VERTIGRAPH, INC.
Construction Management Software

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I. Introduction

We Thank You

Vertigraph seeks to provide takeoff and estimating tools that increase your profits and effectiveness. In addition to **SiteWorx**, our other software solutions include:

- **BidScreen** - on-screen takeoffs in MS Excel
- **BidPoint** - digitize quantities into any Excel workbook
- **BidWorx** - WBS, database driven estimating

Vertigraph also supplies scanners, plotters and digitizing tablets. Needs assessment and management consulting are also provided.

Our guiding principles are:

- Quality, integrity and value are our highest concerns.
- Customers are the reason we exist.

System Requirements

SiteWorx requires the following:

- Monitor with a screen area of 800 x 600 pixels or greater.
- Digitizer tablet with Wintab driver loaded.
- Pentium processor or later with at least 128MB of memory.
- A color printer.

Installation Instructions

The installation instructions are provided below. If you have any questions, please contact Vertigraph at 800-989-4243, 214-340-9436 or via Email at info@vertigraph.com.

Install SiteWorx to your Computer's Hard Drive

Install the SiteWorx software to the computer's hard drive via compact disc or by downloading the software from Vertigraph's home page at www.vertigraph.com. If installing from the compact disc, insert the disc into the drive and follow the instructions. If downloading the siteeval.exe file from Vertigraph's home page, save this file to your hard drive and run the siteeval.exe file to install.

Install the Digitizer Tablet's Wintab Driver

SiteWorx requires a digitizer tablet. As a result, you'll need to plug in the digitizer tablet and install the 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). Please note the following when installing the Wintab driver:

- Please contact Vertigraph at 800-989-4243 or the digitizer manufacturer (GTCO's telephone number is 800-344-4723) for help in correctly installing and configuring the proper Wintab driver software.
- If the Wintab driver is already loaded, do not reinstall the Wintab driver. Please, uninstall the previous driver first.
- Each manufacturer of digitizer tablets has its own Wintab driver. Different Wintab drivers are also required depending on the version of Windows. As a result, make sure you install the correct Wintab driver.
- After installing, configure the digitizing pointing device to operate in relative or mouse mode.

Setup the Buttons on the cursor or pen stylus

After installing the Wintab driver software open SiteWorx and select **Options|Digitizer Buttons** to configure the buttons on the digitizer pointer.

You can use SiteWorx with a 16-button cursor or pen stylus digitizer-pointing device. When purchasing a digitizer you have a choice of pointer; we recommend the 16-button cursor. You must setup the digitizer buttons before starting your first takeoff and must have one button set to **Point**.

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. Here you'll also select where the button names found at the **Buttons** tab come from. Selecting **Default** for button names is easiest. After making the two selections at the **Cursor Style** tab, click on the **Buttons** tab to configure the digitizer buttons.

Please note that a sheet of paper with the recommended button assignments is included with the users' guide. Additionally, the sheet of paper is saved as a pdf file in the C:\Program Files\Vertigraph\SiteWorx\pdf Files folder as **SiteWorx Recommended Button Setup.pdf.** Tape this piece of paper to the digitizer for easy reference. Recommended button assignments for all digitizers except the Numonics models are displayed below:

Button	***Action***
0	**Point (this button is required)**
1	Change Existing to Proposed or from Include to Exclude and vice versa
2	New Object

3 **Stop Digitizing**

4 Select an Item

7 Popup Menu

8 Delete Last Point

C Increase Elevation by specified Increment

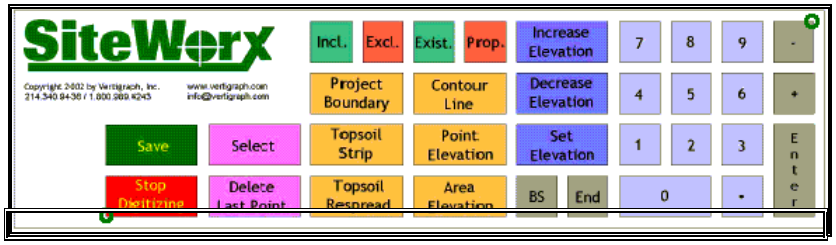
D Decrease Elevation by specified increment

F Set Elevation (after pressing this button, the buttons change to the actions noted on the enclosed Recommended Button Setup sheet)

If using a pen stylus, the tip button should be set to **Point** and the barrel button set to **Stop Digitizing**. If you have a three button pen stylus, the upper barrel button may be set to **Popup Menu**.

Various sounds can be assigned to each button by selecting a sound from the drop down list box. If **WAV File** is selected from the list, click on the three-dot lookup button to select a WAV file. Under the Windows or WinNT folder a subfolder called **MEDIA** is where you select from a collection of WAV files. After you open any WAV file, hear the sound by clicking on the **Test** button.

Locate the Command Template on the Digitizer



Digitizer command templates are supplied with the software and manual. You'll be able to operate SiteWorx using the digitizer pointer and the command template taped onto the digitizer. You can also print the template saved as a pdf file by clicking on the **SiteWorx Digitizer Template.pdf** file located at C:\Program Files\Vertigraph\SiteWorx\Pdf Files. The horizontal template is best when attached to the bottom right edge. The vertical template is often taped to the right edge of the active area of the digitizer. The template must be located inside the digitizer's active area.

After taping the digitizer template to the active area of the digitizer, select **Options|Command Template|Locate** to instruct SiteWorx which one of the two templates you are using. 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 Point button when the crosshair or pen stylus tip is located over the bottom left hand corner of the **Stop Digitizing** button. A small circle is found at the correct place on the template. Next, press the Point button again when the crosshair or pen tip is on the top right hand corner of the minus sign button.

