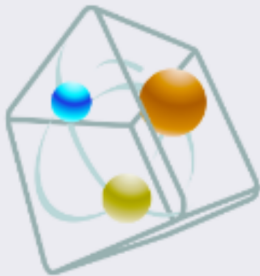


Works 2013



Open Trapezoid Section

© 2012 TechnoLogismiki

WHITEPAPER

www.technologismiki.com

 **TECHNOlogismiki**

Advanced Technical Software

5 Imitou str, 15561, Cholargos, Athens, Greece
tel: ++30 210 65 64 147 - fax: ++30 210 65 48 461
www.technologismiki.com - info@technologismiki.com

Table of Contents

Chapter I About the whitepaper

1 Purpose.....	4
2 Software.....	4

Chapter II Steps

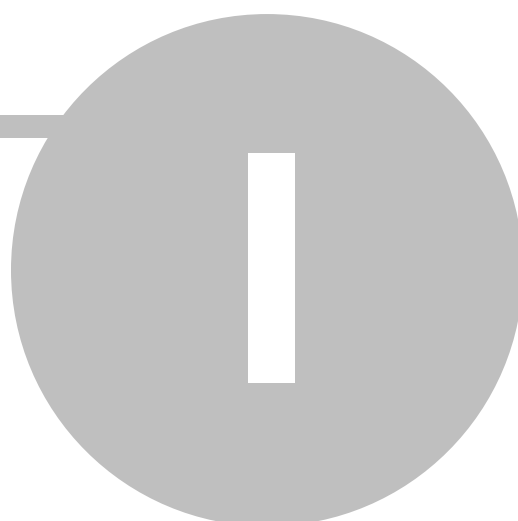
1 Step 01: New Project.....	6
2 Step 02: Add Solution.....	6
3 Step 03: Data input.....	7
4 Step 04: Calculations.....	8
5 Step 05: Printing.....	9

Chapter III Help

1 Technical support.....	11
--------------------------	----

Keyword Index	0
----------------------	----------

Chapter



1 About the whitepaper

1.1 Purpose

The purpose of this example is to solve an open trapezoid section for uniform flow depth. The section has the following properties:

Property	Value
Flow Rate	10 m ³ /s
Bottom Slope	0.013
Bottom Width	3.5 m
Side Slope (H:V)	1:1

The solution will include all geometric and hydraulic characteristics.

1.2 Software

In order to complete the example successfully, the following software is required:

- Hydraulic Solver v11.0.

Later versions of the aforementioned software may be incompatible with the structure of the example as it is presented herein.

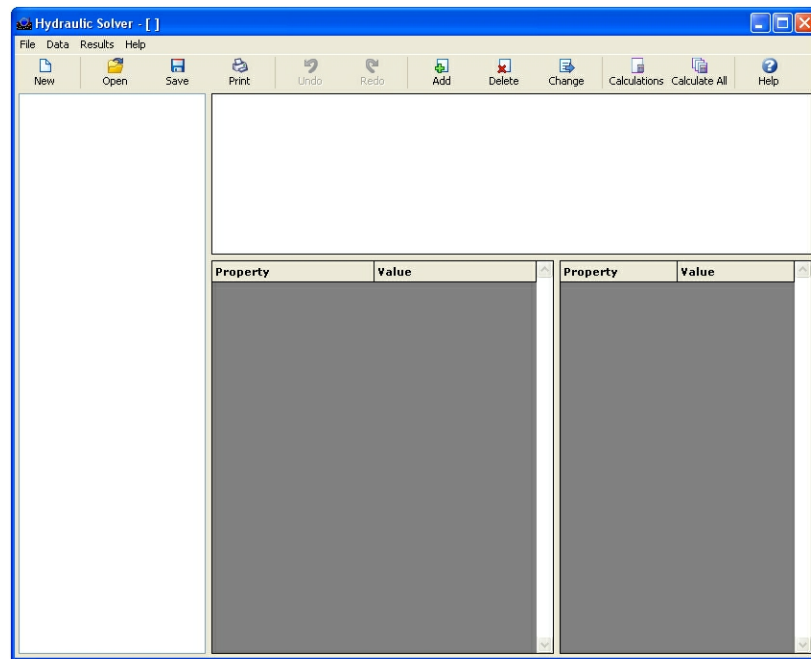
Chapter



2 Steps

2.1 Step 01: New Project

Select **New Project** from the **File** menu. The program will remove any data from memory and prepare to start a new project:



2.2 Step 02: Add Solution

Select **Add Solution** from the **Data** menu. The following form appears:

The screenshot shows the 'Edit solution...' dialog box. It has a title bar with a close button. The dialog contains two sections: 'General' and 'Calculations'. In the 'General' section, there is a text field for 'Name' containing 'EXAMPLE' and a drop-down menu for 'Sections with free surface'. In the 'Calculations' section, there is a drop-down menu for 'Hydraulic calculations will take place'. At the bottom, there are 'Ok' and 'Cancel' buttons.

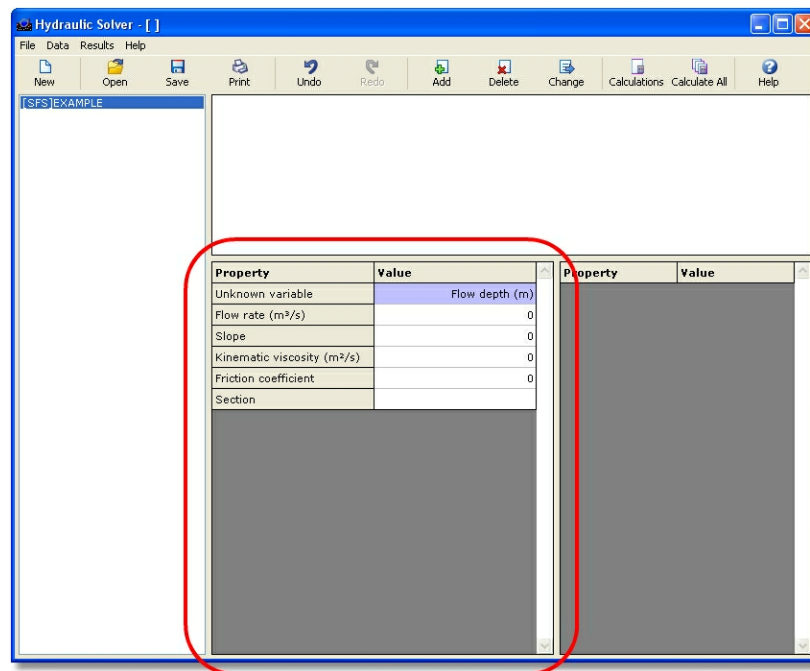
Enter the following data:

- **Name:** Enter "EXAMPLE".
- Select **Sections with free surface** from the drop-down list.
- Select **Hydraulic calculations will take place** from the drop down list.

Select **Ok**.

2.3 Step 03: Data input

Enter the data by typing directly into the left grid of the main form:

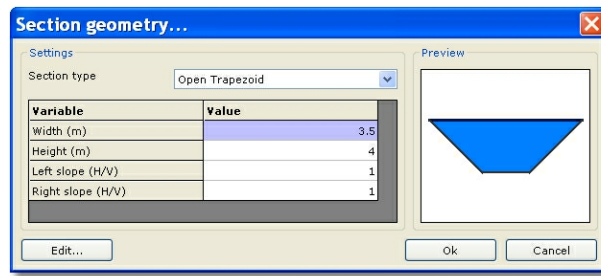


Enter the following data:

- **Unknown variable:** Select **Flow Depth (m)**.
- **Flow rate:** type "10" and hit ENTER. Note that the unit conversion button is displayed, with which you can enter the flow rate in another unit system.
- **Slope:** type "0.001" and hit ENTER.
- **Kinematic viscosity:** it is not required when Manning's friction formula is used; therefore, you can ignore this field.
- **Friction coefficient:** type "0.013" and hit ENTER. Alternatively, select the button with the ellipses (...) to invoke the corresponding database.
- **Section:** A button with ellipses (...) appears when you double-click into the cell:



Select this button to invoke the section type form:



Enter the following data:

- **Section type:** Select **Open Trapezoid** from the drop-down list.
- **Width (m):** type "3.5" and hit ENTER.
- **Height (m):** type a large value, for example "4" and hit ENTER.
- **Left slope (H/V):** type "1" and hit ENTER.
- **Right slope (H/V):** type "1" and hit ENTER.

The program will display a preview of the section when it is 100% full. Select **Ok**.

2.4 Step 04: Calculations

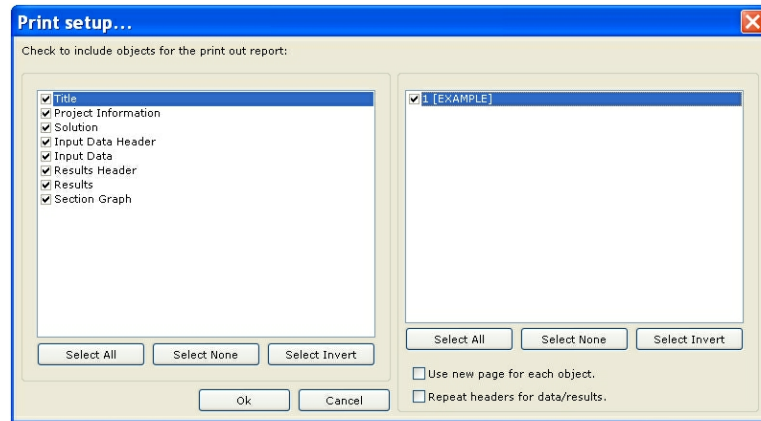
The calculations are performed automatically. The results are displayed in the right grid of the main form:

Property	Value
Unknown variable	Flow depth (m)
Flow rate (m³/s)	10
Slope	0.001
Kinematic viscosity (m²/s)	0
Friction coefficient	0.013
Section	R 3.500x4.000 1.000 1.000

Property	Value
Flow	
Flow depth (m)	1.082
Friction factor	0.0130
Flow velocity V (m/s)	2.02
Flow rate Q (m³/s)	10.000
Full flow	0.27
Critical depth (m)	0.863
Velocity head (m)	0.208
Specific energy (m)	1.289
Froude number	0.6887
Flow type	Subcritical
Geometry	
Height (m)	4.000
Total section area (m²)	30.0000
Total section perimeter (m)	26.314
Total hydraulic radius (m)	1.140
Total top width (m)	0.000
Wet area (m²)	4.9558
Wetted perimeter (m)	6.559
Hydraulic radius (m)	0.756
Top width (m)	5.663

2.5 Step 05: Printing

Optionally, you may want to print the results to a printer, to Microsoft Word or Microsoft Excel. From the **File** menu select **Print setup**:



Select the solution "EXAMPLE" from the list on the right and select **Ok**.

From the **File** menu select **Print** or **Print To > Word** or **Print To > Excel** to invoke the corresponding print engine.

Chapter



3 Help

3.1 Technical support

Technical Support

TechnoLogismiki offers technical support 24 hours per day, 365 days per year, through the Web site where you can get information on the latest programs and services.

Support by e-mail

Please use the dedicated e-mail addresses for better customer service:

- for questions regarding sales: sales@technologismiki.com
- for questions regarding the usage of programs: support@technologismiki.com
- for any other question or comment: info@technologismiki.com

The normal response time is within two business days. If your inquiry cannot be answered via e-mail, a customer service representative will contact you via telephone.

Interactive Support

Business days, 09:00 - 17:00 Eastern European Time:

- Telephone [3 lines]: ++30-210-656-4147
- FAX: ++30-210-654-8461
- Address: 5, Imitou str, Cholargos, 15561, Athens, Greece.