropdown)
- BORDER LINE WIDTH:** 2 (dropdown)
- DATA LINE WIDTH:** 1 (dropdown)
- GRID LINE WIDTH:** 1 (dropdown)
- Margins:** TOP MARGIN, BOTTOM MARGIN, LEFT MARGIN, RIGHT MARGIN (all set to 1)

Figure 10 Sounding Print Settings Style 1

SOUNDING PRINT SETTINGS

System Set Custom Headers Save HT DAS Settings Return

HT DAS SOUNDING LIST SETTINGS

TOP HEADER "SOUNDING DATA"

HEADERS COLUMN 1 HEADERS COLUMN 2

PRINT HEADER First Page

PRINT LOGO First Page

PRINT IN COLOR No

INCLUDE FINAL BASELINES Yes

BORDER LINE WIDTH 1

TOP MARGIN 1

BOTTOM MARGIN 1

LEFT MARGIN 1

RIGHT MARGIN 1

HT DAS SOUNDING PLOT SETTINGS

TOP HEADER "SOUNDING PLOT"

HEADERS COLUMN 1 HEADERS COLUMN 2

PRINT VALUES ON STEP GRAPHS No

SBT ROLLING AVERAGE 1

PLOT HYDROSTATIC PRESS Yes

ENLARGED TIP GRAPH No

TIP PLOT ALIGNMENT Left to Right

FRIC. PLOT ALIGNMENT Right to Left

FRIC. RATIO PLOT ALIGNMENT Left to Right

SOIL BEHAVIOR GRAPH STYLE Color Bar

PRINT LOGO All Pages (watermark)

PRINTOUT STYLE 1

INCLUDE FINAL BASELINES No

BORDER LINE WIDTH 2

DATA LINE WIDTH 1

GRID LINE WIDTH 1

TOP MARGIN 1

BOTTOM MARGIN 1

LEFT MARGIN 1

RIGHT MARGIN 1

Figure 11 Sounding Print Settings Style 2

SOUNDING PRINT SETTINGS

System Set Custom Headers Save HT DAS Settings Return

HT DAS SOUNDING LIST SETTINGS

TOP HEADER "SOUNDING DATA"

HEADER 1 (BLANK)

HEADER 2 (BLANK)

HEADER 3 (BLANK)

HEADER 4 (BLANK)

HEADER 5 (BLANK)

HEADER 6 (BLANK)

HEADER 7 (BLANK)

HEADER 8 (BLANK)

HEADER 9 (BLANK)

HEADER 10 (BLANK)

HEADER 11 (BLANK)

HEADER 12 (BLANK)

HEADER 13 (BLANK)

HEADER 14 (BLANK)

HEADER 15 (BLANK)

PRINT HEADER First Page

PRINT LOGO First Page

PRINT IN COLOR No

INCLUDE FINAL BASELINES Yes

BORDER LINE WIDTH 1

TOP MARGIN 1

BOTTOM MARGIN 1

LEFT MARGIN 1

RIGHT MARGIN 1

HT DAS SOUNDING PLOT SETTINGS

TOP HEADER "SOUNDING PLOT"

HEADER 1 CUSTOM HEADER 1

HEADER 2 CUSTOM HEADER 2

HEADER 3 OPERATOR

HEADER 4 LOCATION

HEADER 5 JOB NUMBER

HEADER 6 CONE ID

HEADER 7 HOLE NUMBER

HEADER 8 (BLANK)

HEADER 9 GPS DATA

HEADER 10 (BLANK)

HEADER 11 TOTAL DEPTH

HEADER 12 FILENAME

HEADER 13 (BLANK)

HEADER 14 (BLANK)

HEADER 15 CUSTOM HEADER 3

FOOTNOTE CONE ID

PRINT VALUES ON STEP GRAPHS No

SBT ROLLING AVERAGE 1

PLOT HYDROSTATIC PRESS Yes

ENLARGED TIP GRAPH No

TIP PLOT ALIGNMENT Left to Right

FRIC. PLOT ALIGNMENT Right to Left

FRIC. RATIO PLOT ALIGNMENT Left to Right

SOIL BEHAVIOR GRAPH STYLE Color Bar

PRINT LOGO All Pages (watermark)

PRINTOUT STYLE 1

INCLUDE FINAL BASELINES No

BORDER LINE WIDTH 2

DATA LINE WIDTH 1

GRID LINE WIDTH 1

TOP MARGIN 1

BOTTOM MARGIN 1

LEFT MARGIN 1

RIGHT MARGIN 1

Figure 12 Sounding Print Settings Style 3

SET CUSTOM HEADERS

	TITLE	DATA
SOUNDING CUSTOM HEADER 1	TEST PERFORMED BY	VERTEK CPT
SOUNDING CUSTOM HEADER 2	TEST PERFORMED FOR	ANY GEO COMPANY
SOUNDING CUSTOM HEADER 3	Results reviewed by	Ernest E. Engineer. PE
SOUNDING CUSTOM HEADER 4	Custom Header Title 4	Custom Header Data 4

	TITLE	DATA
DISSIPATION CUSTOM HEADER 1	Custom Header Title 1	Custom Header Data 1
DISSIPATION CUSTOM HEADER 2	Custom Header Title 2	Custom Header Data 2
DISSIPATION CUSTOM HEADER 3	Custom Header Title 3	Custom Header Data 3
DISSIPATION CUSTOM HEADER 4	Custom Header Title 4	Custom Header Data 4

	TITLE	DATA
SEISMIC CUSTOM HEADER 1	Custom Header Title 1	Custom Header Data 1
SEISMIC CUSTOM HEADER 2	Custom Header Title 2	Custom Header Data 2
SEISMIC CUSTOM HEADER 3	Custom Header Title 3	Custom Header Data 3
SEISMIC CUSTOM HEADER 4	Custom Header Title 4	Custom Header Data 4

	TITLE	DATA
VCPT CUSTOM HEADER 1	Custom Header Title 1	Custom Header Data 1
VCPT CUSTOM HEADER 2	Custom Header Title 2	Custom Header Data 2
VCPT CUSTOM HEADER 3	Custom Header Title 3	Custom Header Data 3
VCPT CUSTOM HEADER 4	Custom Header Title 4	Custom Header Data 4

OK

Figure 13 Set Custom Headers Screen

Custom header selections (**Figure 13**) are choices in all of the drop downs for the various fields that can be used in **CONEPLOT**. These custom headers are designed to allow more user control over the use of the fields available. Three sample customizations shown in **Figure 13**.

SCALE

Changes can be made to the appearance of the plot screen using the 'SCALE' tab (**Figure 14**) in the **DEPTH PLOT** screen tool bar. Notice that this plot has auto-scaled during the plot, but scaling can be changed here. The minimum can be set to less than zero should it be necessary to display readings that indicate negative from the baseline taken; and that maximum can be set to allow for uniform scaling when required. **Minor ticks** can be checked to provide more scale marks on the selected channels for enhanced interpretations but this may make the graph too cluttered.

Chose to **Load Scale** and **Save Scale** at the top of this page make it a simple matter to have multiple tests in one project be plotted on the same scale for uniformity.

SCALE SOUNDING

Load Scale Save Scale

CHANNEL	MIN	MAX	MINOR TICKS
DEPTH	0	25 (m)	<input type="checkbox"/>
Tip Resistance (Qc)	0	300 11	<input type="checkbox"/>
Sleeve Friction	0	3 11	<input type="checkbox"/>
Pore Pressure U2	0	12 11	<input type="checkbox"/>
SBT(1983)*	0	12 1	<input type="checkbox"/>
N/A		N/A	<input type="checkbox"/>
N/A		N/A	<input type="checkbox"/>

OK RESET

Figure 14 Scale Setting Screen

Figure 15 shows a depth plot with minor ticks selected using **HEADER STYLE 1** and **PRINTOUT STYLE 2** with the logo on “first page only”.

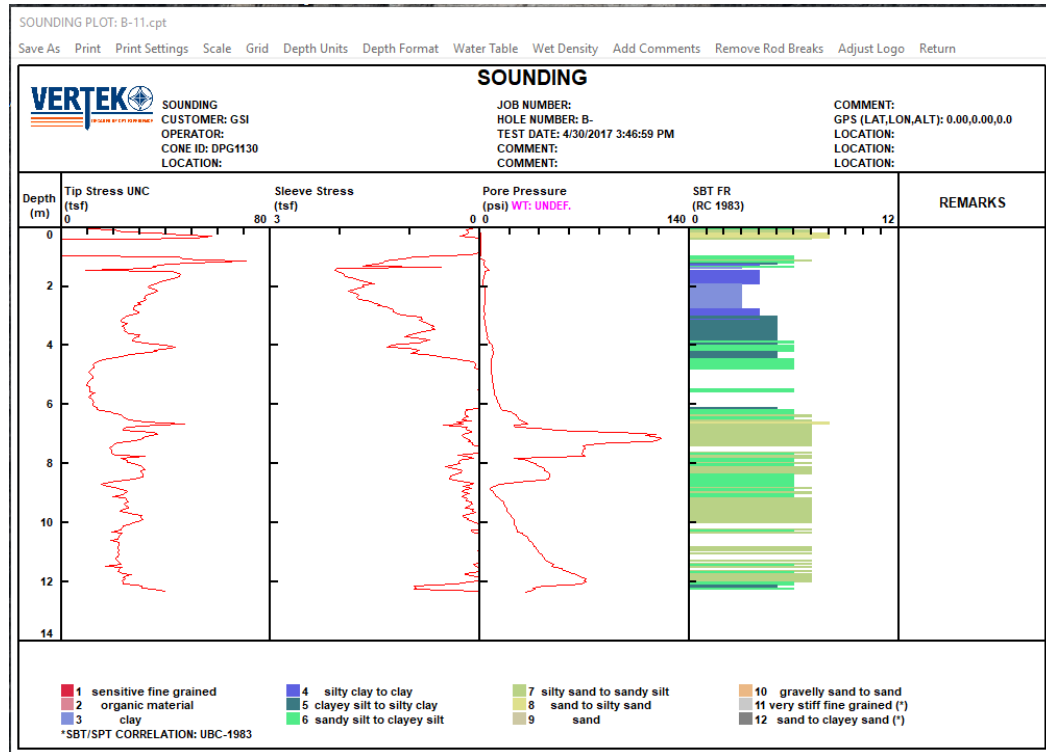


Figure 15 Sounding in Header Style 1 (logo on header)

Figure 16 is the same but using logo selection “watermark”

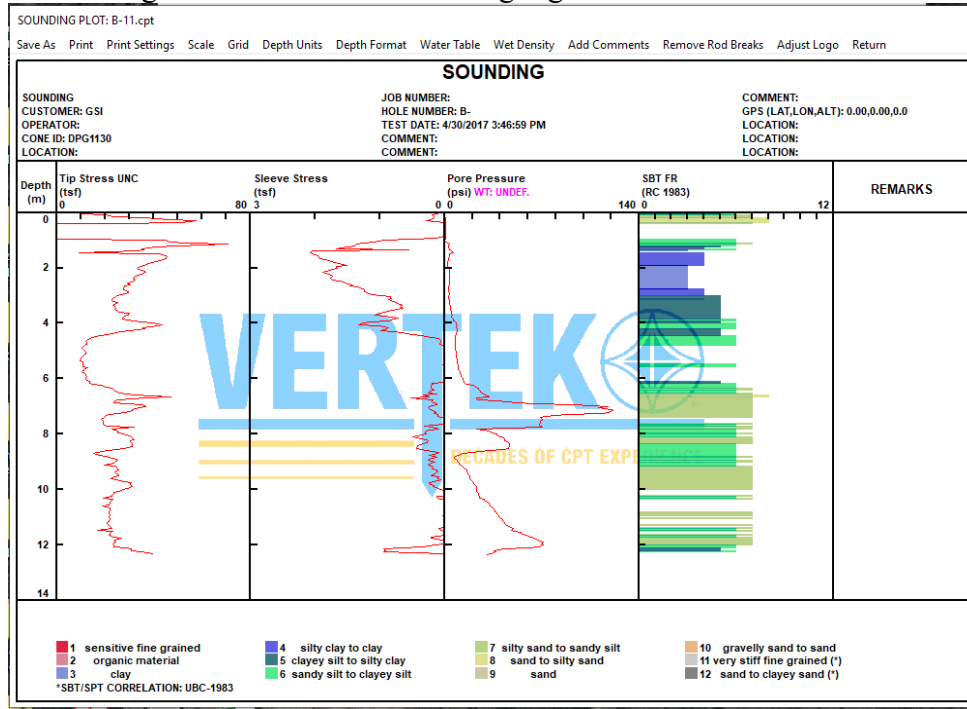


Figure 16 Sounding in Header Style 1 (logo Watermark)

Notice that in **PRINTOUT STYLE 2** there is a remarks column and the “add comments” tab (**Figure 16**) at the top allows user to enter text to apply to any depth chosen(**Figure 17**).

ADD COMMENTS

COMMENT

DEPTH (m)

ADD CLEAR ALL

RETURN

Figure 17 Add Comments Screen

CHANGE WATER TABLE DEPTH

PREVIOUS WATER TABLE DEPTH

000.00

(ft)

NEW WATER TABLE DEPTH

000.00

(ft)

OK

CANCEL

Figure 18 Change Water Table Screen

Water Table

The estimated water table depth can be manually entered on the plots by adding values to the drop down selection as shown on **Figure 18**. This will place a blue line on the plot at the depth entered and this hydrostatic plot line will increase with depth. See updated plot (**Figure 19**) below with an arbitrary water table of 12 feet selected.