If using the vertical template, configure the template in a similar manner.

Display Options

We recommend that you display the toolbar, properties, grid and elevations under the **Options** menu. If a checkmark is next to the command, the item is displayed. If not checked, the command is not displayed and should be clicked to display the item.

Configure Other SiteWorx Options

Several other options must be configured prior to starting your first takeoff. As a result, please review and/or complete the commands found under the **Options** menu.

For additional information see page 16

Technical Support

If you need assistance, contact Vertigraph by:

- Internet address www.vertigraph.com
- Telefax at (214) 340-9437
- E-Mail addressed to technical support at support@vertigraph.com
- Mail addressed to Vertigraph Technical Support, 12959 Jupiter Road, Suite 252 Dallas, TX 75238
- Telephone (214) 340-9436 between 8:30 a.m. and 5:30 p.m., Central Time.

For your reference, telephone numbers and web addresses of the major digitizer manufacturers are:

- GTCO/CalComp Corporation - 800-344-4723, www.gtcocalcomp.com
- Numonics Corporation - 800-247-4517, www.numonics.com

SiteWorx License Agreement

Vertigraph, Inc. Program License 12959 Jupiter Road, Suite 252 Dallas, TX 75238

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II. Getting Started

Overview

SiteWorx is designed to automate the calculation of cut and fill volumes using a digitizer tablet. The site plan's contour lines, proposed areas and spot elevations are electronically entered into SiteWorx from the paper plans using a digitizer tablet. Once this information is entered, SiteWorx calculates 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.

With SiteWorx you'll perform the following:

- Prior to starting your first takeoff please click on the Options menu to setup the SiteWorx application to your specifications.
- At the Overview tab, you'll enter project information, set the scale, register the drawing and record the maximum, minimum and elevation increment in feet or meters.
- Next, at the Takeoff tab you'll digitize project boundaries, topsoil strip areas, topsoil respread areas, contour lines, point elevations and areas. Any digitized area may contain subgrade materials. Any digitized item can be selected and its properties modified at any time.
- After items are digitized at the **Takeoff** tab, you'll click on the Calculations tab to calculate cut and fill volumes.
- After calculating, the **3D View** tab is where you'll see the site in 3D. You can see the **Existing** or **Proposed** site. The **Cut/Fill** view shows where dirt needs to be cut and filled.
- The **Grid Data** tab shows the cuts and fills per grid and it also shows the depth for staking out the site at the four corners of each grid. The grids are displayed at the **Takeoff** tab. The **Calculations** tab is where you specify the grid size. The Stake heights are after topsoil strip depth unless **Stake Heights Before Topsoil Strip** is checked under the **Options** menu.
- After calculating, a variety of reports can be generated using the Reports menu option and you're able to export the data to a variety of programs (Word, Excel and others) using the Export menu option.

Before Starting Your First Takeoff

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 and located on the digitizer by selecting the **Options|Command Template** menu option.
5. Select the grid color at **Options|Takeoff Grid Color**. The takeoff grid is found at the **Takeoff** tab and we suggest a light gray color for the grid.
6. The desired number of decimal places for elevations, depths and volumes have been defined 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. We often use red for maximum, white for middle and blue for minimum elevations.
8. The names of the user defined fields are created by selecting the **Options|User Defined Fields** menu.
9. The trace resolution is set at **Options|Trace Resolution**.
10. Under the Options menu, the following should be checked (i.e. turned on by clicking on the item): **Show Takeoff Toolbar**, **Show Takeoff Properties**, Show **Takeoff Grid**, **Show Takeoff Elevations**, **Confirm Deletions** and possibly **Stake Heights Before Topsoil Strip.**

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

For additional information see page 16

Your First Takeoff using the Practice Plan

Please use the included Practice Plan for your first takeoff.

A page entitled Practice Plan for SiteWorx is included with the SiteWorx Users' Guide. This practice plan can also be printed from the installed pdf file. The pdf file is entitled **SW_Practice.pdf** and is found at C:\Program Files\Vertigraph\SiteWorx\PDF Files.

If you download the SiteWorx application from Vertigraph's web page at www.vertigraph.com please review all of the pdf files found at C:\Program Files\Vertigraph\SiteWorx\PDF Files after installing. Here, the SiteWorx Practice Plan, command template and recommended button assignments are saved as pdf files.

All comments in this section will apply to the Practice Plan included herewith. Again, please print and use the included Practice Plan before digitizing any other project.

Please perform the following to correctly takeoff the SiteWorx Practice Plan:

1. Review *Before Starting Your First Takeoff*

For additional information see page 7

2. Tape the Practice Plan onto the digitizer

Tape or secure the plan inside the active area of the digitizer.

3. Review the blueprint

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. Mark the paper plan with three registration points

Use a pencil or pen to identify three points on the plan. The three points will define the relevant digitizing area (i.e. rectangle). When marking the actual drawing with these three points, the points should be approximately ½ inch outside the actual project boundary. The first point will be located in the upper left hand corner of the digitized area, the second point will be in the bottom left hand corner of the digitized area 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. You will not be able to digitize outside this registered rectangle. If the drawing is moved on the digitizer tablet, you'll be able to re-register the drawing by digitizing the same three points that you marked on the plan. The Practice Plan has the three points already defined as 1, 2 and 3.

5. Open SiteWorx

Open the SiteWorx program and click on **File|New** to start a new project.

6. Complete the Fields on the Overview Tab

Identify a project name and complete any of the user-defined fields on the **Overview** tab. The user defined fields are created at **Options|User Defined Fields**.

