SiteWorx is designed to automate the calculation of cut and fill volumes using a digitizer tablet. SiteWorx provides you with increased speed and accuracy in comparison to manual grid or cross section methods. The site plan with contour lines, proposed areas and spot elevations is electronically entered into SiteWorx from the paper plans using a digitizing tablet. Once this information is entered, SiteWorx performs the calculations to arrive at cut and fill volumes and displays the information on-screen and on printed reports. Quantities can easily be exported to an Excel spreadsheet or Word document for additional analysis, pricing and presentation.

# **Minimum System Requirements:**

SiteWorx requires the following:

- $\checkmark$  Monitor with a screen area of 800 x 600 pixels or greater
- ✓ Digitizer tablet with Wintab driver loaded. A 16-button cursor for the digitizer is recommended over a pen stylus.✓ Pentium processor or later with at least 128MB of memory
- ✓ A color inkiet printer is recommended.

# **Installing SiteWorx Cut and Fill:**

Install SiteWorx to your Computer's Hard Drive via compact disc or by downloading the software from Vertigraph's home page at <u>www.vertigraph.com</u>. If installing from the compact disc, insert the disc into the drive and follow the instructions. If you are downloading the SiteWorx.exe file from the Internet, save the file onto your hard drive and using Windows Explorer to run the SiteEval.exe file to install.

### SiteWorx and the Digitizer Tablet's Wintab Driver

If using SiteWorx with a digitizer tablet, you'll need to correctly install the digitizer tablet with its appropriate Wintab driver. The Wintab driver is software that allows you to move the mouse pointer on screen using the digitizer-pointing device (16-button cursor or pen stylus). Things to consider when installing the Wintab driver:

- a) If a Wintab driver is already loaded, do not reinstall the Wintab driver.
- b) Each manufacturer of digitizer tablets has their own Wintab driver. Additionally, different Wintab drivers are required based on the version of Windows you are using. When installing, make sure you install the correct Wintab driver or please contact Vertigraph at 800-989-4243 or the digitizer manufacturer for help in correctly installing and configuring the Wintab driver.
- c) After installing, configure the digitizing pointing device to operate in relative (i.e. mouse) mode.

#### Setting up the Buttons on the 16 button cursor:

After installing the Wintab driver open SiteWorx and select **Options**|Digitizer Buttons to configure the buttons on the sixteen button cursor. You must set up the digitizer buttons before starting your first takeoff.

- a) The **Options**|**Digitizer Buttons** window has a Cursor Style and Buttons tab. The Cursor Style tab is where you select the type of digitizing pointing device and where the button names found at the Buttons tab come from. Selecting default for button names is recommended.
- b) After making the two selections at the Cursor Style tab, click on the Buttons tab to configure the digitizer buttons as recommended in the "Recommended Button Setup for SiteWorx Cut and Fill" sheet which can be located and printed by selecting the "SiteWorx Recommended Button Setup.pdf" file from C:\Program Files\Vertigraph\SiteWorx\Documents. Various sounds can be assigned to each button by selecting a sound from the drop down list box.

# Placing and Locating the Digitizer Template on the Digitizer

Digitizer template .pdf files can be located and printed by selecting the "SiteWorx Digitizer Template.pdf" file from C:\Program Files\Vertigraph\SiteWorx\Documents.

Afix the supplied digitizer templates as follows:

The vertical template should be taped to the right edge of the active area of the digitizer. The horizontal template should be attached to the bottom right edge. You can attach both templates to the digitizer but you can use only one at a time. After taping the digitizer templates to the active area of the digitizer, select **Options**|Locate Command Template to instruct SiteWorx which one of the two templates you are going to use.

The vertical template commands run up and down whereas the horizontal template runs from side to side.