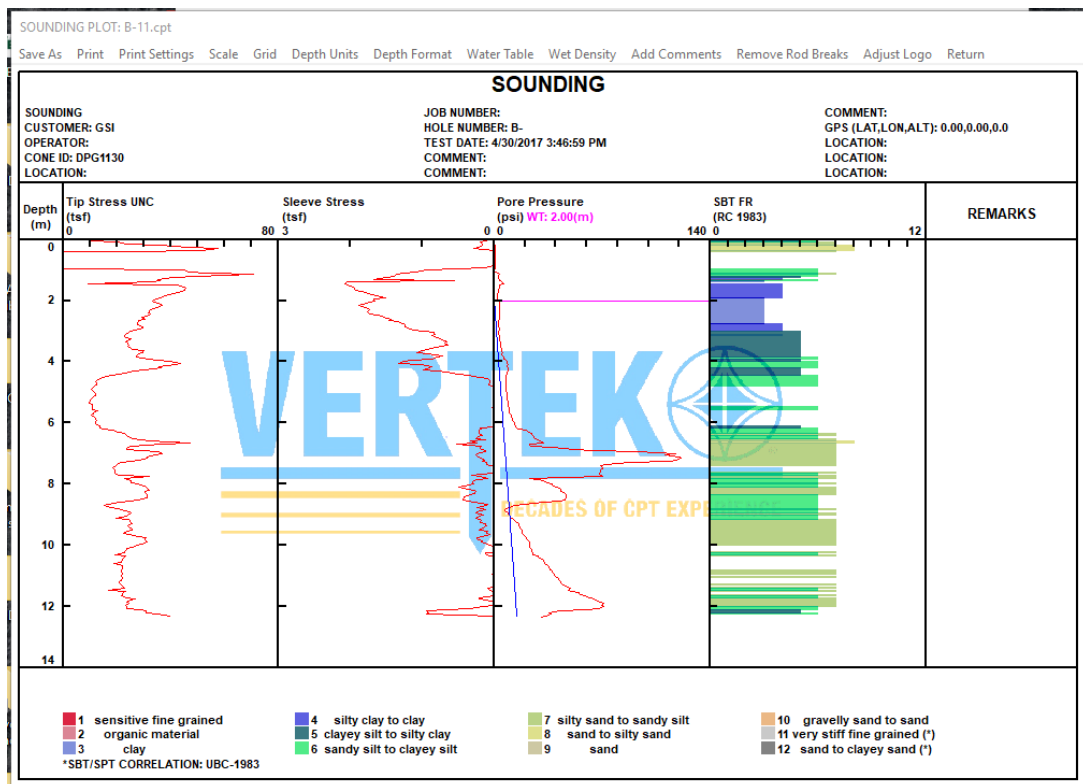
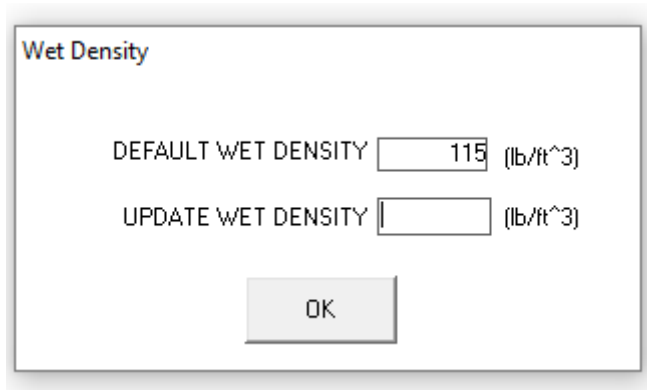


Figure 19 Sounding with Water Table Added

Wet Density

Adjusting the wet density calculation can be updated from the standard default. To update the wet density this option allows the selection of a different wet density value for the selected test without the need to start over and go back to GENERAL SETTINGS. The new setting can be used as a new default or just for the selected test.

A dialog box titled "Wet Density" with a light gray border. It contains two input fields. The first is labeled "DEFAULT WET DENSITY" and has a text box containing "115" followed by the unit "(lb/ft^3)". The second is labeled "UPDATE WET DENSITY" and has an empty text box followed by the unit "(lb/ft^3)". At the bottom center is a button labeled "OK".

Wet Density

DEFAULT WET DENSITY (lb/ft³)

UPDATE WET DENSITY (lb/ft³)

OK

Figure 20 Wet Density Change

Remove Rod Breaks

As shown on **Figure 21** displays the rod break removal screen with a rod break spike selected for deletion. The left side of this screen shows the plotted tip and friction for a one meter section of the push. The two blue lines on the right side indicate which meter of the push is displayed on the left.

The rod break is selected by positioning the mouse and clicking above and then below the spike area to be 'smoothed'. After selection simply hit the **DELETE** button on the keyboard and the spike will be smoothed out. (see **Figure 22** for results)

NOTE: care needs to be taken to only delete spikes and not real data. True rod break spikes should follow the pattern of rod additions to the CPT test.

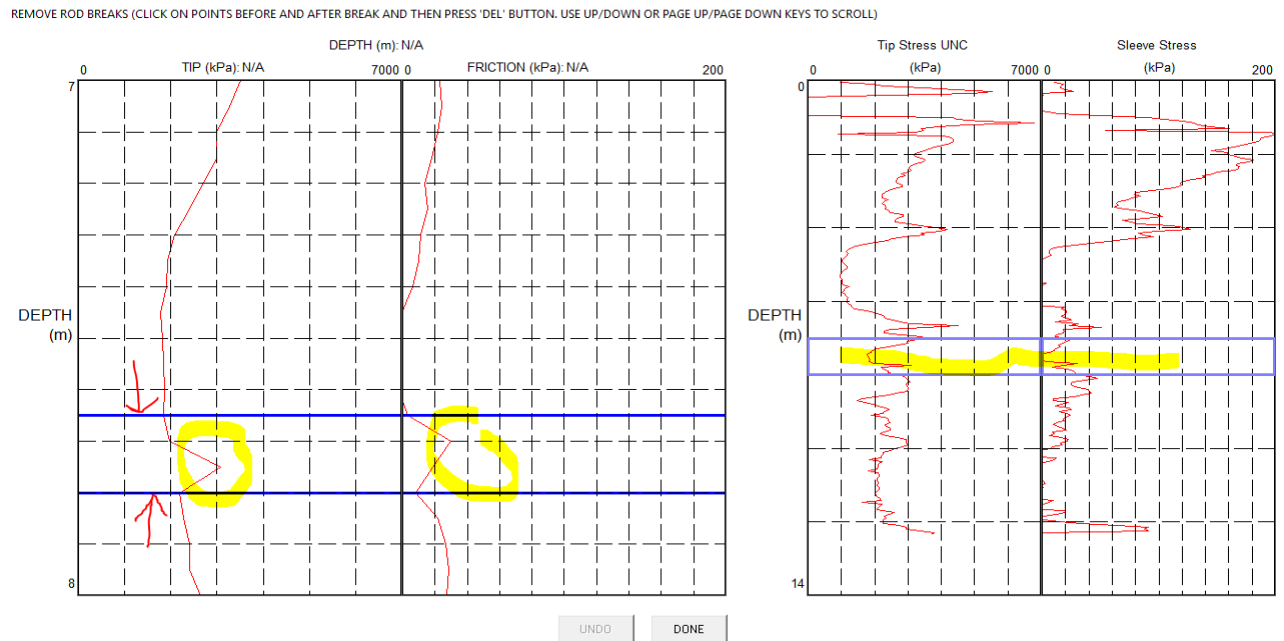


Figure 21 Remove Rod Breaks

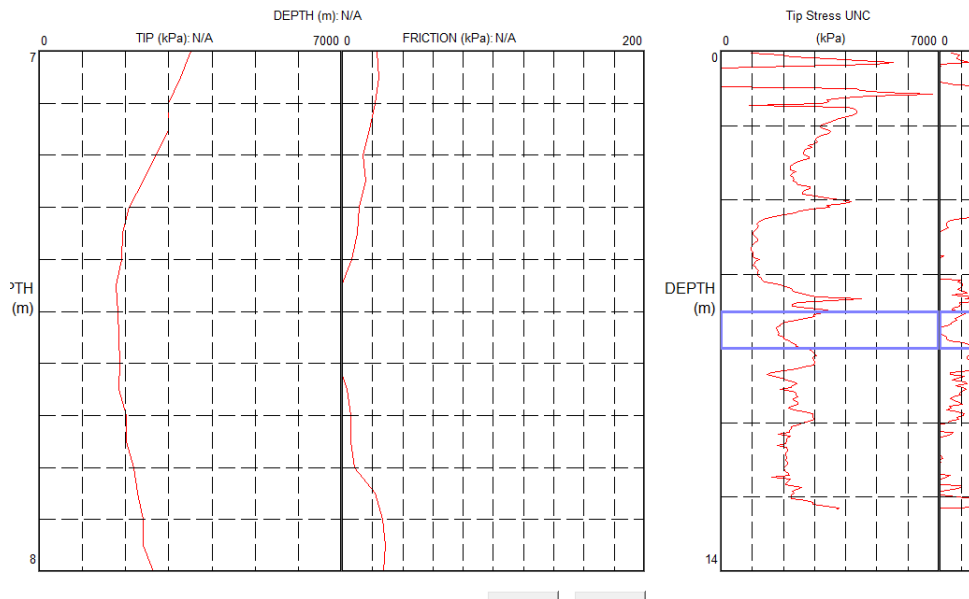


Figure 22 Sample After Removing Rod Break

Edit Data

The remaining Depth Plot tab is **EDIT DATA (Figure 20)** and is only shown when processing **.DAT** files. This feature allows for user editing of raw data to remove errors or make other corrections required. This edited data should always be saved as a different file name to prevent loss of original data.

NOTE: HT file (*.cpt) editing still requires use of DIGITAL CLEANUP and Edit Data tab is not shown when processing .cpt files.

EDIT DAT FILE

File Depth Units Adjust Channel View

CURRENT CHANNEL VIEW: UN-ADJUSTED FOR OFFSET (READINGS CAN BE DELETED)

COMPANY	company	PROJECT	xyz	COMMENTS		GPS (LAT)		MODULE ID(s)	
FILENAME	xyz.dat	SITE	xyz High School	DATE	Mon 14/Jun/2013	GPS (LON)		DAS ID	DataPack 2000
TEST ID	C9-5	LOCATION	Location	START TIME	16:03:48	GPS (ELEV)		SAMPLE RATE	2 cm/Sa
OPERATOR	Operator	CLIENT	ccc Inc.	START DEPTH	0	GPS (NSAT)		SW VERSION	Version 1.80.15
CREW	Crew	CLIENT REP	Client Rep.	WEATHER		GPS (QUAL)		TIP CONFIG	Conventional

	Ratio	S Wave 1	S Wave 2	Reference LC	Rod Depth	A Clamp On	Tip (Qc)	Sleeve	Pore Pressure	Inclination X		
REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE	REMOVE		
CAL FACTOR 0	0	1	1	0.004388	233.38	0	0.0659	.212394	1.801	10.05		
CAL FACTOR 1	0	0	0	0	.5	0	1	1	1	1		
CAL FACTOR 2	0	0	0	0	4	0	1	1	1	1		
CAL FACTOR 3	0	0	0	0	0	0	0	0	0	0		
CAL FACTOR 4	0	0	0	0	0	0	0	0	0	0		
UNIT FACTOR 0	1	1	1	1	1	0	1.51	6.49	1	0		
UNIT FACTOR 1	1	1	1	1	1	0	1.73	1.73	1	0		
UNIT FACTOR 2	1	1	1	1	1	0	2.35	35.42	1	0		
UNIT FACTOR 3	1	1	1	1	1	0	0	0	0	0		
UNIT FACTOR 4	1	1	1	1	1	0	0	0	0	0		
OFFSET FROM TIP (m)	0	0	0	0	0	0	0	8.242299E-02	0	0		
INITIAL BASELINE (V)	.2955062	.2956435	.2959487	.2796334	0	.1053455	.286512	.352908	.216062	1.237063		
FINAL BASELINE (V)	0	0	0	0	0	0	0	0	0	0		
DEPTH (m)	V	V	V	V	R	V	PSI	PSI	PSI	Deg		
1	0.102	16:04:17	0.3015	0.2995	0.2972	0.2797	0.1023	0.1054	189.1068	0.3484	0.4548	-0.3138
2	0.172	16:04:18	0.2927	0.3003	0.2959	0.2801	0.1718	0.1056	222.1678	0.7024	0.5686	-0.0898
3	0.307	16:04:19	0.2911	0.2948	0.2937	0.2805	0.3074	0.1067	264.4885	1.3012	0.2271	-0.2323
4	0.373	16:04:20	0.2881	0.2914	0.2931	0.2803	0.3734	0.1056	293.5784	1.8729	0.3409	0.0529
5	0.455	16:04:21	0.3029	0.2957	0.2969	0.2797	0.4548	0.1048	371.6012	2.4718	0.3409	-0.2119
6	0.583	16:04:22	0.2998	0.2954	0.2960	0.2799	0.5833	0.1050	534.2655	3.4518	0.3409	-0.2119
7	0.702	16:04:23	0.3015	0.2928	0.2959	0.2809	0.7020	0.1069	710.1476	4.7314	0.3409	-0.0082
8	0.769	16:04:24	0.2922	0.2963	0.2957	0.2803	0.7689	0.1052	707.5002	4.9491	0.3409	-0.0694
9	0.881	16:04:25	0.2907	0.2945	0.2954	0.2799	0.8813	0.1050	733.9491	6.5280	0.4548	-0.0694
10	1.005	16:04:26	0.3014	0.2951	0.2960	0.2795	1.0049	0.1054	720.7245	8.2431	0.3409	-0.1101
11	1.127	16:04:27	0.2898	0.2947	0.2957	0.2805	1.1272	0.1065	679.7276	8.5154	0.3409	-0.0490
12	1.255	16:04:29	0.2989	0.2953	0.2951	0.2793	1.2551	0.1054	628.1537	8.4609	0.3409	-0.1101
13	1.352	16:04:30	0.2916	0.2953	0.2956	0.2799	1.3517	0.1056	569.9675	7.7258	0.2271	-0.0490
14	1.419	16:04:31	0.2921	0.2950	0.2953	0.2803	1.4195	0.1048	539.5540	7.6987	0.2271	-0.0694
15	1.538	16:04:32	0.2914	0.2953	0.2954	0.2809	1.5377	0.1054	478.7202	7.4537	0.2271	-0.0898
16	1.653	16:04:33	0.2939	0.2953	0.2954	0.2801	1.6533	0.1067	431.1112	6.9092	0.2271	-0.0490
17	1.763	16:04:34	0.2992	0.2954	0.2953	0.2793	1.7627	0.1058	387.4731	6.2286	0.1133	-0.0898

Figure 23 EDIT Data Screen

With this tool it is possible to correct minor errors in a sounding (such as rod change data spikes or an incorrect baseline).

Data can be changed at a specific depth or for an entire column. To navigate in the data field click on the depth reading and then up/down arrow.