7. Set the Scale

Set the scale by clicking on the **Scale** button at the **Overview** tab. If **English** scale is chosen you're able to select architectural or engineering scales by clicking on the down arrow under the **Select** caption. If a drawing is not to scale, click on the yellow ruler to digitize the scale. If digitizing the scale, click at the beginning and end of a line using the point button of a 16 button cursor or use the tip of the pen stylus and then type in the length (in decimal feet or meters) of the line. The Practice Plan requires a 1:40 engineering scale. As a result, click on the **Scale** button and select **English**, **Engineering** and then click the drop down list box (i.e. the down arrow) to select **1:40**.

8. Register the Drawing

Click on the **Register** button using the mouse to digitize the three points on the drawing that were written onto the plan in step 4 above. The Practice Plan has the three points already marked at the corners as 1, 2 and 3. As a result, digitize points 1, 2 and 3,

9. Enter the Max Elevation, Min Elevation and Elevation Increment

Enter the **Max Elevation**, **Min Elevation** and **Elevation Inc** (increment) at the **Overview** tab. You can use the min and max elevations to check for digitized points, lines and areas that are above or below these elevations. **Elevation Inc**rement tells SiteWorx how the elevations are recorded on the plan. If contour lines are increasing by a foot on the drawing, **Elevation Inc**rement 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 cursor or digitizer template to increase or decrease the elevation by this increment. The Practice Plan should have an **Elevation Inc**rement set to 1.

10. Click on Takeoff Tab to Digitize

After entering the information at the **Overview** tab, click on the **Takeoff** tab to begin digitizing. Digitizing commands can be selected by clicking the digitizer cursor or pen stylus on the command template taped onto the digitizer. You can also make selections from the top of the **Takeoff** tab using the mouse/keyboard or by pressing the appropriate button on the 16-button cursor. To make it easier, we suggest you first begin digitizing by selecting the commands using the mouse at the top of the **Takeoff** tab or by using the command template taped onto the digitizer. After your product knowledge increases, you may want to gain speed by entering information using the cursor buttons.

11. Digitize the Project Boundary

The first item to takeoff is the Project Boundary. Using the mouse click on the **Takeoff** tab and select **Project Boundary** from the **Takeoff** drop down list box at the top of the window. To the right of the word Project Boundary a **Takeoff** option box is displayed. For any boundary the **Takeoff** is either **Include** or **Exclude**. An **Include** area means that all information inside the digitized area will be included in the calculations. Likewise if **Include** is selected, all areas outside the boundary are excluded from the cut and fill calculations. Please note that the project boundary will be the registered area, digitized at the **Overview** tab, if a project boundary is not digitized at the **Takeoff** tab.

Within an **Included** project boundary, certain areas can be **Excluded** from the cut and fill calculations. As a result, **Excluded** Takeoff areas can be set inside **Included** Takeoff areas. IMPORTANT: **Display** allows you to view both the included and excluded areas by selecting **Both** or just the areas you are taking off by selecting the **Takeoff** option. If **Takeoff** is selected under the Display option, click on **Include** or **Exclude** under the Takeoff section to view the desired area.

To begin digitizing click on the **Start Digitizing** tool button at the top of the **Takeoff** tab with your mouse. The Start Digitizing tools looks like a lightning bolt. To digitize the project boundary, click on any perimeter corner using the Point button on the digitizer pointing device (usually the top left button if using a 16-button cursor or

the pen tip if using a stylus pen) and then move to the next corner and again digitize a point. To digitize an area you'll usually click on the corners either clockwise or counter clockwise around the perimeter rather than tracing around the perimeter. Once complete, press the **Stop Digitizing** button on the command template or press the **Stop Digitizing** button on the digitizer pointer (the top right hand button on a 16-button cursor is often the **Stop Digitizing** button). By pressing the **Stop Digitizing** button, the area will be closed and the digitizer pointer will change from digitizer to mouse mode.

12. Copy the Boundary as a Topsoil Strip Area

After digitizing the project boundary you may copy the project boundary as a topsoil strip, topsoil respread or area by pressing the right mouse button when the mouse pointer is inside the project boundary. In the Practice Plan, lets assume that the entire project boundary will be stripped of 4" of topsoil.

To copy, press the right mouse button when the mouse pointer is within the grid and select **Copy as Topsoil Strip**. The Copy region dialog box appears whereby you'll enter line colors, styles, descriptive name along with the topsoil strip depth in decimal feet or meters. If you are stripping 3", depth must be entered as .25.

In the Practice Plan, we'll assume that the entire project boundary will be stripped of 4" of topsoil. As a result, after digitizing the project boundary, press the right mouse button when located in the grid and select **Copy as Topsoil Strip** and complete the Copy Region dialog with a depth of **.333**.

Topsoil strip areas can also be digitized like project boundaries by selecting the **Topsoil Strip** command.

13. Digitize Topsoil Respread Areas

If topsoil is respread on the site, select **Topsoil Respread** from the command template. Like the other defined regions (i.e. project boundary, topsoil strip and topsoil respread), excluded areas can be nested inside included areas. On the right side of the included Practice Plan a light gray area is displayed with the heading Top Soil Respread 6". After pressing the **Topsoil Respread** button on the command template, press the **Incl** (Include) button and then start digitizing the perimeter of the Topsoil Respread area. When completed press the **Stop Digitizing** button to close the area and return the digitizer pointer to mouse mode.

After pressing the **Stop Digitizing** button, use your mouse to record fill styles, colors, descriptive name and depth in decimal feet under the **Properties** tab on the right hand side of the window. For the Practice Plan, depth of the topsoil respread area is 6"; as a result, depth is entered as .5 of a foot.

IMPORTANT: After modifying any properties on the right hand side of the window, click on the green Save Changes check mark tool to record the changes.