- If using the horizontal template, configure the template by clicking on the 0 button on the 16-button cursor when the crosshair is located over the bottom left hand corner of the Stop Digitizing button. Next, press the 0 button again when the crosshair is on the top right hand corner of the minus sign button.
- If using the vertical template, configure the template by clicking on the 0 button on the 16 button cursor when the crosshair is located over the bottom left hand corner of the gray 0 button on the keypad. Next, press the 0 button on the 16-button cursor again when the crosshair is on the top right hand corner of the Delete Last Point button.

Prior to starting your first takeoff, make sure the following actions have been completed:

- 1) Digitizer with Wintab driver is correctly installed
- 2) Wintab driver is configured so that the digitizer pointing device operates in relative (i.e. mouse mode).
- 3) The digitizer buttons have been configured correctly in the SiteWorx program under the **Options**|**Digitizer Buttons** menu.
- 4) The command template has been correctly placed on the digitizer by selecting the **Options**|Locate Command Template menu option.
- 5) Select the grid color at **Options**|**Takeoff Grid Color**. The takeoff grid is found at Takeoff window and we recommend that use a light gray color for the grid.
- 6) Select the desired number of decimal places for elevations, depths and volumes at the **Options**|**Decimal Places** menu.
- 7) The 3d colors have been defined under the **Options**|**3D** Colors menu. Select colors that have a high contrast is recommended.
- 8) Defined the names of the user defined fields by selecting the **Options**|User Defined Fields menu.
- 9) The trace resolution is set at **Options**|**Trace Resolution**. When tracing contour lines, points are generated as lines are traced using the digitizer. The resolution is based on the number of points generated per inch. The higher the resolution, the more points created and as a result, increased accuracy.

Once the above options have been set, you are ready to start your first SiteWorx takeoff.

# **Your First Takeoff**

To complete your first takeoff perform the following:

- 1) Complete steps one through nine noted above.
- 2) Securely fasten the blueprint inside the active area of the digitizer.
- 3) Review the blueprint to identify drawing attributes. What is the scale? What is the highest and lowest elevation? Where are the project boundaries? Are there any excluded areas? Are there subgrade depths in the various paving and building slab areas? Is topsoil being stripped? Is topsoil being respread and at what thickness?
- 4) Using a pencil or pen, mark the three points on the blueprint that are going to be used to register the drawing. When marking the actual drawing with these three points, the points should be approximately ½ inch outside the actual project boundaries. The first point will be located in the upper left hand corner of the drawing, the second point will be in the bottom left hand corner of the blueprint and the third point shall be in the lower right hand corner. By digitizing these three points, a rectangle is developed that defines the active digitizing area. Additionally, if the drawing is moved on the digitizer tablet, you'll be able to re-register the drawing by digitizing these same three points.
- 5) Open the SiteWorx program and click on File|New to start a new project.
- 6) Identify a project name and complete any of the desired fields on the Overview tab.
- 7) Click on the Scale button to set the drawing scale. Scales can be selected from the architectural or engineering list by clicking on the down arrow. If a drawing is not to scale, click on the yellow ruler to digitize the scale.
- 8) Click on the Register button to digitize the three points on the drawing that were identified in step 4 above.
- 9) Enter the Max Elevation and the Min Elevation on the Overview tab. You will use these elevations to check for points, contour lines and areas that are out of range as you digitize.
- 10) Enter the Elevation Increment on the Overview window. If contour lines are increasing by a foot on the drawing, Elevation Increment should be set to 1. If the contour lines increase by 5 feet, the increment should be set to 5. When digitizing, you can press a button on the 16-button cursor or digitizer template to increase or decrease the elevation by this increment.
- 11) Click on the Takeoff tab to digitize the project boundary. If an included project boundary is not defined, then the area defined when the drawing was registered will be the project boundary. Normally, you'll digitize one

include project boundary and if regions within that project boundary need to be excluded, you will digitize an exclude project boundary inside the included project boundary.