To change a single reading double click to make the box green, make your change and then click the box again to turn off the green highlight.

For edits involving shifting channels or removing negatives, click on **ADJUST** in the top tool bar.

Original data files should always be maintained. **VERTEK strongly recommends saving original data files separately from edited data files to avoid any potential loss of original data.** It is highly recommended to save any changed files with new file names.

The **EDIT DATA** screen is where files can be combined if necessary (only for .DAT files. HT series users with .CPT files can combine files using **DIGITAL CLEANUP**).

Combining files should only be done when the same cone is being used on test that is done to complete a previous test to depth (perhaps after having to drill through a hard layer or after a malfunction of some sort.) It would be preferable to pause the previous test and resume but that is not always possible.

Combining Data Files

To combine a test with another open the first test (that started at the surface) in **CONEPLOT** and then select **EDIT DATA**.

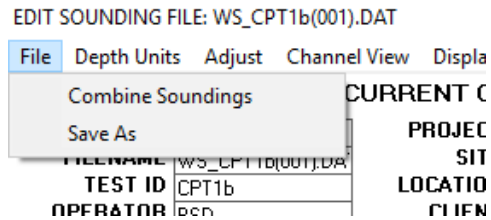


Figure 24 Selecting COMBINE option

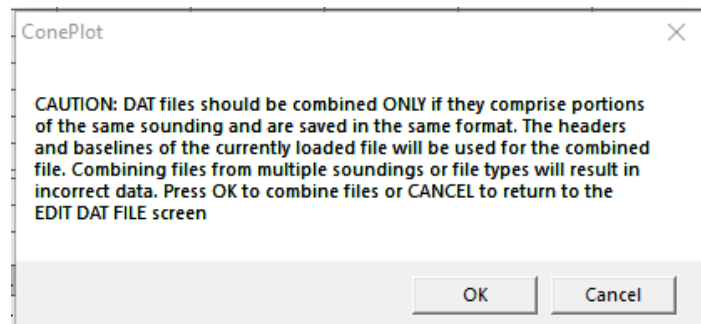


Figure 25 Combine Files Warning

The system prompts you to choose the file to add and will ask for the **OFFSET** depth between files. (note: this would be if there is a difference between the ending depth and the new start depth. If no offset leave at zero "0").

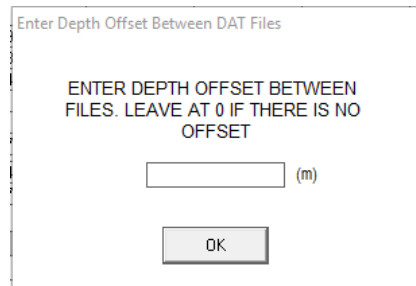


Figure 26 Combine Offset

Select OK and the data files will be combined. **BE SURE TO "SAVE AS" a new file name!!** The combined file can now be plotted or listed as any other file.

4. Processing Dissipations

Clicking on Process Dissipation(s) will bring up a file selection screen

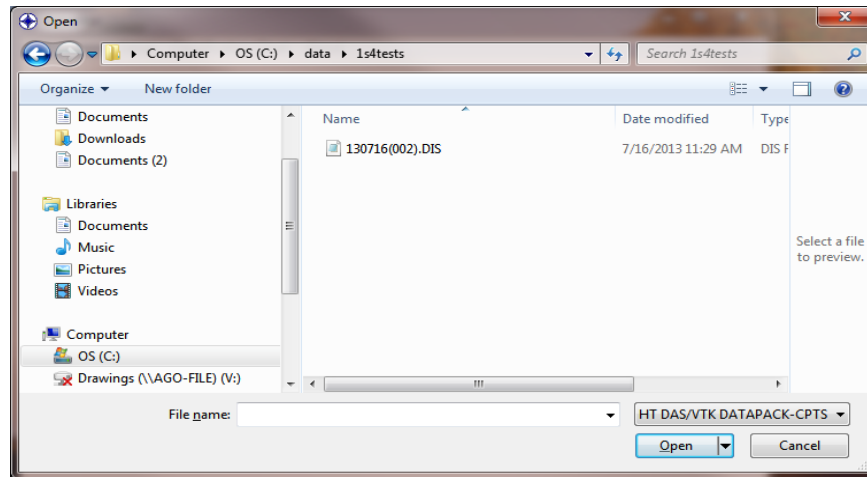


Figure 27 Selecting Dissipation File

Again, the file types displayed are limited by the system selected and to dissipation files. Once a file is selected the following screen appears.

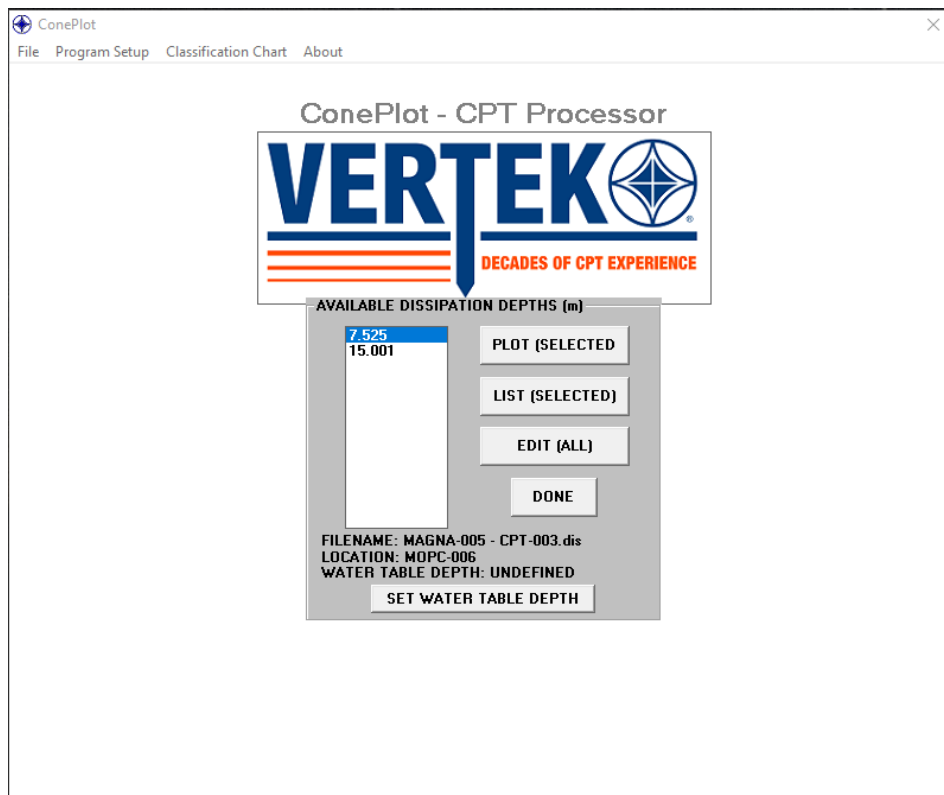


Figure 28 Choosing Dissipation Plot Depths

Click on the depth desired to plot and click on **PLOT SELECTED**. One or all of the

depths can be selected (multiples will be displayed on the same graph with different colors). Figures 29-30 show the two styles of plot - Linear / Logarithmic, respectively.

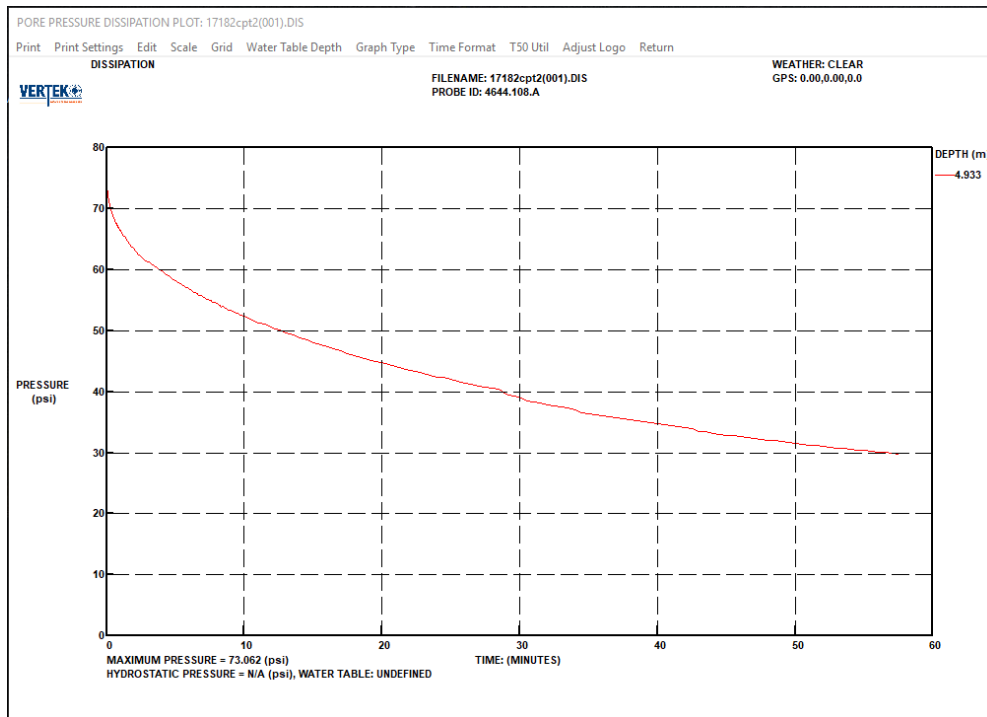


Figure 29 Dissipation Linear Plot Sample

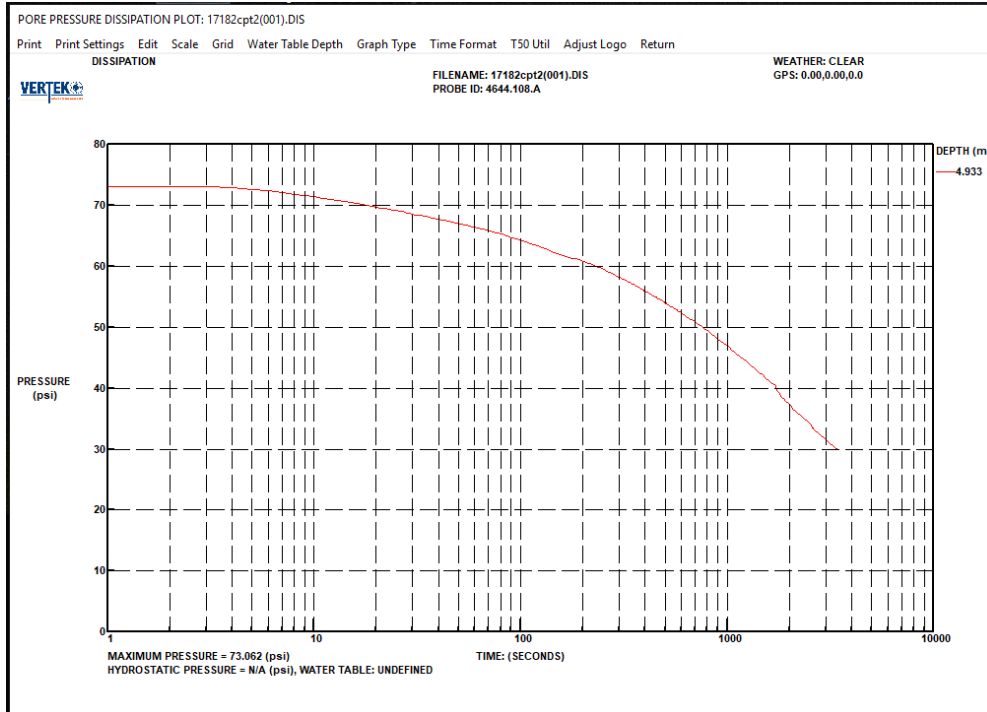


Figure 30 Dissipation Logarithmic Plot Sample

NOTE: This manual is not intended to provide details on the meaning of the data, just to familiarize the operator with the software capability.

Figure 31 below shows the appearance of the list function (in the drop down is shown two options for the data, save as **.txt** or export as **.csv**. or the data can be printed.

DISSIPATION DATA: 17182cpt2(001).DIS

File Print Settings Options Edit Return

Save .txt file
Export .csv file
Print

DISSIPATION DEPTH (m): 4.93
MAXIMUM PRESSURE (psi): 73.062
WATER TABLE DEPTH (m): UNDEFINED
HEAD PRESSURE (psi): 0.000

Time (S)	Pore Pressure (psi)	% Max Pressure	% Over	Head Pressure
1.0	0.000	0.00		0.00
2.0	73.062	100.00		0.00
3.0	72.989	99.90		0.00
4.0	72.842	99.70		0.00
5.0	72.549	99.30		0.00
6.0	72.329	99.00		0.00
7.0	72.110	98.70		0.00
8.0	71.816	98.29		0.00
9.0	71.523	97.89		0.00
10.0	71.377	97.69		0.00
11.0	71.157	97.39		0.00
12.0	70.937	97.09		0.00
13.0	70.790	96.89		0.00
14.0	70.571	96.59		0.00
15.0	70.424	96.39		0.00
16.0	70.277	96.19		0.00
17.0	70.131	95.99		0.00
18.0	69.984	95.79		0.00
19.0	69.838	95.59		0.00
20.0	69.691	95.39		0.00
21.0	69.545	95.19		0.00
22.0	69.471	95.09		0.00
23.0	69.325	94.88		0.00
24.0	69.252	94.78		0.00
25.0	69.105	94.58		0.00
26.0	69.032	94.48		0.00
27.0	68.958	94.38		0.00
28.0	68.738	94.08		0.00

Figure 31 Dissipation LIST sample

Should it be necessary to edit the dissipation data this can be done by selecting **EDIT** from the dissipation tool bar.