14. Digitize Contour Lines

The next items to digitize are the existing and proposed contour lines. First we'll digitize the existing contour lines from the Practice Plan. The existing contours are shown as either green or light gray lines on the Practice Plan and the existing contour elevations are shown outside the project boundary.

First select the **Contour Line** button from the command template. Next, click on the **Exist** (short for Existing) button on the command template. Finally, click on the **Set**

Elevation button from the command template and using the digitizer pointing device enter the elevation 100 using the number pad on the command template. When done entering the 100 number make sure you click down on the **Enter** button on the command template to accept the elevation. The 100-foot existing elevation line is in the bottom right hand corner of the plan. Now trace the 100-foot existing elevation line into the computer using the Point button on the digitizer cursor or pen. When done with the 100-foot elevation line, press the **Increase Elevation** button on the template to increase the elevation by 1. Next trace the 101 elevation contour line. When done with 101, click on the **Increase Elevation** command template button and start digitizing the 102 line. When completed with 102, press the **Decrease Elevation** command to change the elevation to 101 and then start digitizing the 101 line. If you press the **Increase Elevation** or **Decrease Elevation** more then once, the elevations will change by the number of times the command is clicked with the digitizer. If the **Set Elevation** button is clicked, you must enter the elevation using the number pad and click the **Enter** command to accept the elevation. If the same elevation is found on more than one existing contour line, you'll stop the one line and start a new line by pressing the **Increase Elevation** and then the **Decrease Elevation** command or by pressing the **Set Elevation** and then the **Enter** command.

Digitize the existing and proposed contour lines shown on the Practice Plan.

15. Digitize Point Elevations

The point elevations found on the Practice Plan are proposed elevations. Using the 16-button cursor (0 button) or pen stylus tip, click the following commands from the template taped onto the digitizer:

- **Point Elevation**
- **Prop** for proposed
- **Set Elevation**
- **Enter the elevation from the number pad** (99 to start)
- **Enter**

Move the digitizer pointer over the bottom left side of the Practice Plan and click the two 99 point elevations using the cursor or pen stylus.

To digitize the 99.25 point elevations on the right side of the Practice Plan click the **Set Elevation** command from the command template and enter using the number pad from the template the 99.25 elevation. Again, always click on the **Enter** button prior to digitizing the 99.25 point elevation on the Practice Plan.

16. Digitize Areas

Digitize the two proposed areas. First will digitize the top of finished floor by pressing the following commands from the template:

- **Area Elevation**
- **Prop** for proposed
- **Set Elevation**
- **Enter the elevation from the number pad** (104)
- **Enter**

Click the digitizer pointer down using the Point button on any corner of the finished floor area. Next move (either clockwise or counter clockwise) to the next corner and press down again. Once you have digitized the four corners, click the **Stop Digitizing** command to close the area and return to mouse mode.

After digitizing you're able to change any of the properties on the right side of the window. Elevation changes are done at the **Corners** tab. Remember after making changes at the **Properties** tab click the green **Save Changes** check mark above the tabs to record the changes.

After digitizing the area, click on the **Layers** tab to enter the subgrade materials and depths. After clicking on the **Layers** tab, subgrade materials are added by clicking on the commands at the bottom of the screen. The plus command adds a new record. The check mark posts any changes made to the record. After digitizing the top of finished floor area from the Practice Plan, click on **Layers** tab to add the Sand material with a depth of .333 and the **Concrete** with a depth of .5. Remember press the check mark button to record the changes.

The second area is a parking lot. The proposed elevations have been entered as contour lines and point elevations previously. The proposed contour line elevations entered are at the top of the 8" asphalt material however. As a result, after digitizing the area, change the area type to **Subgrade Only** on the **Properties** tab and then press the green check mark to save the changes. Elevations are not required for Subgrade Only areas. The subgrade material depth recorded on the Layers tab however would reduce all proposed elevations, within the area. Next click on the **Layers** tab to enter the 8" (.667 of a foot) of asphalt using the commands at the bottom of the window.

In summary, areas types defined at the **Properties** tab are either:

- **Surface** which contain elevations. Top of finished floor is an example of a Surface area.
- **Subgrade Only** areas do not require elevations. Sloping Parking lots are examples of Subgrade Only areas. When calculating dirt volumes, any proposed point and line elevations contained within a Subgrade Only area will be adjusted for any subgrade material depths entered at the **Layers** tab.
- **Other** is for used to digitize areas for the sake of knowing the area. Other areas do not affect the cut and fill calculations.

17. Calculate

After all items are digitized, 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 fill quantities. After the swell factors are entered, click on the **Calculate** button to arrive at cut and fill volumes.

Please note the following regarding the **Calculations** window:

- The **Total Cut** volume shown on the right side of the **Calculations** tab is before removing the topsoil stripping volumes. The **Total Cut** volume is the total of the topsoil strip volume and the subsoil cut volume. The **Total Fill** is after topsoil respread volumes have been respread. As a result, **Total Fill** equals topsoil respread volume plus subsoil fill volume. **Subsoil Cut** volume is the volume to be cut after the topsoil volume has been stripped away. A negative subsoil cut volume implies fill is required. Subsoil fill is before topsoil is respread

onto the site. Like subsoil cut, a negative subsoil fill number implies a cut is required.