- 12) After digitizing the Project Boundary, digitize the topsoil strip area and enter a depth in decimal feet. Excluded regions can be digitized inside include areas.
- 13) If topsoil is to be respread on the site, select Topsoil Respread and digitize the include area and enter the depth in decimal feet. Like the other defined regions (i.e. project boundary, topsoil strip and topsoil respread), excluded areas can be nested inside include areas.
- 14) Digitize the existing and proposed contour lines and point elevations. Elevations can be selected using the digitizer template, 16-button cursor or keyboard.
- 15) Digitize the proposed areas. There are two types of areas: (1) Surface and (2) Subgrade Only. Surface areas require an elevation and each corner of a surface area can have a different elevation. Subgrade depths along with subgrade material type are entered at the Layers tab. For Subgrade Only areas, elevations are not required. After digitizing a Subgrade Only area, click on the layers tab to enter Subgrade material depths.
- If certain elevations appear incorrect, click on the Checking menu to filter for elevations outside the minimum and maximum elevations entered at the Overview tab. You can change the minimum and maximum elevations at the Overview tab to broaden or narrow your search.
- 16) After all existing and proposed areas, contour lines and points are digitized in addition to the project boundary, topsoil strip and topsoil respread regions, click on the Calculations tab to enter the topsoil discard percentage along with topsoil strip swell and the swell factor for any topsoil imported to the site. Additionally, enter the site swell and import swell for the non-topsoil cut and fills quantities. After the swell factors are entered, click on the Calculate button to arrive at cut and fill volumes.
- 17) Display 3D existing and proposed site by clicking on the 3D tab. The 3d views can be rotated and zoomed by clicking on the Zoom bottom on the right side of the window.
- 18) View and print reports by making selections from the Report menu.

### **User Defined Fields:**

Click on **Options**|**User Defined Fields**|**Setup** to define the user defined field captions. After defining the field captions, information is entered into the user-defined fields at the SiteWorx Overview tab. A variety of data may be entered here. For example, you may want a field called Estimator's name so that the estimator can entered his or her name with the estimate. Once you have defined the user defined fields, click on **Options**|**User Defined Fields**|**Save As Default** so that each estimate you create will contain these field captions. The use field caption in title will print the field caption on all printed reports if this box is checked. Otherwise, if this is not checked only the data entered into the field will be printed and the caption only appears on the Overview window.

- Show Takeoff Toolbar: A checkmark next to this command indicates that the takeoff toolbar is displayed. We recommend that you always display the takeoff toolbar.
- Show Takeoff Properties: A checkmark next to this command indicates that the takeoff properties are displayed at the Takeoff window. We recommend that you always display the takeoff properties.
- Show Takeoff Grid: A checkmark next to this command indicates that the grid is displayed at the Takeoff window. We recommend that you always display the takeoff grid.
- Show Takeoff Elevations: A checkmark next to this command indicates that the elevations are displayed at the Takeoff window for points and contour lines.
- ✓ **Takeoff Grid Color:** Click on **Options**|**Takeoff Grid Color** to change the color of the grid found at the Takeoff window. A light gray color is the recommended default.
- ✓ Decimal Places: Click on Options|Decimal Places to set the number of decimal places for elevations, depths of subgrade, topsoil strip and topsoil respread areas. You'll also instruct SiteWorx in how many decimal places are displayed for volumes.
- ✓ 3D Colors: Click on Options|3D Colors to select the colors to display on the elevation scale. When selecting the three colors, use colors that show a high contrast.
- ✓ Save Takeoff Properties: Click on Options|Save Takeoff Properties to save the default line styles for the various objects. Once you make changes to these properties at the Takeoff window, clicking here will save the changes and apply the changes to future projects.
- ✓ Confirm Deletions: If Options|Confirm Deletions is checked, SiteWorx will prompt you before deleting an entire object (such as a contour line, point, area or region) and for each digitized point.
- ✓ Trace Resolution: Trace resolution sets the number of points generated per inch when lines are traced. The higher the resolution the more points generated, the greater the accuracy and the larger the file size.