The **Select Dissipation Depth** drop down lets you edit any of the test depths shown on the main screen. This depth reading can be manually changed by using the edit depth drop down button. **As always, if the data is changed, it is strongly recommended to rename the new file so the original data is never lost.**

EDIT DISSIPATION
File
Depth Units
Set Headers

COMPANY
FILENAME
TEST ID
OPERATOR
CREW
PROJECT
SITE
LOCATION
CLIENT
CLIENT REP
COMMENTS
START TIME
START DEPTH

VERTEK
c=21.DAT
44

10:13:57
0

DATE
GPS (LAT)
GPS (LON)
GPS (ELEV)
GPS (NSAT)
GPS (QUAL)
MODULE ID(s)
DAS ID
SAMPLE RATE
SW VERSION
WEATHER
TIP CONFIG

Wed 05/Nov/2014

17967-1-01
N/A
Version 2.0.7
CLEAR
Conventional

SELECT DISSIPATION DEPTH
10.663
(ft)

Remove Selected Test
Edit Depth

	TIME (S)	VOLTAGE (V)	PRESS (PSI)	PRESS (PSI) PSI
1	1.00	1.1959	16.3536	16.3536
2	2.00	1.1957	16.3131	16.3131
3	3.00	1.1949	16.1512	16.1512
4	4.00	1.1953	16.2322	16.2322
5	5.00	1.1949	16.1512	16.1512
6	6.00	1.1957	16.3131	16.3131
7	7.00	1.1957	16.3131	16.3131
8	8.00	1.1955	16.2726	16.2726
9	9.00	1.1951	16.1917	16.1917
10	10.00	1.1951	16.1917	16.1917
11	11.00	1.1949	16.1512	16.1512
12	12.00	1.1947	16.1108	16.1108
13	13.00	1.1953	16.2322	16.2322
14	14.00	1.1945	16.0703	16.0703
15	15.00	1.1945	16.0703	16.0703
16	16.00	1.1945	16.0703	16.0703
17	17.00	1.1951	16.1917	16.1917
18	18.00	1.1951	16.1917	16.1917
19	19.00	1.1949	16.1512	16.1512
20	20.00	1.1951	16.1917	16.1917

Figure 32 Edit Dissipation Screen

5. Processing Seismic Tests

Select on the '**PROCESS SEISMIC**' option which will display similar to the home screen and select the test to be processed (same procedure as for dissipations and soundings). Any test in Mode 1 with multiple depths will then display a 'waterfall' plot like Figure 33 below.

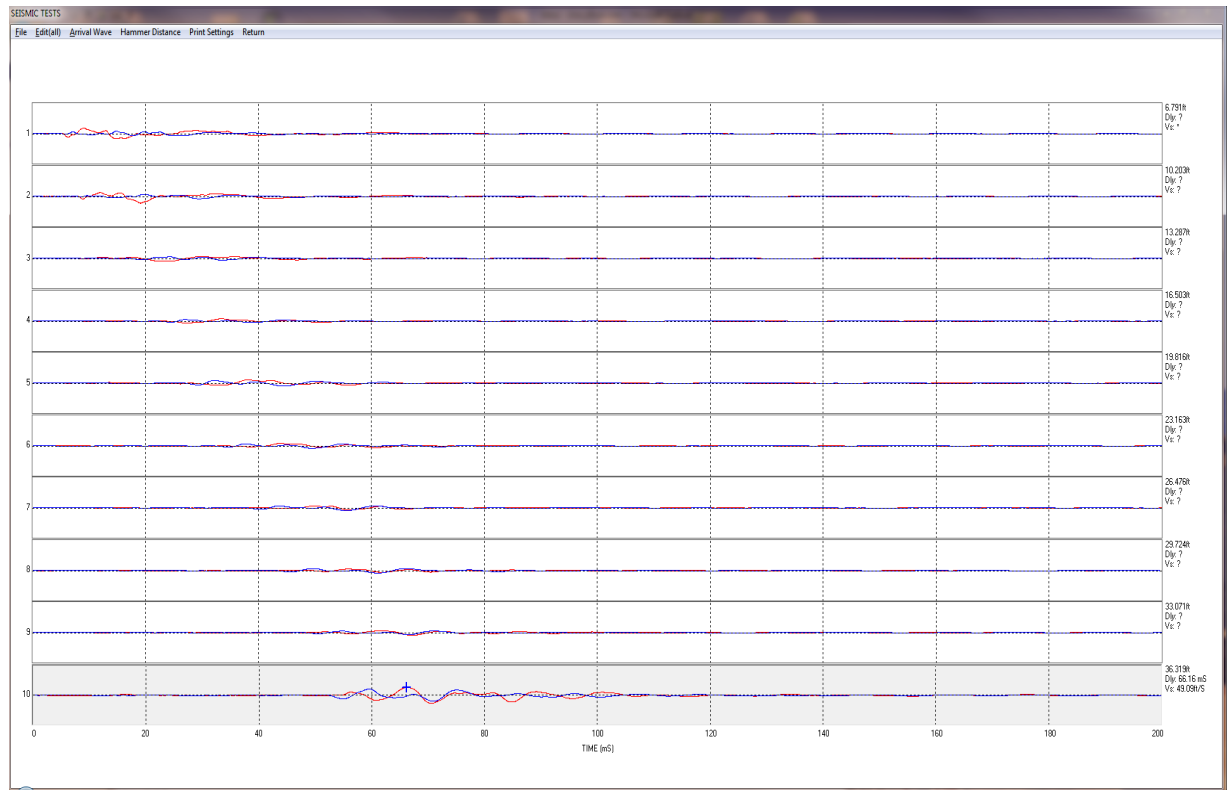


Figure 33 Seismic 'WATERFALL' sample

Each depth can then be highlighted (selected) individually to enhance the visible arrival wave and to select an arrival time.

Click on the arrival wave you are going to set and, using the mouse, move the cross mark where you want to set the arrival and **Left Click** to set. Alternately, the arrival time mark can be '**Snapped**' to the peak by dragging the mark close to the top and then using **shift and left click** in combination. If used on all the depths on the same wave form this will ensure consistent placement of the arrival mark.

The zoom box in the upper corner is helpful on noisy or bumpy waves and simply provides a visual of the detail. Shown in Figure 34 is an arrival time at the peak of the largest A strike wave.

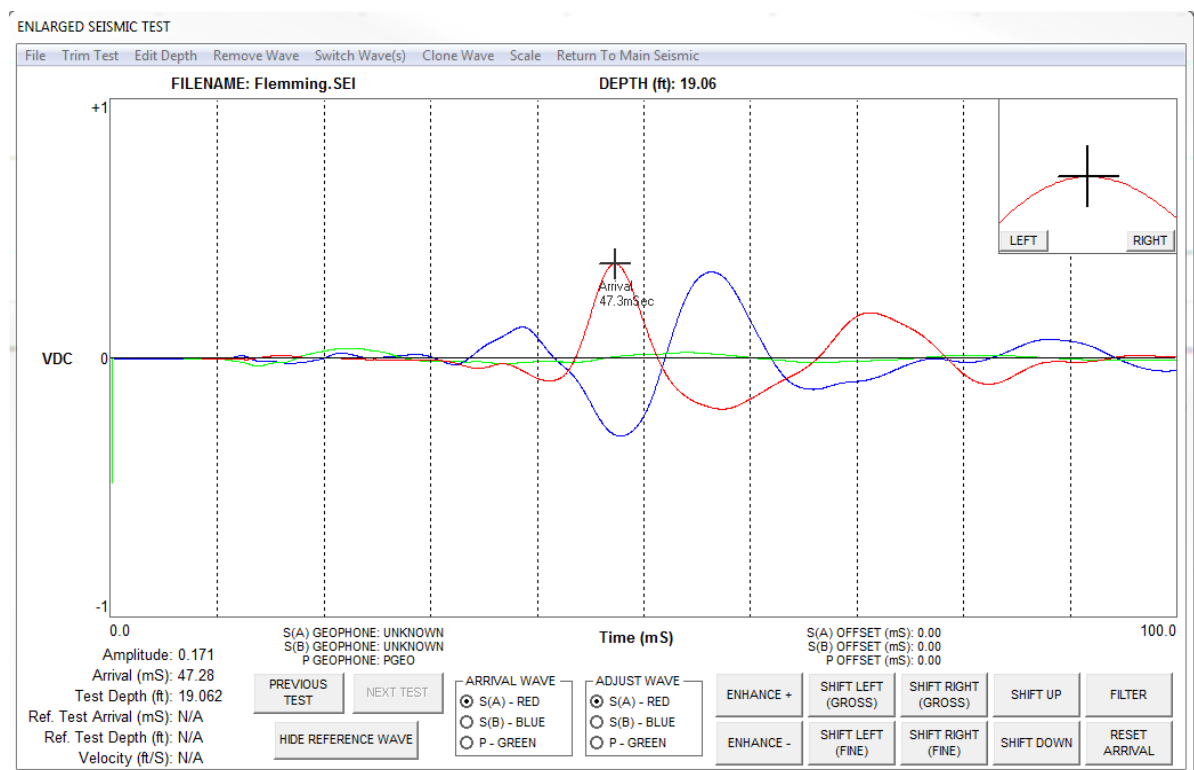


Figure 34 Seismic Arrival Time Selection

It is then a simple matter to click previous graph to enhance the view, and select the similar point for arrival times and repeat until the top test is reached (**Figure 35**)

The buttons on bottom right of this screen allow the wave to be enhanced and filtered for best appearance. Since seismic tests for CPT are designed for arrival time information (to determine individual layer composition). The software allows user to make the waves more pronounced so that arrival times can be determined more consistently from surface to completion of test.

Many users will start near the bottom of the waterfall and process up to ensure good arrival time determinations. Clicking outside of the box shown on Figure 31 will

return to the waterfall, or simply click on previous or next test.

Figure 35 shows the waterfall with all arrival times selected

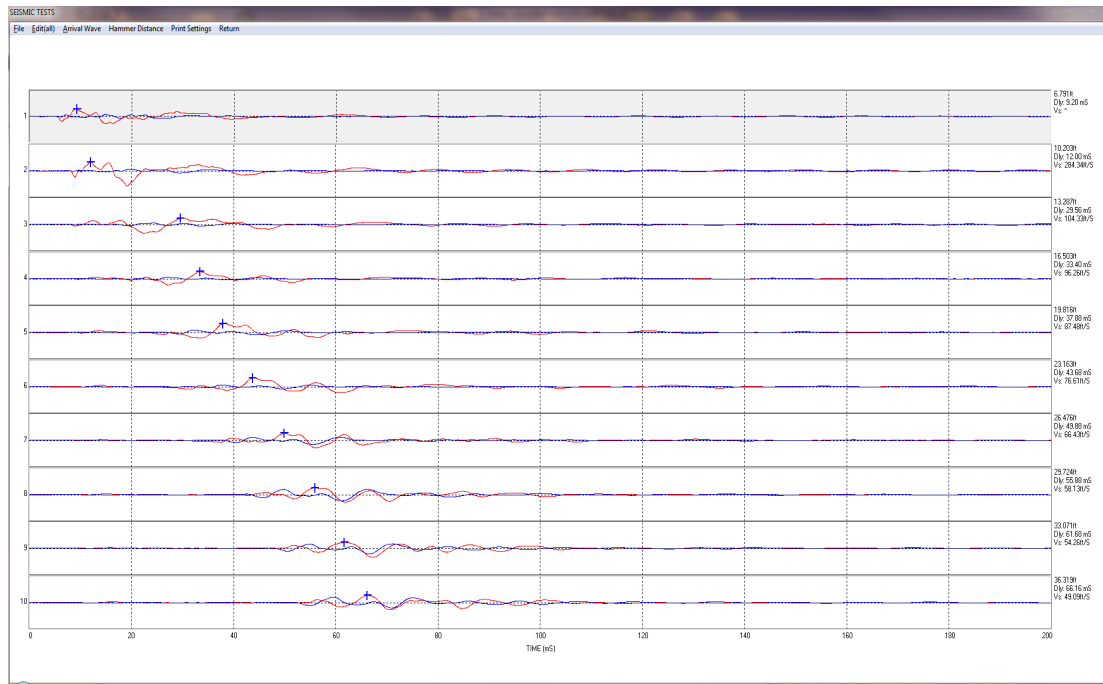


Figure 35 Seismic Waterfall with Arrival Times

At this point a velocity profile can be generated by clicking 'File', then 'Generate Profile' and selecting **Velocity**. (**Figure 36**)

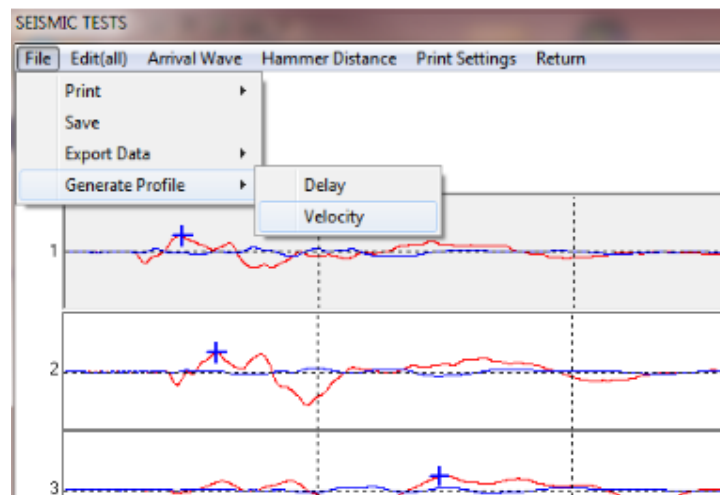


Figure 36 Seismic Profile Options

The velocity profile will save as a ***.vss file**. It is recommended to save it in the same directory the seismic files are in and to name it referencing the particular CPT test name.