Total Cut = Topsoil Strip + Subsoil Cut

Total Fill = Topsoil Respread + Subsoil Fill

- Site balancing at the bottom of the sheet tells you how proposed elevations need to be adjusted in order to arrive at a balanced site. A balanced site is where borrow (i.e. import) is equivalent to spoil (i.e. export).
- LCY represents the volume of loose dirt required to fill the site or the amount of loose dirt that needs to be hauled off.
- **Grid Size** determines the size of the grid displayed at the **Takeoff** tab. Information at the **Grid Data** tab is calculated based on the grid size defined here. The detail of the view displayed at the **3D View** window is also affected by the grid size.
- Resolution is used to define the calculation resolution. The higher the resolution, the more calculations are preformed on the digitized input to arrive at the calculated results. The results may be more accurate at the expense of increased time to calculate.
- If the **Equate Outside Bounds** check box is checked, the existing and proposed elevations will be equal outside the project boundary. Otherwise, when the 3D view is displayed, the elevation outside the project boundary will equal the proposed elevations at the project boundary perimeter. This check box only affects the view displayed at the **3D View** window however.

18. Review the 3D View

Display 3D existing and proposed site by clicking on the **3D View** tab. The 3D views can be rotated and zoomed by clicking on the **Zoom** bottom on the right side of the window. When zooming into the image, click on the center of the image and drag and drop the mouse pointer to the project boundary. Dragging and dropping the mouse pointer performs all zoom actions.

If elevations look incorrect, go back to the **Takeoff** tab to edit the properties of any selected item. To select an object at the **Takeoff** tab, make sure **Display** is set to **Takeoff** and click on the **Select** command from the template or press the yellow finger tool on the toolbar to select an item. Once the command is pressed, the mouse pointer should display a box to select any point within an object. If the mouse pointer does not change to a selection box make sure none of the zoom or pan commands on the right side of the window are depressed.

19. Review Grid Data

After calculating the project at the **Calculations** tab, Cut and fill data per grid is displayed at the **Grid Data** tab. The cut and fill depths at each corner of the grid are also displayed. O.B. under the stake columns indicates that the corner is outside (i.e. out of bounds) the project boundary. The stake heights may be before or after topsoil stripping. If **Stake Heights before Topsoil Strip** is checked at the **Options** menu then the depths in the stake columns on the **Grid Data** page are before the topsoil has been stripped. If not checked under the **Options** menu, the values are after the stripping.

20. Print Reports

View and print reports by making selections from the Report menu when at the **Calculations** or **3D View** tab. Data can also be exported my selecting the **Export|Cut/Fill** menu command.

III. Menu Options

File

New

Select the **File|New** menu option to create a new project file.

Open

File|Open lets you select a previously saved SiteWorx project file. All SiteWorx project files have a .ved extension. Lists of recently used files are also displayed at the bottom of the File submenu.

Save

Selecting **File|Save** saves all changes to the file since the last time the file was saved. If a file has not been previously saved, the Save As dialog box opens so that a new file name for the project can be entered in the computer.

Save As

File|Save As allows you to rename the opened file. All SiteWorx files have a .ved extension. Only one SiteWorx project file can be opened at any time. The file name and path of the project file you are working with is displayed at the bottom right hand corner of the SiteWorx window.

Print Setup

File|Print Setup contains the typical interface for defining the printer and page layout.

Exit

Selecting **File|Exit** closes the SiteWorx program.

Options

The Options menu is where you make various user defined selections. Once the options are set, you'll rarely change these settings.

Digitizer Buttons

You must set up the digitizer buttons before starting your first takeoff. Once the digitizer buttons are configured you will not need to select this menu option again unless you want to make changes.

We recommend using SiteWorx with a 16-button cursor instead of a pen stylus. If using a pen stylus with SiteWorx, digitizing commands will need to be selected using either the digitizer template located on the digitizer or the mouse. With a 16-button cursor, digitizing commands can be selected from the buttons found on the 16-button cursor.

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. At the **Cursor Style** tab you can also select where the button names found at the **Buttons** tab come from. Selecting **Default** for button names is easiest. After making the two selections at the **Cursor Style** tab, click on the **Buttons** tab to configure the digitizer buttons.

A sheet of paper with the recommended button assignments is included with the users' guide. This document is also saved as a pdf file a C:\Program Files\Vertigraph\SiteWorx\pdf Files\SiteWorx Recommended Button Setup.pdf. This piece of paper can be taped to the digitizer for reference. Recommended button assignments are displayed below:

Button	***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
C	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)

Various sounds can be assigned to each button by selecting a sound from the drop down list box. If **WAV** File is selected from the list, a specific *.WAV file can be opened by clicking on the three dot lookup button. Under the windows or WinNT folder there is a Media subfolder that contains a variety of .WAV files. After selecting the sound or WAV file, listen to the sound by clicking on the **Test** button.

When digitizing items with a 16-buton cursor, clicking on the **Set Elevation** button (i.e. Button F) allows you to enter elevations using the 16-button cursor. As a result, clicking the F (Set Elevation) button 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)	***Action***
0-9	The 0-9 buttons represent the numbers shown on the buttons
A	Toggles between positive and negative
B	Backspace
C	Restore Original Value
D	Decimal Point
E	End
F	Finish entering elevations so that digitizing can begin

Command Template

Digitizer templates are supplied with the software and manual. The horizontal template should be attached to the bottom (normally right) edge. The vertical template should be taped to the right edge of the active area of the digitizer.

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 point button (0 button on the 16-button cursor or tip of the pen stylus) when the crosshair is located over the bottom left hand corner of the Stop Digitizing command. Next, press the 0 button again when the crosshair is on the top right hand corner of the minus sign command.

If using the vertical template, configure the template in a similar manner.

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 new project file you create will contain these field captions.

The "**use field caption in title**" selection 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.

Possible user defined fields may include:

- Project Name
- Project Location

- Estimator Name
- Status (i.e. low bidder and won, pending, etc.)
- Bid Date

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 on the right side of the **Takeoff** tab 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** tab. 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** tab 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.

Click on **Options|3D Colors** to select the colors to display on the elevation scale and on the 3D drawings. When selecting the three colors, use colors that show a high contrast.