- ✓ Soil Factors: Options|Soil Factors lets you change the soil factors at the Calculations tab and then save the new factors as the default for future jobs.
- ✓ Stake Heights Before Topsoil Strip: If Options|Stake Heights Before Topsoil Strip is checked then the stake heights at the Grid Data tab will show stake heights before the topsoil strip depth. Alternatively, if this option is not checked, then the stake heights at the Grid Data tab will be at the depth after the topsoil has been stripped from the site.

# Takeoff

After registering the drawing at the overview window, you'll be able to make takeoff selections from the Takeoff menu when you are clicked on the takeoff tab. You're also able to make the same selections from the tools found on the Takeoff window, from the digitizer template and/or from the buttons on the 16-button cursor.

The items that can be taken off include:

- 1) Project Boundaries
- 2) Topsoil Strip regions
- 3) Topsoil Respread regions
- 4) Contour lines
- 5) Point elevations
- 6) Area elevations

Items 1 through 3 above are considered regions and can be defined as an Included or Excluded region. Items 4 through 6 above are for existing or proposed elevations. As a result, when digitizing regions (i.e. boundary, topsoil strip or topsoil respread) you'll need to specify the region as either an included or excluded region. Normally, excluded regions will be nested inside an included region. When digitizing contour lines, points and areas you'll need to specify if the item is proposed or existing along with the item's elevation.

# Checking

When at the Takeoff window, you're able to search for items outside the minimum and maximum elevations recorded on the Overview window. In order to use the Checking menu, the Display must be set to Takeoff rather than both. Takeoff will be either existing or proposed depending on the setting under the Takeoff caption. To find all items with an elevation above the maximum elevation noted on the Overview window click on Checking Above Maximum. Likewise, to find all items with an elevation below the minimum elevation noted on the Overview window click on Checking|Below Minimum. Checking|Points in Area shows you all existing or proposed points found inside an existing or proposed area. Points in Area checking works like this:

- You must have the Display set to "Takeoff"
  Select Area Elevation
  Select Existing or Proposed.

- ✓ Select the Area using the square select mouse pointer
- ✓ Change the takeoff to Point Elevation
- ✓ Click on the Checking|Points in Area menu command.

Please note that you can change the minimum and maximum elevation settings at the Overview window to broaden or narrow your search for items.

# **Reports**

After the project has been calculated at the Calculation window, a variety of reports are available.

- Area: The Area report lists all the areas with its perimeter and area measurement. If subgrades are attached to the area, a list of the subgrade volumes for each area is also presented.
- **Material Volumes:** The Area Volumes Report summarizes the subgrade materials for the entire project.
- ✓ Cut/Fill: The cut and fill report shows cut and fill volume by grid along with the cut and fill depth at each of the four corners of every grid. The cut and fill volumes for the entire project are also displayed. The grid size is specified at the Calculations window.
- **3D:** The 3D report prints the proposed or existing site in 3D when you are clicked on the 3D window.
- Takeoff: The Takeoff report shows you plan view of the site of the various items you have taken off. You can  $\checkmark$ select which items to display on this report.
  - Font: Selecting the Reports|Font command enables you to change the font on the printed report.
  - ٠ **Export:** SiteWorx calculates a variety of information that can be easily exported into MS Excel, Word and other file formats by selecting the Export|Cut/Fill menu option.

- **Cut/Fill:** After a project has been calculated at the Calculations tab, information can be exported into Word, Excel and other file formats. Several tabs are found on this dialog:
- **Export Type:** Export Type is used to select the file format and name the file.
- **Fields:** Fields is a listing of the available fields that can be exported. To select a field, move the field from the available field box to the exported field box.
- Formats: Formats lets you specify number and date formats.
- Header & Footer: Header and Footer enable you to put desired text at either the top or the bottom of the report.
- **Captions:** Captions enable you to change the column captions or headings for the exported fields.
- **Options:** Depending on the file type selected, additional formatting options may be found here.