To put the velocity profile into the CPT plot simply click '**Add Data**' in the tool bar (**Figure 37**) and select velocity profile (**Figure 38**)

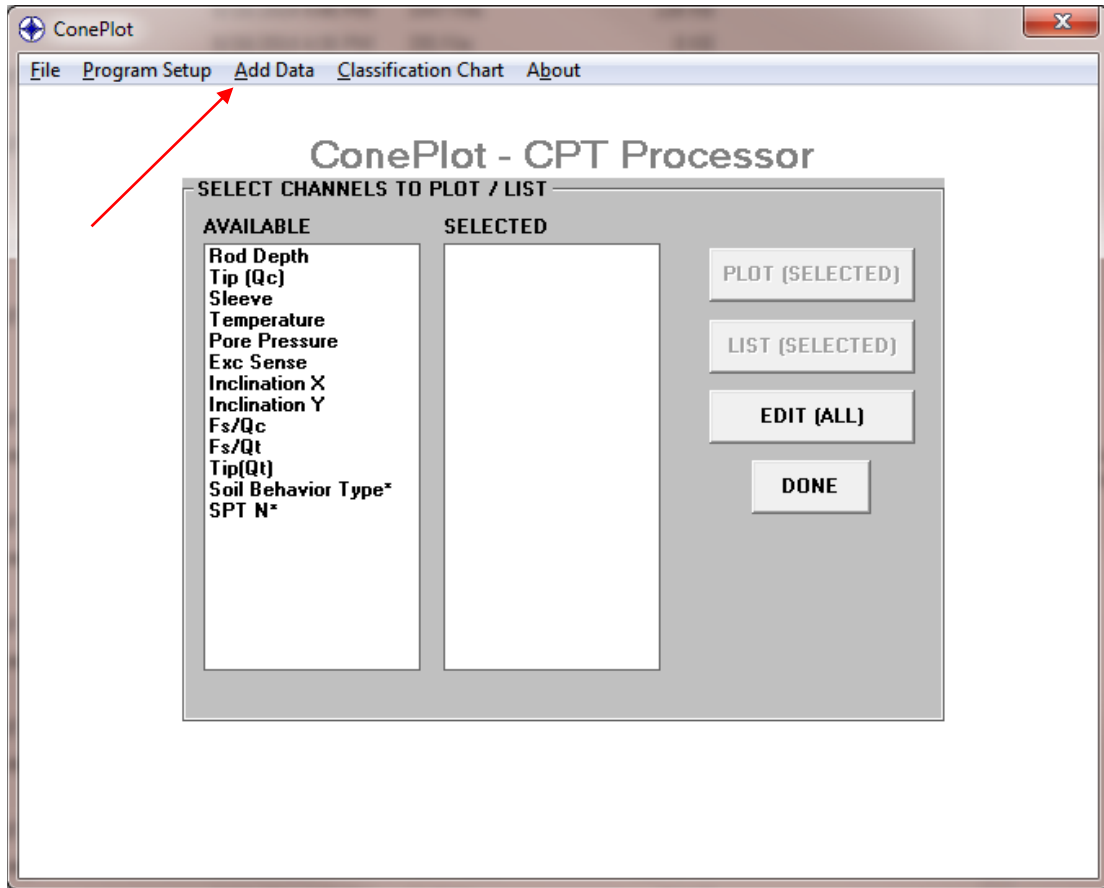


Figure 37 Add Data (Profile) to Plot

As seen below in **Figure 38** when named the same as the CPT test the profile is easy to find. Click on “Open” and the profile then becomes another option on the processing selection.

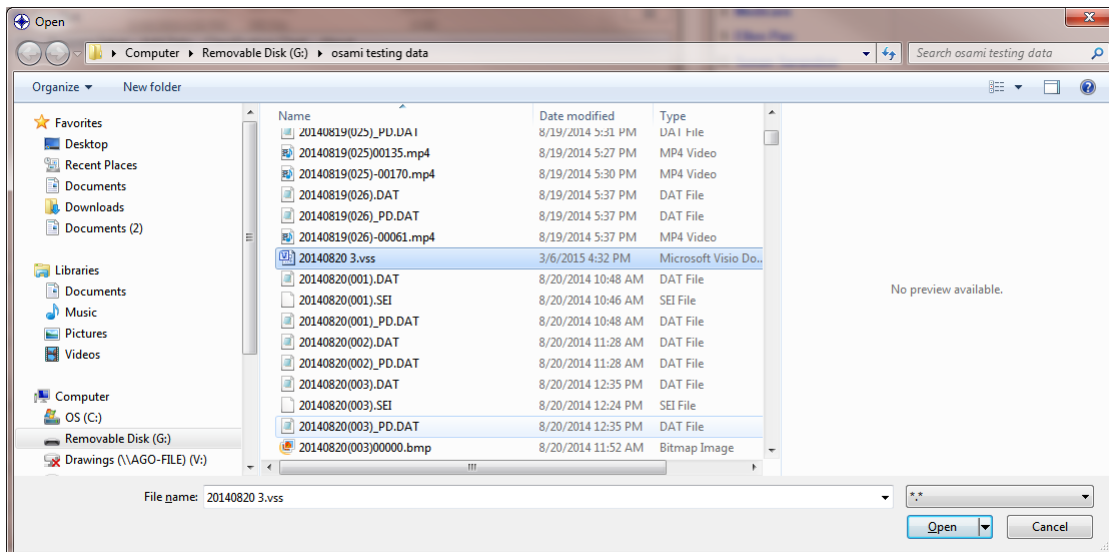


Figure 38 Choosing File to ADD

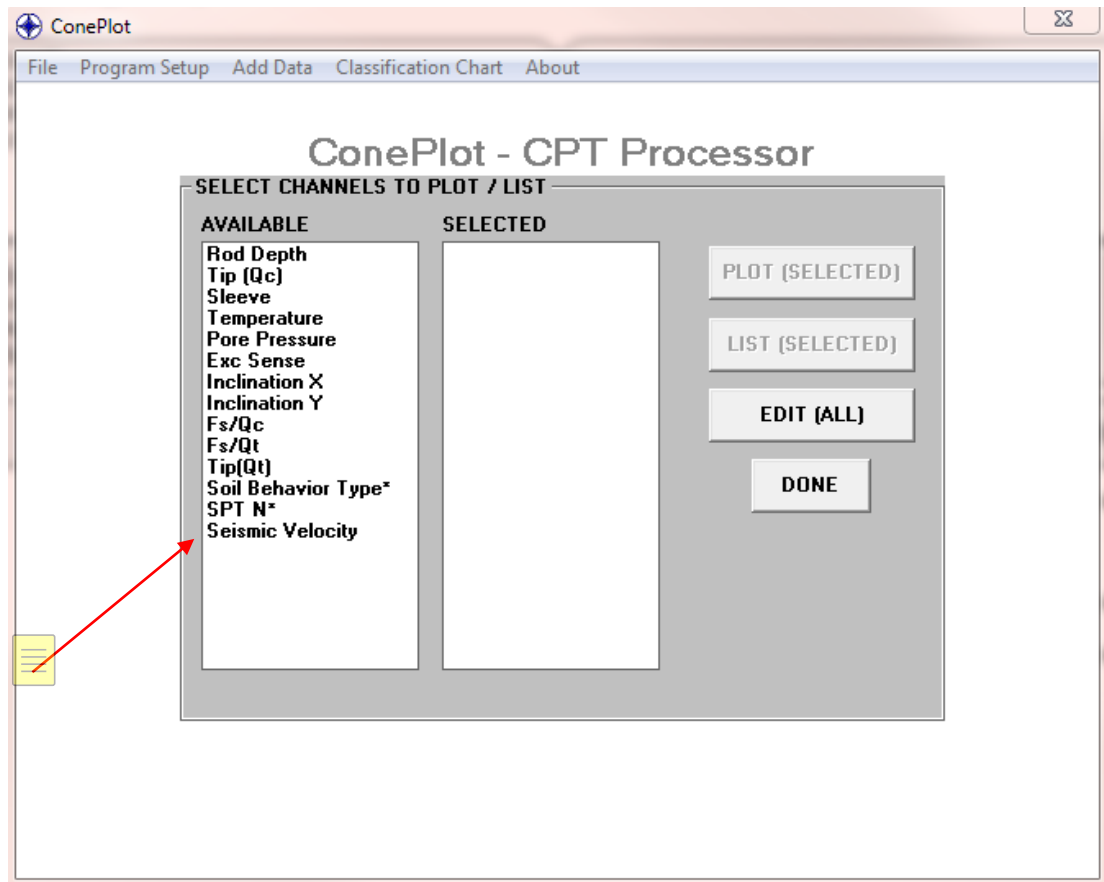


Figure 39 Data Added to Plot Choices

The processed **Seismic Velocity** can then be included and plotted on the standard CPT graph along with tip, sleeve, pore pressure etc. (Figure 40)

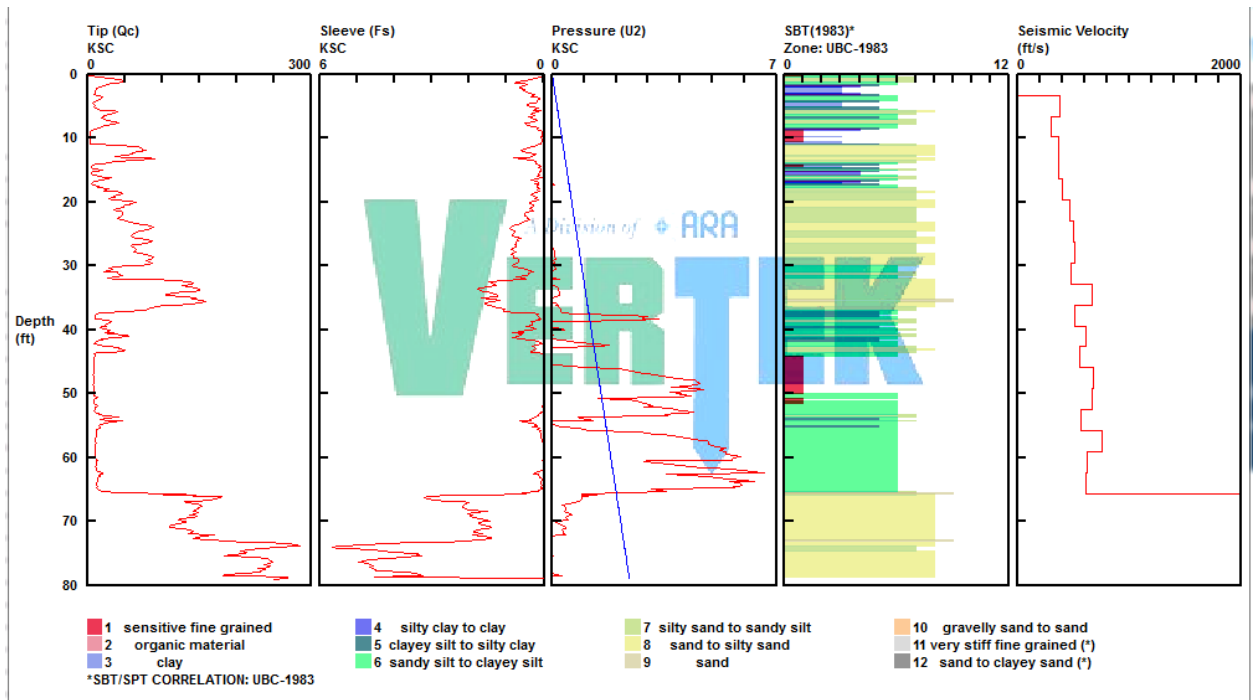


Figure 40 Sounding Plot with Seismic Velocity Added

Combining Seismic files can be done in CONELOT by selecting the appropriate **COMBINE** option (**Figure 41**) by clicking on **FILE** at the top left of the toolbar once the beginning file has been selected

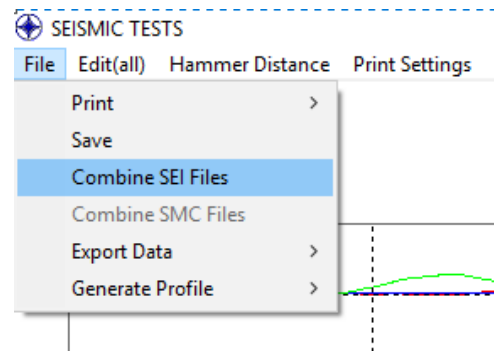


Figure 41 Seismic COMBINE file selection

This will bring up a warning/reminder:

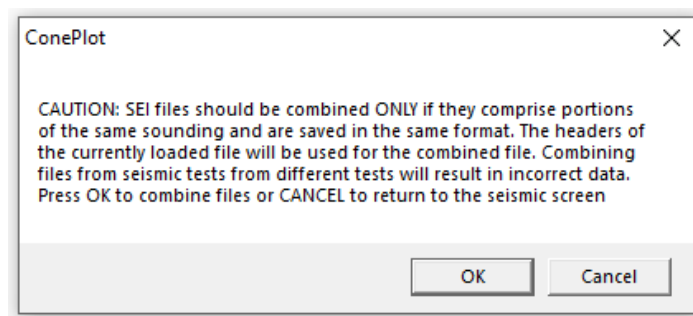
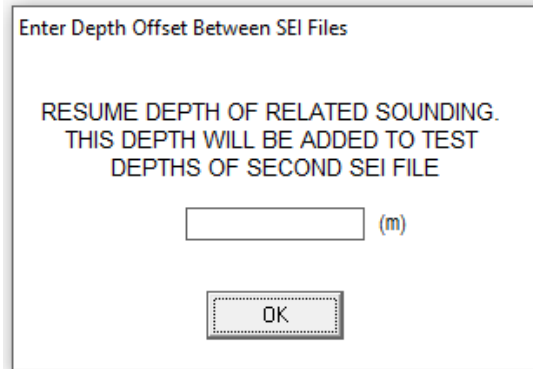


Figure 42 Seismic Combine Warning

After selecting OK you will be prompted to select the subsequent seismic test file to be combined with the original selection.



Enter Depth Offset Between SEI Files

RESUME DEPTH OF RELATED SOUNDING.
THIS DEPTH WILL BE ADDED TO TEST
DEPTHS OF SECOND SEI FILE

(m)

OK

Figure 43 Seismic Combine Depth Offset

A depth offset can be entered if a break between tests was due to drilling a hard layer and the CPT test was continued with a depth difference. If the test was just restarted at the same depth the previous one ended, enter zero “0” and select OK.

This will combine the tests which can then be processed as a normal seismic test.

Be sure to save this combined test with a new name so as to not lose the original data!

6. Verification Plots

Data obtained with the CPT SND verification program and independent load cells can be obtained here and printed for record keeping purposes as some clients have requirements for cone equipment verification documentation.

The following procedure enables the user to use CPT SND to verify your CPT equipment (Load Cell and Pressure Transducer equipment required).

Select Process Verification on the main screen and select the *.vrf file to be processed (**Note:** as with other files, these can be opened in notepad and exported as text).

Figure 44 shows the tip screen of the selected .vrf file (**note:** that the pore pressure tab is greyed out, this indicates that the pore pressure verification data was not saved in this example. There is no other processing in ConePlot for this, just the choice to print all or current page.