We suggest bright red for maximum elevations, white for middle elevations and bright blue for minimum elevations.

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 tab, 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. We suggest selecting either 20 or 50 points per inch.

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 new projects.

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** tab, you're able to make takeoff selections from the **Takeoff** drop down list box when you are clicked on the **Takeoff** tab. You're also able to make selections from the command template taped to the digitizer or from the **Takeoff** menu. The **Takeoff** menu commands are listed below:

Takeoff Menu Items

The **Takeoff** tab is where you'll digitize information into SiteWorx. The items that can be taken off include:

1. Project Boundary
2. Topsoil Strip regions
3. Topsoil Respread regions
4. Contour lines
5. Point elevations
6. Areas

To takeoff any of the above items, click on the appropriate command from the command template taped to the digitizer, from the drop down list box found at the top of the **Takeoff** tab window or from the **Takeoff** menu.

Items 1 through 3 above are considered regions and can be defined as an **Included** or **Excluded** region. Usually all items digitized in 1 through 3 above are included. However, you can nest and excluded area within a previously digitized Include region. As a result, when digitizing regions (i.e. boundary, topsoil strip or topsoil respread) you'll need to specify the region as either an **Include** or **Exclude** region

from the top of the **Takeoff** tab window or from the command template taped to the digitizer.

After digitizing a project boundary you click the right mouse button to copy the project boundary as a topsoil strip, topsoil respread or area elevation.

Items 4 through 6 above are defined as either existing or proposed elevation items. When digitizing contour lines, points and areas you'll need to specify if the item being digitized is **Proposed** or **Existing** along with the item's elevation. Again, like included or excluded, you'll need to specify the digitized item as either an **Existing** or **Proposed** item from the top of the **Takeoff** tab window or from the command template taped to the digitizer.

A project boundary, topsoil strip or topsoil respread area is digitized by selecting the command from the menu, template taped onto the digitizer or from the takeoff list at the top of the **Takeoff** tab. After the command is selected (press the Start Digitizing button, lightning bolt, if the command was selected by mouse from the drop down list box or menu), click the Point button on the cursor or pen stylus as you move around the perimeter of the area with the digitizer pointer. Once done, pressing the stop-digitizing button closes the area and returns the digitizer pointer to mouse mode.

To digitize contour lines, point elevations or area elevations, you'll need to enter an elevation. Elevations can be entered using the mouse and keyboard at the top of the **Takeoff** tab window or by using the commands and number pad found on the template taped to the digitizer. If elevations are entered from the taped template using the **Set Elevation** command, you'll need to click on the **Enter** command on the template after entering the elevation before digitizing.

Once items are digitized, properties of the item digitized along with elevations and area subgrades (i.e. layers) are displayed on the right side of the **Takeoff** tab window and can be changed at any time.

Areas can be defined at the **Properties** tab as either:

- **Surface** which contain elevations. Top of finished floor is an example of a Surface area.
- **Subgrade Only** areas do not require elevations. Sloping Parking lots are examples of Subgrade Only areas. When calculating dirt volumes, any proposed point and line elevations contained within a Subgrade Only area will be adjusted for any subgrade material depths entered at the **Layers** tab.
- **Other** is for used to digitize areas for the sake of knowing the area. Other areas do not affect the cut and fill calculations.

For additional information see Your First Takeoff using the Practice Plan starting on page 7.

Delete Last Point

This command deletes the last digitized point.

Stop Takeoff

Stop takeoff closes an area takeoff and changes the mouse pointer from digitizer mode to mouse mode.

Increase Elevation

Pressing this command increases the elevation by the increment defined at the **Overview** tab.

Decrease Elevation

Like the Increase Elevation command, pressing this command decreases the elevation by the increment defined at the **Overview** tab.

Checking

When at the **Takeoff** tab, you're able to search for items outside the minimum and maximum elevations recorded on the **Overview** tab. In order to use the Checking menu, the Display must be set to **Takeoff** rather than **Both** at the **Takeoff** tab. Takeoff will be Existing or Proposed (or Include/Exclude) depending on the setting under the **Takeoff** caption.

To find all items with an elevation above the maximum elevation noted at the **Overview** tab click on **Checking|Above Maximum** when the **Takeoff** is **Point Elevation**, **Contour Line** or **Area Elevation**. Likewise, to find all items with an elevation below the minimum elevation noted at the **Overview** tab 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:

1) You must have the Display set to "**Takeoff**"
2) Select **Area Elevation**
3) Select **Existing** or **Proposed**.
4) Select the Area by selecting any point along the perimeter using the square select mouse pointer
5) Change the takeoff to **Point Elevation**
6) Click on the **Checking|Points in Area** menu command.

Checking|Invalid Areas is used when displaying **Area Elevations** at the **Takeoff** tab. Invalid areas could result from not enough digitized points, etc.

Please note that you can change the minimum and maximum elevation settings at the **Overview** tab, at any time, to broaden or narrow your search for items.

Reports

After the project has been calculated at the **Calculation** tab, 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 select which items to display on this report.

Font

Selecting the **Reports|Font** command enables you to change the font on the printed report.

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 destination file. After the destination files has been named and all the other tabs have been completed, you're able to export the file by clicking on the **Start Export** button.

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. Files exported into Excel can also be formatted in the MS Excel application.

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.

Help

Contents

Contains the chapter headings for the SiteWorx.hlp file

Index

Enables you to search through the Help file by keyword.

Help on Help

Provides general information on Windows and SiteWorx help.

Tool Tips

If **Tool Tips** is checked, popup hints are provided on each icon.

Digitizer Info

If the Wintab driver is loaded, this menu option will provide Wintab driver information. If no information is found here, you'll need to install the Wintab driver for the digitizer.