#### **SiteWorx Tabs**

#### I. Overview

The Overview tab must be completed prior to selecting any other tab. At the Overview tab you'll enter the project name and complete any of the other user- defined fields. User-defined fields can be setup at the **Options**|User Defined Fields menu.

Other items that must be defined at the Overview window include:

#### a) Scale:

Select a scale from the drop down list box. If you click on the yellow ruler at the scale dialog box, you can digitize the beginning and ending points of a line with a known distance, enter the distance between the points and have SiteWorx calculate the scale.

# b) Register :

Using a pencil or pen, mark the three points on the blueprint that are going to be used to register the drawing. When marking the actual drawing with these three points, the points should be approximately  $\frac{1}{2}$  inch outside the actual project boundaries. The first point will be located in the upper left hand corner of the drawing, the second point will be in the bottom left hand corner of the blueprint and the third point shall be in the lower right hand corner.

Click on the Register button and digitize using the digitizer pointing device the three points that you marked on the drawing above. By digitizing these three points, a rectangle is developed that defines the active digitizing area. Additionally, if the drawing is moved on the digitizer tablet, you'll be able to reregister the drawing by digitizing these same three points.

### c) Max Elevation:

Review the plan and enter in the maximum elevation here. When checking the takeoff at the takeoff window, information entered here will be used to filter out desired points, lines or areas.

#### d) Min Elevation:

Review the plan and enter in the minimum elevation here. Again, when checking the takeoff at the takeoff window, information entered here will be used to filter out desired points, lines or areas.

### e) Elevation Increment:

When increase or decreasing elevations using the digitizer template or buttons on the 16-button cursor, the elevation will increase or decrease based on this specified increment.

# II. Takeoff

Takeoff is where you'll digitize information into SiteWorx.

#### Items to Takeoff

- 1) Project Boundary
- 2) Topsoil Strip
- 3) Topsoil Respread
- 4) Contour line
- 5) Point Elevation
- 6) Area Elevation

Items 1 through 3 above are considered regions and can be defined as an Included or Excluded region. Items 4 through 6 above are for existing or proposed elevations. As a result, when digitizing regions (i.e. boundary, topsoil strip or topsoil respread) you'll need to specify the region as either an included or excluded region. Normally, excluded regions will be nested inside an included region. When digitizing contour lines, points and areas you'll need to specify if the item is proposed or existing along with the item's elevation.

Selections can be made using the digitizer template, 16 button cursor or by using the mouse at the Takeoff window.

If digitizing existing and proposed points, lines and areas you'll set the elevation by clicking the set elevation button, enter the elevation and then click the enter key before digitizing. Again the basic process for digitizing items with elevations:

- (a) Select item type (i.e. contour line, point or area)
- (b) Change to existing or proposed if needed.
- (c) Click on Set elevation button on 16 button cursor or template.
- (d) Enter elevation
- (e) Click on Enter button before digitizing using the 16 button cursor or template
- (f) Begin digitizing the item

To change the elevation for the next item, click on either the Increase elevation, Decrease elevation or Set elevation button on either the 16-button cursor or digitizer template followed by the Enter button. The Increase and Decrease Elevation buttons will increase or decrease by the elevation increment entered at the Overview window.

### **Area Measurements**

When digitizing areas, you must select one of the three types of areas:

- Surface Surface areas require an elevation. Layers (i.e. subgrades) can also be applied to proposed and existing surface areas. The corner elevations are used in calculating cut and fill volumes.
- Subgrade Only are used to measure areas that have a subgrade depth. Elevations are not required and the layer depths adjust the proposed elevations for the contour line and points contained within the subgrade area.
- > Other is used to measure areas. Proposed and existing elevations are not affected by other areas.

# Zoom and Pan Commands

You can zoom in, zoom out, pan, zoom to selection and resize the grid to fit into the window using the tools found on the right hand side of the window.