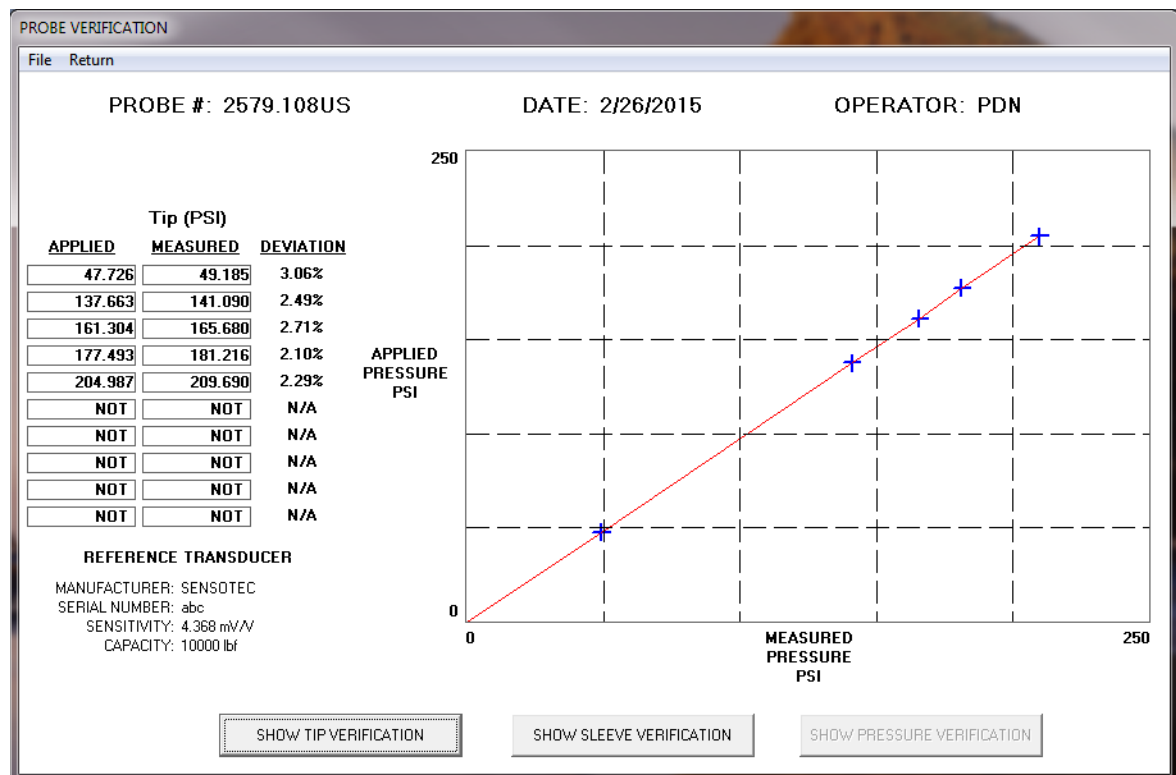


Figure 44 Verification Sample Plot

7. CPT Equations Used

Parameter	Description	Symbol / Equation	Reference
Depth	Depth of the centroid of the sensor		
Elevation	Elevation of centroid of the sensor	Ground Surface - Depth	
Sleeve Stress	Sleeve Stress – interpolated to the depth of the tip	f_s	
Tip Stress, Uncorrected	Measured Tip Stress	q_c	
Tip Stress, Corrected	Tip Stress, corrected for probe geometry	$q_t = q_c + u_2 \times (1 - a)$	
Friction Ratio	Friction Ratio	$R_f = \frac{f_s}{q_t} \times 100\%$	
Pore Pressure	Measured Pore Pressure	u_2	
Inclination X	Measured probe inclination in the X axis		
Inclination Y	Measured probe inclination in the Y axis		
Resistivity	Measured Soil Resistivity		
Soil Behavior Type	Soil Behavior Type Options <ul style="list-style-type: none"> • R_f Robert son 1986 • B_q Rober son 1986 • F_r Robert son 1990 • B_q Robert son 1990 	SBT	Lunne, Roberson and Powell, 1997, Figures 5.7 and 5.8
Classification Index		$I_c = \sqrt{(1.95 - \log_{10} Q_t)^2 + (\log_{10} F_r + 1.78)^2}$	Frank Syms, Bechtel Corporation

Overburden		$\sigma_{vo} = \sum_{i=1}^n \gamma_i \times h_i$	
Effective Overburden		$\sigma'_{vo} = \sigma_{vo} - u_o$	
Normalized Tip Stress		$Q_t = \frac{q_t - \sigma_{vo}}{\sigma'_{vo}}$	Lunne, Roberson and Powell, 1997, Equation 5.4
Parameter	Description	Symbol / Equation	Reference
Normalized Friction Ratio		$F_r = \frac{f_s}{q_t - \sigma_{vo}}$	Lunne, Roberson and Powell, 1997, Equation 5.5
Normalized Pore Pressure		$B_q = \frac{\Delta u}{q_t - \sigma_{vo}}$ where $\Delta u = u_2 - u_o$	Lunne, Roberson and Powell, 1997, Equation 5.6
Over Consolidation Ratio		$OCR = 0.33 \times \left(\frac{\Delta u}{\sigma'_{vo}} \right)^{1.42}$	InSitu '86, Mayne Equation 8, pg. 789
Undrained Shear Strength		$S_u = \frac{q_c - \sigma_{vo}}{N_k}$ where $N_k = 15$	Lunne, Roberson and Powell, 1997, Equation 5.16
Friction Angle		$\phi = \arctan \left[0.38 \times \log_{10} \left(\frac{q_c}{\sigma_{vo}} \right) + 0.1 \right] \times \frac{180}{\pi}$	Robertson and Campanella, 1988, pg. 94.

SPT Calculation

Reference(s):

Equation:

if (SBT = 1, 5 or 12)	SPTRAT = 2.00
if (SBT = 2, 3 or 11)	SPTRAT = 1.00
if (SBT = 4)	SPTRAT = 1.50
if (SBT = 6)	SPTRAT = 2.50
if (SBT = 7)	SPTRAT = 3.00
if (SBT = 8)	SPTRAT = 4.00
if (SBT = 9)	SPTRAT = 5.00
if (SBT = 10)	SPTRAT = 6.00

$$N_{60} = \frac{q_t}{SPTRAT}$$

$$N_{60}Cor = N_{60} \times \sqrt{\left(\frac{1.0}{\sigma_{ve}}\right)}$$

Where:

SBT	= Soil Behavior Type (Friction Ratio, Robertson 1986)
SPTRAT	= SPT Ratio (used in calculation)
Q _t	= Corrected Tip Stress (tsf)
σ _{ve}	= Overburden (tsf)

8. Processing Soundings in BATCH mode



Figure 45 ConePlot Home Screen

Selecting Batch Processing

Simply select on **PROCESS SOUNDING (BATCH)** shown in Figure 46

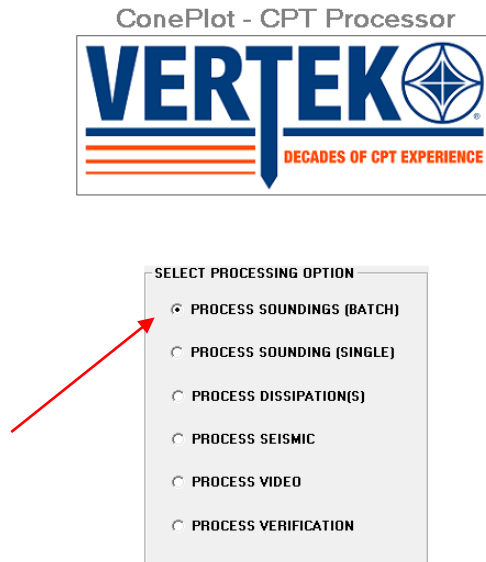


Figure 46 Selecting Batch Processing

This will bring up the following screen in Figure 47

Figure 47 Batch Configuration Screen

LOAD SOUNDINGS

Plot/List Templates

Return

LOADED TESTS

C-1.DAT	EDIT	<input checked="" type="checkbox"/> YES (1)
C-2.DAT	EDIT	<input checked="" type="checkbox"/> YES (2)
C-3.DAT	EDIT	<input checked="" type="checkbox"/> YES (3)
C-4.DAT	EDIT	<input checked="" type="checkbox"/> YES (4)
	EDIT	<input type="checkbox"/> YES (5)
	EDIT	<input type="checkbox"/> YES (6)
	EDIT	<input type="checkbox"/> YES (7)
	EDIT	<input type="checkbox"/> YES (8)
	EDIT	<input type="checkbox"/> YES (9)
	EDIT	<input type="checkbox"/> YES (10)
	EDIT	<input type="checkbox"/> YES (11)
	EDIT	<input type="checkbox"/> YES (12)
	EDIT	<input type="checkbox"/> YES (13)
	EDIT	<input type="checkbox"/> YES (14)
	EDIT	<input type="checkbox"/> YES (15)
	EDIT	<input type="checkbox"/> YES (16)
	EDIT	<input type="checkbox"/> YES (17)
	EDIT	<input type="checkbox"/> YES (18)
	EDIT	<input type="checkbox"/> YES (19)
	EDIT	<input type="checkbox"/> YES (20)
	EDIT	<input type="checkbox"/> YES (21)
	EDIT	<input type="checkbox"/> YES (22)
	EDIT	<input type="checkbox"/> YES (23)
	EDIT	<input type="checkbox"/> YES (24)
	EDIT	<input type="checkbox"/> YES (25)
	EDIT	<input type="checkbox"/> YES (26)
	EDIT	<input type="checkbox"/> YES (27)
	EDIT	<input type="checkbox"/> YES (28)
	EDIT	<input type="checkbox"/> YES (29)
	EDIT	<input type="checkbox"/> YES (30)

PIEZO FILTER PRESENT

☒ YES (1)
☒ YES (2)
☒ YES (3)
☒ YES (4)
☐ YES (5)
☐ YES (6)
☐ YES (7)
☐ YES (8)
☐ YES (9)
☐ YES (10)
☐ YES (11)
☐ YES (12)
☐ YES (13)
☐ YES (14)
☐ YES (15)
☐ YES (16)
☐ YES (17)
☐ YES (18)
☐ YES (19)
☐ YES (20)
☐ YES (21)
☐ YES (22)
☐ YES (23)
☐ YES (24)
☐ YES (25)
☐ YES (26)
☐ YES (27)
☐ YES (28)
☐ YES (29)
☐ YES (30)

AVAILABLE CHANNELS

Tip Resistance (Qc)
Tip Resistance (Qt)
Sleeve Friction
Pore Pressure U2
Exc Sense
Temperature
Inclination X
Inclination Y
Inclination Total
Rod Depth
Friction Ratio (Fs/Qc)
Friction Ratio (Fs/Qt)
Overburden
Elt. Overburden
Friction Angle
Shear Strength
Over Consolidation Ratio
SBT(1983)*
SBT(QT)(1990)*
SBT(Bq)(1990)*
SBT(U)
Head Pressure
Wet Density
SBT FR(1986)*
SBT PP(1986)*
Time

SELECTED CHANNELS

Tip Resistance (Qc)
Sleeve Friction
Pore Pressure U2
SBT(1983)*
SPT N*

PLOT (SELECTED)

LIST (SELECTED)

LIST (ECP)

BATCH EXPORT

DEPTH INTERVAL*

(mm)

*Depth interval must be specified for listing combined or side-by-side data.

*Depth interval is optional for listing batch data.

CLEAR ALL SELECTED

OUTPUT MODE

☒ BATCH - PLOT / LIST SELECTED CHANNELS FOR EACH LOADED TEST. SEPARATE PLOTS / LISTS FOR EACH LOADED TEST.
☐ COMBINED - PLOT / LIST SELECTED CHANNELS FROM EACH SELECTED TEST. SINGLE PLOT / LIST FOR ALL SELECTED TESTS.
☐ SIDE-BY-SIDE - PLOT / LIST 1 CHANNEL FROM UP TO 6 SELECTED TESTS. SINGLE PLOT / LIST FOR ALL SELECTED TESTS

SCALING MODE

☐ INDIVIDUAL SCALING (EACH SELECTED CHANNEL/TEST IS SCALED ACCORDING TO ITS INDIVIDUAL MAX/MIN VALUES)
☒ COMMON SCALING (CHANNELS/TESTS ARE SCALED TO THE GREATEST COMMON MAX/MIN FOR EACH CHANNEL TYPE)

SELECT / DESELECT ALL LOADED TESTS

☒ PIEZO FILTER PRESENT (ALL TESTS)

LOAD INDIVIDUAL TEST

LOAD MULTIPLE TESTS

CLEAR ALL

Directions for Batch PLOT Configuration Screen

- Page | 41

- d. BATCH EXPORT See Page 44
- e. DEPTH INTERVAL allows the list files to be shorter by selecting intervals for lines of data at greater increments than the data files
- 4. Bottom Right
 - a. OUTPUT MODE
 - i. BATCH – See Figure 49
 - ii. COMBINED – See Figure 9
 - iii. SIDE BY SIDE – See Figure 11
 - b. SCALING MODE – for plotting
 - i. INDIVIDUAL SCALING – Each test is scaled according to its individual results (same as normal processing in single mode)
 - ii. COMMON SCALING – All selected tests are plotted using the same scales (determined by the greatest values in the group of files selected. (Common scaling is very useful for visual comparisons))