Register

If SiteWorx has been registered with Vertigraph, your serial number and registration number will be found here. If you have not previously registered, click here and contact Vertigraph at 800-989-4243 (US and Canada) or 214-340-9436 (other countries) to receive a registration number and serial number. You can also receive the numbers via Email by sending your customer code to info@vertigraph.com

About

Contains information about the SiteWorx application.

IV. SiteWorx Tabs

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:

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 (in decimal feet or meters) between the points and have SiteWorx calculate the scale.

Register

Using a pencil or pen, mark the three points on the blueprint that are going to be used to register the drawing. By registering the drawing, you're defining the active digitizing rectangle. 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.

Click on the **Register** button and digitize, using the digitizer pointing device point button, the three points that you marked on the drawing. 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.

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.

Min Elevation

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

Elevation Increment

When increasing 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.

Takeoff

Items to Takeoff

The **Takeoff** tab is where you'll digitize information into SiteWorx. The items that can be taken off include:

1. Project Boundary
2. Topsoil Strip regions
3. Topsoil Respread regions
4. Contour lines
5. Point elevations
6. Areas

To takeoff any of the above items, click on the appropriate command from the command template taped to the digitizer, from the drop down list box found at the top of the **Takeoff** tab window or from the **Takeoff** menu.

Items 1 through 3 above are considered regions and can be defined as an **Included** or **Excluded** region. Usually all items digitized in 1 through 3 above are included. However, you can nest and excluded area within a previously digitized Include region. As a result, when digitizing regions (i.e. boundary, topsoil strip or topsoil respread) you'll need to specify the region as either an **Include** or **Exclude** region from the top of the **Takeoff** tab window or from the command template taped to the digitizer.

After digitizing a project boundary you click the right mouse button to copy the project boundary as a topsoil strip, topsoil respread or area elevation.

Items 4 through 6 above are defined as either existing or proposed elevation items. When digitizing contour lines, points and areas you'll need to specify if the item being digitized is **Proposed** or **Existing** along with the item's elevation. Again, like included or excluded, you'll need to specify the digitized item as either an **Existing** or **Proposed** item from the top of the **Takeoff** tab window or from the command template taped to the digitizer.

A project boundary, topsoil strip or topsoil respread area is digitized by selecting the command from the menu, template taped onto the digitizer or from the takeoff list at the top of the **Takeoff** tab. After the command is selected (press the Start Digitizing button, lightning bolt, if the command was selected by mouse from the drop down list box or menu), click the Point button on the cursor or pen stylus as you move

around the perimeter of the area with the digitizer pointer. Once done, pressing the stop-digitizing button closes the area and returns the digitizer pointer to mouse mode.

To digitize contour lines, point elevations or area elevations, you'll need to enter an elevation. Elevations can be entered using the mouse and keyboard at the top of the **Takeoff** tab window or by using the commands and number pad found on the template taped to the digitizer. If elevations are entered from the taped template using the **Set Elevation** command, you'll need to click on the **Enter** command on the template after entering the elevation before digitizing.

Once items are digitized, properties of the item digitized along with elevations and area subgrades (i.e. layers) are displayed on the right side of the **Takeoff** tab window and can be changed at any time.

Areas can be defined at the **Properties** tab as either:

- **Surface** which contain elevations. Top of finished floor is an example of a Surface area.
- **Subgrade Only** areas do not require elevations. Sloping Parking lots are examples of Subgrade Only areas. When calculating dirt volumes, any proposed point and line elevations contained within a Subgrade Only area will be adjusted for any subgrade material depths entered at the **Layers** tab.
- **Other** is for used to digitize areas for the sake of knowing the area. Other areas do not affect the cut and fill calculations.

For additional information see Your First Takeoff using the Practice Plan starting on page 7.

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.

If the mouse pointer does not change to a selection box, make sure no tool buttons (i.e. zoom, pan, etc,) are pressed at the top of the **Takeoff** tab window.

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

Please note the following regarding 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 that 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** tab please note the following:

- Whenever you open a project file, you'll need to calculate the project. The calculated results are not saved with the file but are created each time the **Calculate** button is pressed.
- Anytime changes are made at the **Takeoff** tab 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** tab 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 **Grid Data** tab. Smaller grid spacing also increases the detail found in the 3D views.

- The **Equate Outside Bounds** check box sets the proposed elevations to the existing elevation immediately outside the project boundaries.
- A topsoil discard percentage can be entered at the **Calculations** tab. 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 be imported to the site (i.e. borrowed).
- Project area by square feet and acres is disclosed on the right side of the window.
- The **Total Cut** volume shown on the right side of the **Calculations** tab is before removing the topsoil stripping volumes. The **Total Cut** volume is the total of the topsoil strip volume and the subsoil cut volume. The **Total Fill** is after topsoil respread volumes have been respread. As a result, **Total Fill** equals topsoil respread volume plus subsoil fill volume. **Subsoil Cut** volume is the volume to be cut after the topsoil volume has been stripped away. A negative subsoil cut volume implies fill is required. Subsoil fill is before topsoil is respread onto the site. Like subsoil cut, a negative subsoil fill number implies a cut is required.

  Total Cut = Topsoil Strip + Subsoil Cut

  Total Fill = Topsoil Respread + Subsoil Fill
- Site balancing at the bottom of the sheet tells you how proposed elevations need to be adjusted in order to arrive at a balanced site. A balanced site is where borrow (i.e. import) is equivalent to spoil (i.e. export).
- LCY represents the amount of loose dirt required to fill the site or the amount of loose dirt that needs to be hauled off.

3D View

After calculating 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 **Cut/Fill** option shows where dirt needs to be cut and filled. 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. The grid spacing is defined at the **Calculations** tab.