# **Display Option**

The display option will either include the takeoff items (i.e. either included or excluded for regions and either existing or proposed for contour lines, points and areas) or both. If Both are selected, existing and proposed will both be shown for elevation items. If Both is selected for regions (i.e. topsoil and project boundaries), included and excluded will be shown.

# **Start Digitizing Tool**

If the digitizer-pointing device is acting like a mouse, click on the Start Digitizing tool on the top right hand side of the window before digitizing or operating the digitizer template. The Start Digitizing tool looks like a lightning bolt.

# Select Object to View and Edit

If you desire to view or edit the properties for any items displayed, click on the Takeoff option under Display and then click on the Select Object tool (it looks like a pointed finger) and the mouse pointer will change to a selection box. Please note that you can also call the select command from the 16-button cursor and digitizer template. After clicking the Select command, move the selection box over an item and the item's color will change if it is selected. Please note that if a line only has two points, place the selection box at the beginning or end of the line to select. It is best to place the selection box over a change in direction for the item you are trying to select in order to have it selected. If you desire to view the properties for a selected item it is not required that you click on the object. By placing the square mouse pointer over the object, the properties for the item will be displayed on the right side of the screen. If you want to edit the properties on the right hand side, click on the object to edit.

# **Properties Information on the Right Side**

Various attributes pertaining to a selected object is shown on the right hand side of the screen. After pressing the Select button, moving the mouse pointer over an object will change the properties accordingly. To edit an object, click on it with the square selection box, make the changes and then click the green check mark to accept the changes. If you seek to delete an item, click on the item after pressing the Select button and then click the delete object button.

For items that are measured as an area (i.e. project boundaries, topsoil strip and topsoil respread and area elevation) the properties dialog will contain a corners tab that contains X, Y coordinates. For area elevations each corner will

also show an elevation. If you want to see the elevation of a particular corner, click on the corners tab and click the Select command and move the square mouse pointer over the corner and the corner noted on the corner tab will change accordingly.

### Other Items to Note at the Takeoff Window

All projects should contain a Project Boundary.

Topsoil strip and topsoil respread areas require a depth. You can have multiple topsoil strip regions with different depths. Ditto for respread.

Area elevations can contain subgrades, which are identified by material type at the layers tab which is found on the right side of the window.

The elevations for contour lines and points can be displayed by checking the Options|Show Elevations command.

### Calculations

- At the Calculations window please note the following:
- Whenever you open a project file, you'll need to recalculate the project. The calculated results are not saved with the file but are regenerated each time the Calculate button is clicked.
- Anytime changes are made at the Takeoff window, you'll need to calculate the project by clicking on the Calculate button.
- You'll need to calculate the project before any reports can be viewed or printed.
- Grid spacing displayed at the Takeoff window is changed here. Cut and fill totals are displayed on the right side of this window and results by each grid are shown at the Reports|Cut/Fill report.
- The Equate Outside Bounds check box sets the proposed elevations to the existing elevation immediately outside the include project boundaries and inside any excluded project boundaries.
- A topsoil discard percentage can be entered here. For example, if 4" of topsoil is stripped and the top 1 inch is deemed to be roots that is to be discarded enter 25% as the discard percentage.
- Enter the Site swell and Import swell factors for the topsoil and subsoil. Compression is the reciprocal of the swell factors. Site Swell pertains to dirt that is exported or spoiled. Import swell pertains to dirt that needs to imported to the site (i.e. borrowed).
- Project area by square feet and acres is disclosed on the right side of the window.
- Net Cut = Cut minus Topsoil Excess
- Net Fill = Fill minus Topsoil Required
- LCY represents the amount of loose dirt required to fill the site or the amount of loose dirt that needs to be hauled off.
- Site balancing discloses the amount in feet the proposed elevations need to be adjusted by in order to obtain a balanced site. A balance site has no import or export of dirt.