Batch Graphic Format

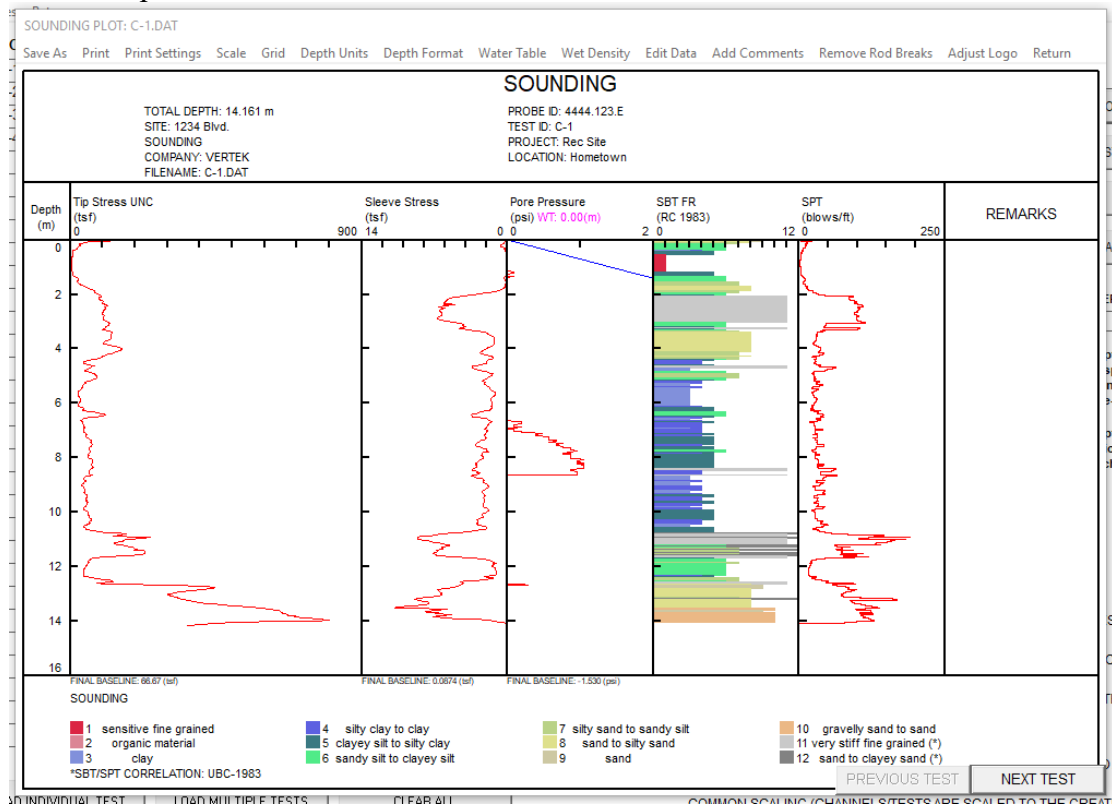


Figure 49 Graphic Batch Plots Output

Batch List Format

VERTeK

SOUNDING DATA: C-1.DAT

File Print Settings Edit Data Depth Units Depth Format Depth Interval Water Table Wet Density Remove Rod Breaks Column Width(s) Adjust Logo Return

SOUNDING

TOTAL DEPTH: 14.161 m
SITE: 1234 Blvd

Depth m	Tip Stress UNC (tsf)	Sleeve Stress (tsf)	Pore Pressure (psi)	Zone	Soil Behavior Type UBC-1983	SPT (blows/ft)
0.000	-0.10	0.0294	0.000	0	<out of range>	0
0.020	11.53	0.0913	0.000	6	sandy silt to clayey silt	4
0.042	121.43	0.0932	0.000	9	sand	23
0.063	61.25	0.2373	0.000	8	sand to silty sand	15
0.085	49.91	0.2950	0.000	8	sand to silty sand	12
0.102	45.26	0.3280	0.000	7	silty sand to sandy silt	14
0.122	34.31	0.3797	0.000	7	silty sand to sandy silt	11
0.143	29.85	0.4391	0.000	6	sandy silt to clayey silt	11
0.164	28.49	0.4956	0.000	6	sandy silt to clayey silt	11
0.189	31.49	0.5943	-0.191	6	sandy silt to clayey silt	12
0.202	31.88	0.6729	-0.669	6	sandy silt to clayey silt	12
0.227	29.85	0.6841	-2.390	6	sandy silt to clayey silt	11
0.257	25.68	0.6331	-2.773	6	sandy silt to clayey silt	10
0.267	23.55	0.5718	-2.677	5	clayey silt to silty clay	11
0.281	21.61	0.3279	-2.677	6	sandy silt to clayey silt	8
0.307	21.03	0.2684	-1.816	6	sandy silt to clayey silt	8
0.322	21.51	0.2926	-1.147	6	sandy silt to clayey silt	8
0.345	20.84	0.2711	-0.574	6	sandy silt to clayey silt	8
0.365	15.51	0.2444	-0.191	6	sandy silt to clayey silt	6
0.388	8.33	0.2443	0.000	4	silty clay to clay	5
0.400	8.24	0.2592	0.000	3	clay	8
0.428	8.82	0.2421	0.000	4	silty clay to clay	6
0.454	9.21	0.1318	-0.095	5	clayey silt to silty clay	4
0.468	9.40	0.0983	-0.191	5	clayey silt to silty clay	4
0.495	9.79	0.0840	-0.191	5	clayey silt to silty clay	5
0.508	9.30	0.0804	-0.191	5	clayey silt to silty clay	4
0.523	9.01	0.0767	-0.191	5	clayey silt to silty clay	4
0.551	8.04	0.0696	-0.095	1	sensitive fine grained	4

SHOW TXT DATA SHOW CSV DATA SHOW COR DATA PREVIOUS TEST NEXT TEST

Figure 50 Batch List Output Format

BATCH EXPORT

This function is the real time saver in the batch processing capability. This function allows up to 30 files to be exported in multiple formats and various units at the same time. It is also possible to release up to 30 plots to a printer at the same time. The options for this function are shown in **Figure 51**.

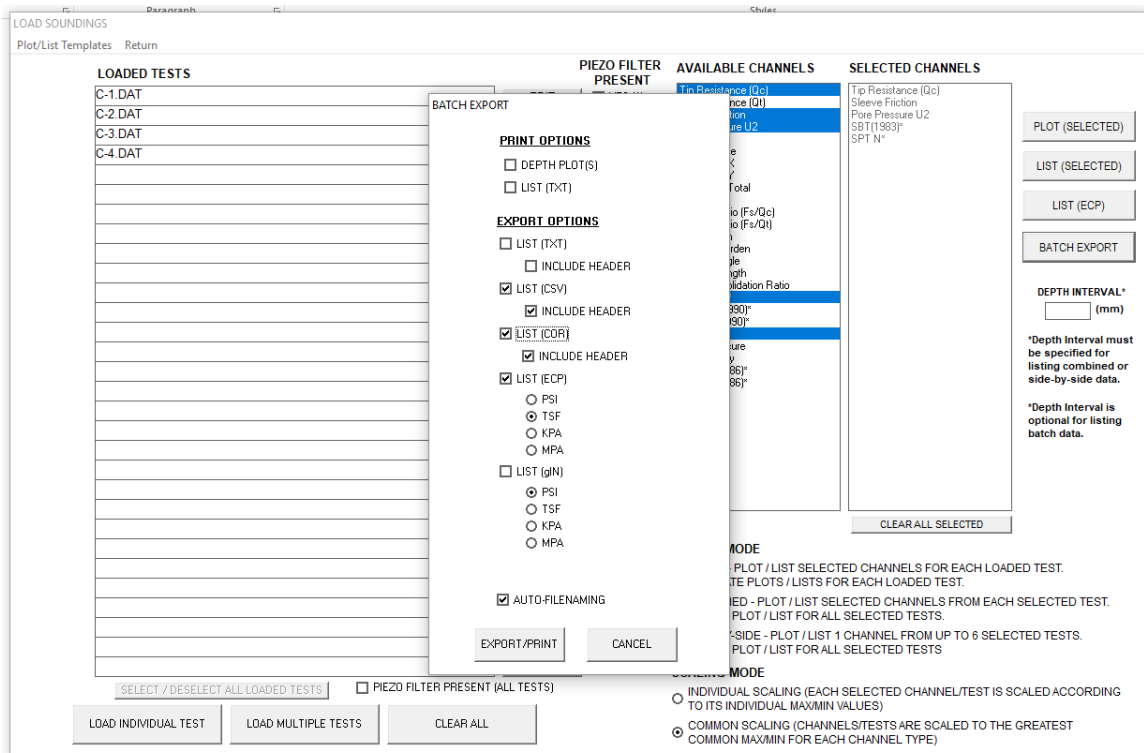


Figure 51 Batch Export Setup Screen

NOTE: The exported files will be placed in the same folder the CPT files originated from see **Figure 52**

With AUTO FILE NAMING checked the exports will have the same name as the original files (using the appropriate file extension)

1. PRINT OPTIONS

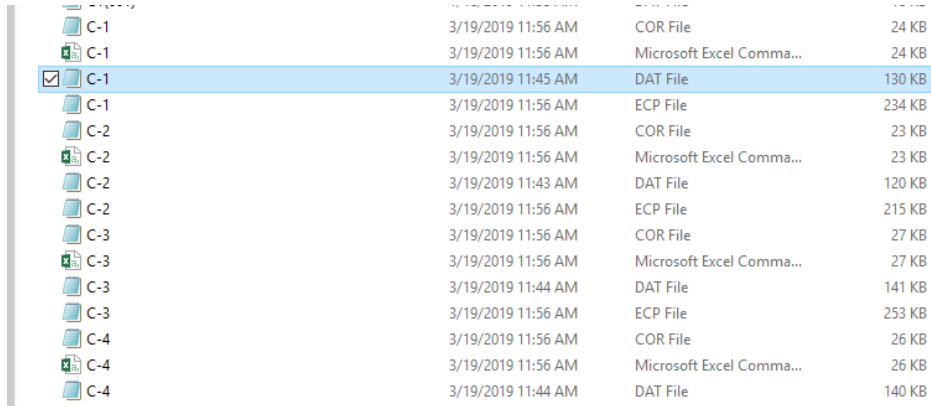
- a. DEPTH PLOTS – Select this and Auto File Naming to enable printing all of the plots created from the selected files by clicking EXPORT/PRINT
- b. LIST (TXT) - Select this and Auto File Naming to enable printing all of the lists created from the selected files by clicking EXPORT/PRINT

(note: AutoFileNaming should be checked for any of these functions to reduce operator involvement in approving printers or in naming each export)

2. EXPORT OPTIONS (note: for a,b,c the units are selected in CONELOT PROGRAM SETTINGS (channel units and formats)

- a. LIST (TXT) – Click this to create a text file for each selected test
 - i. Include Header – user choice- some clients do not want the header info
- b. LIST (CSV) – Click this to create a CSV file for each selected test
 - i. Include Header – user choice- some clients do not want the header info
- c. LIST (COR) – Click this to create a COR file (used for CPet-it) for each test
 - i. Include Header – user choice- some clients do not want the header info
- d. LIST (ECP) – Click this to create an ECP file for each selected test

- i. Select the units for this export here (only one selection accepted)
- e. LIST (gIN) – Click this create a gIN file (used by GINT)
 - i. Select the units for this export here (only one selection accepted)
- f. AUTO-FILENAMING – Check this to save a lot of keystrokes (see notes above)
- g. EXPORT / PRINT – Click on this and any or all of the above selections will be printed or exported. Note: this may take a few minutes depending on the size and number of files.



Channel	File Name	Date/Time	File Type	Size
C-1		3/19/2019 11:56 AM	COR File	24 KB
C-1		3/19/2019 11:56 AM	Microsoft Excel Comma...	24 KB
C-1		3/19/2019 11:45 AM	DAT File	130 KB
C-1		3/19/2019 11:56 AM	ECP File	234 KB
C-2		3/19/2019 11:56 AM	COR File	23 KB
C-2		3/19/2019 11:56 AM	Microsoft Excel Comma...	23 KB
C-2		3/19/2019 11:43 AM	DAT File	120 KB
C-2		3/19/2019 11:56 AM	ECP File	215 KB
C-3		3/19/2019 11:56 AM	COR File	27 KB
C-3		3/19/2019 11:56 AM	Microsoft Excel Comma...	27 KB
C-3		3/19/2019 11:44 AM	DAT File	141 KB
C-3		3/19/2019 11:56 AM	ECP File	253 KB
C-4		3/19/2019 11:56 AM	COR File	26 KB
C-4		3/19/2019 11:56 AM	Microsoft Excel Comma...	26 KB
C-4		3/19/2019 11:44 AM	DAT File	140 KB

Figure 52 Exported Files from Batch Processing

Combined Plots

Selecting Combined in the lower right side of the Batch Screen (**Figure 53**) will allow multiple tests to be plotted on the same graph (**Figure 54** for a sample plot). The selected channels will be plotted and common scaling is the default setting for this feature.

LOAD SOUNDINGS
Plot/List Templates Return

LOADED TESTS

SELECT 1 ☒ C-1.DAT
SELECT 2 ☒ C-2.DAT
SELECT 3 ☒ C-3.DAT
SELECT 4 ☒ C-4.DAT

PIEZO FILTER

PRESENT

EDIT ☒ YES (1)
EDIT ☒ YES (2)
EDIT ☒ YES (3)
EDIT ☒ YES (4)
EDIT ☐ YES (5)
EDIT ☐ YES (6)
EDIT ☐ YES (7)
EDIT ☐ YES (8)
EDIT ☐ YES (9)
EDIT ☐ YES (10)
EDIT ☐ YES (11)
EDIT ☐ YES (12)
EDIT ☐ YES (13)
EDIT ☐ YES (14)
EDIT ☐ YES (15)
EDIT ☐ YES (16)
EDIT ☐ YES (17)
EDIT ☐ YES (18)
EDIT ☐ YES (19)
EDIT ☐ YES (20)
EDIT ☐ YES (21)
EDIT ☐ YES (22)
EDIT ☐ YES (23)
EDIT ☐ YES (24)
EDIT ☐ YES (25)
EDIT ☐ YES (26)
EDIT ☐ YES (27)
EDIT ☐ YES (28)
EDIT ☐ YES (29)
EDIT ☐ YES (30)

AVAILABLE CHANNELS

Tip Resistance (Qc)
Tip Resistance (Qd)
Sleeve Friction
Pore Pressure (U2)
Ex. Sensor
Temperature
Inclination X
Inclination Y
Inclination Total
Rod Depth
Friction Ratio (Fv/Qc)
Friction Ratio (Fv/Qd)
Overburden
Elt. Overburden
Friction Angle
Shear Strength
Over Consolidation Ratio
SBT (1983)
SBT (1983) (1990)
SBT (Eq (1990))
SBT (Eq (1990))
Head Pressure
Wet Density
SBT PP (1983)
SBT PP (1983)
Time

SELECTED CHANNELS

Tip Resistance (Qc)
Sleeve Friction
Pore Pressure U2
SPT N*

OUTPUT MODE

☐ BATCH - PLOT / LIST SELECTED CHANNELS FOR EACH LOADED TEST.
SEPARATE PLOTS / LISTS FOR EACH LOADED TEST.
☒ COMBINED - PLOT / LIST SELECTED CHANNELS FROM EACH SELECTED TEST.
SINGLE PLOT / LIST FOR ALL SELECTED TESTS.
☐ SIDE-BY-SIDE - PLOT / LIST 1 CHANNEL FROM UP TO 6 SELECTED TESTS.
SINGLE PLOT / LIST FOR ALL SELECTED TESTS

SCALING MODE

☐ INDIVIDUAL SCALING (EACH SELECTED CHANNEL/TEST IS SCALED ACCORDING TO ITS INDIVIDUAL MAXIMUM VALUES)
☐ COMMON SCALING (CHANNELS/TESTS ARE SCALED TO THE GREATEST COMMON MAXIMUM FOR EACH CHANNEL TYPE)

DEPTH INTERVAL*

(mm)

*Depth Interval must be specified for listing combined or side-by-side data.
*Depth Interval is optional for listing batch data.