V. Other Important Information

Troubleshooting and Important Items

Please consider the following items when operating SiteWorx:

Can't see the Toolbar, Properties, Grid or Elevations

Make sure the following are checked (i.e. turned on) under the **Options** menu:

- Show Takeoff Toolbar
- Show Takeoff Properties
- Show Takeoff Grid
- Show Takeoff Elevations

Save the File

The information is only saved when the **File|Save** menu is clicked. As a result, save the project file frequently. The calculated results, 3D view and resulting grid data are not saved with the file. As a result, once changes are made to the **Takeoff** or **Calculations** page, you'll need to **Calculate** at the **Calculations** tab before the changes are displayed at the **Calculations**, **3D View** or **Grid Data** tabs. Additionally, when first opening a file, you'll need to calculate the project before clicking on the **3D View** and **Grid Data** tabs.

I can't digitize

If you are unable to digitize please note the following:

- Is the Wintab driver loaded properly (i.e. can you use your digitizer pointer to move the mouse pointer on screen)?
- Is the digitizer configured with the proper setup code? GTCO digitizers require the setup code of S01 from the digitizer superset menu.
- Is the digitizer turned on? Are the cables securely fastened?

- Are the buttons assigned under the **Options|Digitizer** Buttons menu? The pen stylus or top left must button on a 16-button cursor must be set to **Point**.
- Under **Options|Command Template** is the command template properly placed and registered?

The increase or decrease elevation command does not seem to work

In order for the **Increase** or **Decrease Elevations** commands to work, an Elevation Increment is required at the **Overview** tab.

I get digitizing errors after pressing the Set Elevation command on the template.

Remember you must press the **Enter** command on the command template after entering the elevation.

Why doesn't the command template work

The command template must we enabled and set at the **Options|Command template** menu. Is the command template within an active area of the digitizer? Are you pressing the correct button on the pointing device? Is the button you are pressing defined as Point at **Options|Digitizer Buttons**? Is the Wintab driver properly loaded? Is the digitizer turned on and connected to the computer? If the above does not solve the problem, please contact Vertigraph for additional help.

Why can't I click on any other tabs?

You must **Register** the blueprint at the **Overview** tab before any of the other tabs become active.

The calculated results appear incorrect, Why?

Calculated results are based on the information entered. As a result, click on the **3D View** tab to see if the site appears proper. If the **3D View** looks incorrect, click on the **Takeoff** tab to review each item digitized. Is a digitized region properly identified as an **Included** or **Excluded** region? Are Topsoil Strip and Respread depths correct? Are Points, Areas, and Contour Lines correctly identified as Proposed or Existing? Are the elevations correct? You can make changes to items selected at the **Takeoff** tab by changing the properties, elevations and layers (i.e. subgrades). After changing properties click on the green check mark to record the change.

Also please use the **Checking** menu option to find invalid areas along with incorrect elevations.

The 3D View looks wrong, how do I find the error?

Review item properties at the **Takeoff** tab and use the **Checking** menu option to find elevations outside the min and max elevations noted on the **Overview** tab.

How do I edit an item that was digitized incorrectly?

To edit any item's properties, click on the **Takeoff** tab and select the Takeoff item from the drop down list box. Set the **Display** to **Takeoff** at the top of the window and make sure no buttons (zoom, pan or start digitizing buttons) are pressed on the top right side of the window. Next click on the yellow finger **Select Object** button with the mouse and then move the mouse pointer over the grid. The mouse pointer should change to a square box. Click on any point contained in a digitized item and the item selected will change colors. The Properties window for the selected item is displayed on the right side of the screen. After making any changes, click on the green **Save Changes** button above the **Properties** tab.

You can also make changes to the elevations noted at the **Corners** and **Layers** tab when selecting an **Area Elevation** item.

I incorrectly deleted an item, how do I prevent this mistake?

To prevent unwanted deletions, please turn on the **Confirm Deletions** command under the **Options** menu.

I lost my command template, where do I get a new template?

The command templates, practice plan and other information are saved as a pdf files at C:\Program Files\Vertigraph\SiteWorx\Pdf Files.

How do I change the soil swell factor used on new projects?

To change the soil swell factors for new projects click on **Options|Soil Factors|Save as Default**. Whatever soil factors are entered at the **Calculations** tab will be the soil factors used on any new projects.

Are the Stake Heights at the Grid Data tab before or after topsoil strip depths"

If **Options|Stake Heights before Topsoil Strip** is checked, the stake heights at the **Grid Data** tab is before the topsoil is stripped, otherwise the stake heights are after the topsoil stripping.

How do I change the display of the 3D drawing?

Change from Existing, Proposed or Cut/Fill by clicking on the options at the top of the screen. The image can be zoomed, panned and rotated by clicking on the Zoom button on the top right side of the window.

When at the Zoom window, you'll drag and drop the mouse pointer to move the images.

I am having problems with the reports, why?

Do you have the latest printer driver for your brand of printer? Are you printing on a color or black and white printer? We highly recommend that you use an ink jet color printer.

I do not see existing and proposed contours on the screen at the same time

You can view either both or just the items your are taking off by clicking on the Display option at the top of the **Takeoff** window.

Why does it say Not Register on the Overview tab when I just called Vertigraph and entered my registration number?

There is a difference between registering the SiteWorx application with Vertigraph and registering the drawing for each project.

What do I do when the Proposed is on a Different Sheet or Scale than Existing?

If the proposed grades are on a different sheet or scale than the existing grades simply register the new registration points on the new drawing. The registration points must be the same three points on both drawings. You will not need to change the scale since the scale is automatically adjusted by the registered points on the new drawing.