# **3D** View

After calculation the project at the Calculations tab, clicking on the 3D View tab displays the site in three dimensions. If Plan is selected, the display will not be in 3D but rather plan view. You can also select to view the existing or proposed site. The Display Outside Bounds check box displays the site outside the project boundaries. If Display outside Bounds is not checked only the information inside the included project boundaries is displayed. Zoom commands can be selected by clicking on the Zoom button on the right side of the window. Use your mouse to select the zoom option and then drag the mouse over the image to resize. The Z scale defaults to 1 but can be increased to show more contrast on elevation changes. Show mesh should normally be checked at the Zoom window. The reset button displays the image to the default setting. If Zoom and Rotate is selected, the left mouse button when it is held down rotates the drawing and the right mouse button when it is held down zooms the drawing.

# Grid Data

Grid data contains information used in building the reports. This information is read only and can not be changed at the Grid Data tab. If a stake does not have a cut or fill depth because it is outside an included boundary, O.B. (meaning out of bounds) will be shown.

# **Digitizer Template**

SiteWorx ships with a digitizer template that is placed on the digitizer tablet. Certain commands can be activated by clicking on the digitizer template. If you do not have a digitizer template, please contact Vertigraph.

After setting up the digitizer template at the Options menu, you can use the template to digitize items at the Takeoff window. Prior to using the template, you'll need to click on the Start Digitizing tool (it looks like a lightning bolt) on the Takeoff window.

If using the horizontal template, you'll normally work the template from left to right.

If digitizing regions change from include or exclude using the appropriate buttons and then select the type of region.

For existing and proposed elevations, change from existing or proposed using the buttons and then change the type of object (i.e. contour line, point elevation or area elevation). Next press the set elevation to enter a new elevation. Alternatively you can press the Increase Elevation or Decrease Elevation button to change by the increment noted on the Overview window. After the elevation is entered correctly, press the gray Enter button to accept the elevation. Now begin digitizing the appropriate item from the plans.

To stop digitizing or cancel, press the Stop Digitizing button. To select an item to view or edit its properties click on the Select button.

# Using the Sixteen Button Cursor

In combination with or in replace of the digitizer template, you can use the 16-button cursor to enter digitizer commands. After setting up the digitizer buttons under the Options menu, certain commands found on the template can be selected using the 16-button cursor. You may want to tape the recommended button setup piece of paper that is included with the users' guide to the digitizer tablet for reference.

When pressing the Set Elevation button on the 16-button cursor, the 16-button cursor changes so that numbers can be entered using the 16-button cursor.

Please note the following recommended button assignements which are defined at Options|Digitizer Buttons:

| <u>Button</u> | Action   |
|---------------|--|
| 0             | Point  |
| 1             | Toggle between existing and proposed or include and exclude            |
| 2             | New object - lets you stop a measurement and start a new one with      |
|               | the same elevation (useful for digitizing multiple contour lines with  |
|               | the same elevation)  |
| 3             | Stop digitizing and return to mouse mode                               |
| 4             | Select an object to edit (Cursor changes to a selection box)           |
| 7             | Popup menu allows you to change objects                                |
| 8             | Delete last point  |
| С             | Increase elevation by increment noted at the Overview tab              |
| D             | Decrease elevation by the increment noted at the Overview tab          |
| F             | Set Elevation (once pressed, elevations can be entered via the cursor) |

As you enter existing and proposed contour lines, points and areas clicking on the Set Elevation button (i.e. Button F), allows you to enter elevations using the 16 button cursor. Click the F button as a result changes how the buttons operate. Once the F button is pressed to set an elevation, the 16 button cursor buttons change to allow input of elevations. Please note the following button assignments once the set elevation button (i.e. F) is pressed:

| Button(s) | <u>Action</u>  |
|-----------|--|
| 0-9       | The 0-9 buttons represent the numbers shown on the buttons |
| Α         | Toggles between positive and negative                      |
| В         | Backspace  |
| С         | Restore Orginal Value                                      |
| D         | Decimal Point  |
| Е         | End  |
| F         | Finish entering elevations so that digitizing can begin    |