SELECT / Deselect ALL LOADED TESTS ☐ **PIEZO FILTER PRESENT (ALL TESTS)**

LOAD INDIVIDUAL TEST **LOAD MULTIPLE TESTS** **CLEAR ALL**

Figure 53 Batch Screen with COMBINED selected

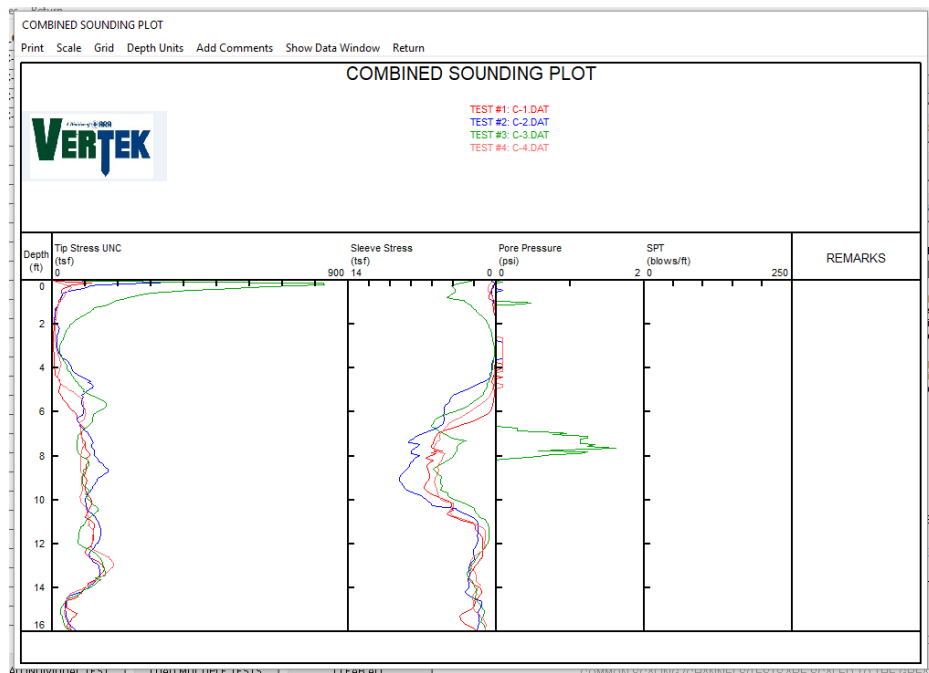


Figure 54 Sample Combined Plot

Overlay of Multiple Soundings or Side by Side Plots

To plot side by side comparison plots for a given channel select SIDE BY SIDE and select the files to be included. The default scaling for this option is common. Click on plot (or list to create a file of the readings- like any other list)

LOAD SOUNDINGS
Plot/List Templates Return

LOADED TESTS		PIEZO FILTER		AVAILABLE CHANNELS	SELECTED CHANNELS
SELECT 1	<input checked="" type="checkbox"/> C-1.DAT	EDIT	<input checked="" type="checkbox"/> YES (1)	<input checked="" type="checkbox"/> Tip Resistance (Qc)	Tip Resistance (Qc)
SELECT 2	<input checked="" type="checkbox"/> C-2.DAT	EDIT	<input checked="" type="checkbox"/> YES (2)	<input type="checkbox"/> Tip Resistance (Qd)	
SELECT 3	<input checked="" type="checkbox"/> C-3.DAT	EDIT	<input checked="" type="checkbox"/> YES (3)	<input type="checkbox"/> Sleeve Friction	
SELECT 4	<input checked="" type="checkbox"/> C-4.DAT	EDIT	<input checked="" type="checkbox"/> YES (4)	<input type="checkbox"/> Pore Pressure U2	
		EDIT	<input type="checkbox"/> YES (5)	<input type="checkbox"/> Exc. Sense	
		EDIT	<input type="checkbox"/> YES (6)	<input type="checkbox"/> Temperature	
		EDIT	<input type="checkbox"/> YES (7)	<input type="checkbox"/> Inclination X	
		EDIT	<input type="checkbox"/> YES (8)	<input type="checkbox"/> Inclination Y	
		EDIT	<input type="checkbox"/> YES (9)	<input type="checkbox"/> Inclination Total	
		EDIT	<input type="checkbox"/> YES (10)	<input type="checkbox"/> Rod Depth	
		EDIT	<input type="checkbox"/> YES (11)	<input type="checkbox"/> Friction Ratio (Fu/Qc)	
		EDIT	<input type="checkbox"/> YES (12)	<input type="checkbox"/> Friction Ratio (Fu/Qd)	
		EDIT	<input type="checkbox"/> YES (13)	<input type="checkbox"/> Overburden	
		EDIT	<input type="checkbox"/> YES (14)	<input type="checkbox"/> EIT. Overburden	
		EDIT	<input type="checkbox"/> YES (15)	<input type="checkbox"/> Friction Angle	
		EDIT	<input type="checkbox"/> YES (16)	<input type="checkbox"/> Shear Strength	
		EDIT	<input type="checkbox"/> YES (17)	<input type="checkbox"/> Over Consolidation Ratio	
		EDIT	<input type="checkbox"/> YES (18)	<input type="checkbox"/> SBT(1983)*	
		EDIT	<input type="checkbox"/> YES (19)	<input type="checkbox"/> SBT(1983)* (1983)*	
		EDIT	<input type="checkbox"/> YES (20)	<input type="checkbox"/> SBT(1983)* (1983)*	
		EDIT	<input type="checkbox"/> YES (21)	<input type="checkbox"/> SPT N*	
		EDIT	<input type="checkbox"/> YES (22)	<input type="checkbox"/> Head Pressure	
		EDIT	<input type="checkbox"/> YES (23)	<input type="checkbox"/> Wet Density	
		EDIT	<input type="checkbox"/> YES (24)	<input type="checkbox"/> SBT FR(1986)*	
		EDIT	<input type="checkbox"/> YES (25)	<input type="checkbox"/> SBT FR(1986)*	
		EDIT	<input type="checkbox"/> YES (26)	<input type="checkbox"/> Time	
		EDIT	<input type="checkbox"/> YES (27)		
		EDIT	<input type="checkbox"/> YES (28)		
		EDIT	<input type="checkbox"/> YES (29)		
		EDIT	<input type="checkbox"/> YES (30)		
		EDIT	<input type="checkbox"/> YES (31)		
		EDIT	<input type="checkbox"/> YES (32)		
		EDIT	<input type="checkbox"/> YES (33)		
		EDIT	<input type="checkbox"/> YES (34)		
		EDIT	<input type="checkbox"/> YES (35)		
		EDIT	<input type="checkbox"/> YES (36)		
		EDIT	<input type="checkbox"/> YES (37)		
		EDIT	<input type="checkbox"/> YES (38)		
		EDIT	<input type="checkbox"/> YES (39)		
		EDIT	<input type="checkbox"/> YES (40)		
		EDIT	<input type="checkbox"/> YES (41)		
		EDIT	<input type="checkbox"/> YES (42)		
		EDIT	<input type="checkbox"/> YES (43)		
		EDIT	<input type="checkbox"/> YES (44)		
		EDIT	<input type="checkbox"/> YES (45)		
		EDIT	<input type="checkbox"/> YES (46)		
		EDIT	<input type="checkbox"/> YES (47)		
		EDIT	<input type="checkbox"/> YES (48)		
		EDIT	<input type="checkbox"/> YES (49)		
		EDIT	<input type="checkbox"/> YES (50)		
		EDIT	<input type="checkbox"/> YES (51)		
		EDIT	<input type="checkbox"/> YES (52)		
		EDIT	<input type="checkbox"/> YES (53)		
		EDIT	<input type="checkbox"/> YES (54)		
		EDIT	<input type="checkbox"/> YES (55)		
		EDIT	<input type="checkbox"/> YES (56)		
		EDIT	<input type="checkbox"/> YES (57)		
		EDIT	<input type="checkbox"/> YES (58)		
		EDIT	<input type="checkbox"/> YES (59)		
		EDIT	<input type="checkbox"/> YES (60)		
		EDIT	<input type="checkbox"/> YES (61)		
		EDIT	<input type="checkbox"/> YES (62)		
		EDIT	<input type="checkbox"/> YES (63)		
		EDIT	<input type="checkbox"/> YES (64)		
		EDIT	<input type="checkbox"/> YES (65)		
		EDIT	<input type="checkbox"/> YES (66)		
		EDIT	<input type="checkbox"/> YES (67)		
		EDIT	<input type="checkbox"/> YES (68)		
		EDIT	<input type="checkbox"/> YES (69)		
		EDIT	<input type="checkbox"/> YES (70)		
		EDIT	<input type="checkbox"/> YES (71)		
		EDIT	<input type="checkbox"/> YES (72)		
		EDIT	<input type="checkbox"/> YES (73)		
		EDIT	<input type="checkbox"/> YES (74)		
		EDIT	<input type="checkbox"/> YES (75)		
		EDIT	<input type="checkbox"/> YES (76)		
		EDIT	<input type="checkbox"/> YES (77)		
		EDIT	<input type="checkbox"/> YES (78)		
		EDIT	<input type="checkbox"/> YES (79)		
		EDIT	<input type="checkbox"/> YES (80)		
		EDIT	<input type="checkbox"/> YES (81)		
		EDIT	<input type="checkbox"/> YES (82)		
		EDIT	<input type="checkbox"/> YES (83)		
		EDIT	<input type="checkbox"/> YES (84)		
		EDIT	<input type="checkbox"/> YES (85)		
		EDIT	<input type="checkbox"/> YES (86)		
		EDIT	<input type="checkbox"/> YES (87)		
		EDIT	<input type="checkbox"/> YES (88)		
		EDIT	<input type="checkbox"/> YES (89)		
		EDIT	<input type="checkbox"/> YES (90)		
		EDIT	<input type="checkbox"/> YES (91)		
		EDIT	<input type="checkbox"/> YES (92)		
		EDIT	<input type="checkbox"/> YES (93)		
		EDIT	<input type="checkbox"/> YES (94)		
		EDIT	<input type="checkbox"/> YES (95)		
		EDIT	<input type="checkbox"/> YES (96)		
		EDIT	<input type="checkbox"/> YES (97)		
		EDIT	<input type="checkbox"/> YES (98)		
		EDIT	<input type="checkbox"/> YES (99)		
		EDIT	<input type="checkbox"/> YES (100)		

SELECT / DISELECT ALL LOADED TESTS ☐ PIEZO FILTER PRESENT (ALL TESTS)

LOAD INDIVIDUAL TEST LOAD MULTIPLE TESTS CLEAR ALL

OUTPUT MODE
☐ BATCH - PLOT / LIST SELECTED CHANNELS FOR EACH LOADED TEST. SEPARATE PLOTS / LISTS FOR EACH LOADED TEST.
☐ COMBINED - PLOT / LIST SELECTED CHANNELS FROM EACH SELECTED TEST. SINGLE PLOT / LIST FOR ALL SELECTED TESTS.
☐ SIDE-BY-SIDE - PLOT / LIST 1 CHANNEL FROM UP TO 6 SELECTED TESTS.
☒ SINGLE PLOT / LIST FOR ALL SELECTED TESTS

SCALING MODE
☐ INDIVIDUAL SCALING (EACH SELECTED CHANNEL/TEST IS SCALED ACCORDING TO ITS INDIVIDUAL MAX/MIN VALUES)
☐ COMMON SCALING (CHANNELS/TESTS ARE SCALED TO THE GREATEST COMMON MAX/MIN FOR EACH CHANNEL TYPE)

DEPTH INTERVAL* (mm)

 *Depth Interval must be specified for listing combined or side-by-side data.
 *Depth Interval is optional for listing batch data.

PLOT (SELECTED)
 LIST (SELECTED)
 LIST (ECP)
 BATCH EXPORT
 CLEAR ALL SELECTED

Figure 55 Side by Side Selection

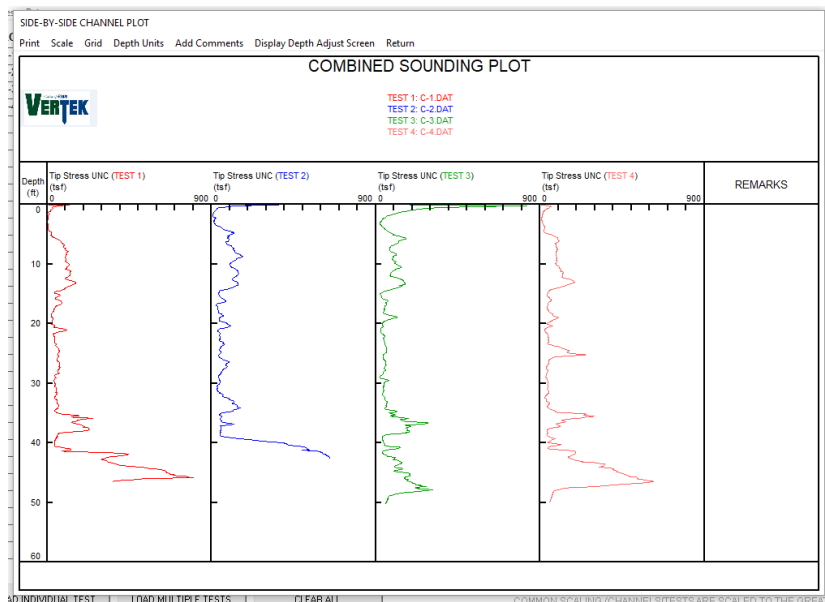


Figure 56 Side by Side Sample Plot