

## **Appendix Four**

### **Using the Companion CD-ROM and Integrating Future Data**

## **The Companion CD-ROM**

The companion CD-ROM contains all files discussed in this thesis and Adobe Acrobat copies of the document itself. To access the features insert the CD-ROM into the CD drive. The main navigation window will open up. If this does not automatically occur, then navigate to the CD-ROM contents and open the 'index.htm' file. This main navigation window provides the name of the CD-ROM, author information, and date created. If the CD is missing, contact the IA program at MTU ([www.mtu.edu](http://www.mtu.edu)).

The options available on the CD include viewing the entire thesis as a series of Adobe Acrobat files, installation of the freely available ArcReader 9.0 software, access to the 2004 Svalbard GIS, access to a Trimble Data Dictionary to assist future mapping work on Svalbard, access to a Field Form (in Microsoft Word format) to use in future field work (reprinted in this appendix below), and a sample video of a virtual walk-through of Old Longyear City as it existed in 1912.

There are many advantages to presenting information on a CD-ROM format (explored in previous chapters). Specific advantages of presenting the above information on a CD-ROM include the ability to update the data dictionary and field form prior, and even during, the course of future field work. The establishment of supporting document tailored to future Svalbard fieldwork allows the project to take on a life of its own.

The following pages document the process for adding data collected by total stations and GPS unit to the 2004 Svalbard Geodatabase. These instructions are text-based rather than visually-based, assuming that the user already possesses an intermediate-level of understanding using the software. Reaching this level of understanding is possible by following suggestions outlined in chapter six.

## **Adding future total station and GPS data to the 2004 Svalbard Geodatabase**

Since data collected for the 2004 Svalbard GIS included both total station and GPS work, incorporating data from these types of sources are explored below. First, the addition of data from a total station is explored, followed by a brief explanation of how to add GPS data to the 2004 Svalbard Geodatabase.

### *Adding Total Station Data*

Once data files are downloaded from the total station (typically a coordinate and FBO file) open the Total Data Systems (TDS) Survey Link program – which is available as a free trial download from [www.tdsway.com](http://www.tdsway.com). In Survey Link, select ‘Convert File Format’ underneath the ‘Conversions’ drop-down menu. This will open the ‘Convert’ dialogue window.

Step 1) In the ‘Convert’ window, make sure that “Coordinate File’ in the Input section is selected, and Input Type reads ‘TDS Coordinates’. Use the ‘Choose File’ button to select the Input File Name. In the Output section, selected ‘ASCII (N, E, Z, Note)’ and use the ‘Choose File’ button to select the directory you wish to put the converted file. You can choose any name you want.

Step 2) Once the fields have been filled in, use the mouse to press the ‘Convert’ button. A screen will appear stating that the file was successfully converted, select ‘Okay’.

Step 3) Start Microsoft Excel and open the ASCII file created in the step above. This will open the ‘Text Import Wizard’, click finish.

Step 4) Hit ‘Ctrl-F’ to open the ‘Find Dialogue’ and select replace. Enter a comma in the “Find what:’ box and enter a space in the ‘Replace with’ box, hit ‘Replace

All'. This will remove all commas from the file in Excel. Select 'Okay' and 'Close'.

Step 5) Right-click on Row 1 and select 'Insert' to create an empty row. In Column A enter 'ID', 'Y' in Column B, 'X' in Column C, and 'Z' in Column D. This sets the first column as an identity column, the second column as y-coordinates (Northing), the third column as x-coordinates (Easting), and the final column as z-coordinate (elevation).

Step 6) Under the 'File' menu Select 'Save As:'. Enter any filename in the 'File name' box and use the drop-down menu in the 'Save as type:' box to select the 'CSV (Comma delimited value)' type. Hit 'Save' and this will save the file in a format readable by ArcGIS.

Step 7) Start ArcMap and add the feature class that you want to add the total station points to. For instance, if the total station file has new datum points, add the datum points feature class to ArcMap.

Step 8) Now, under the 'Tools' menu select "Add X/Y Data..." and navigate to the CSV file saved in the previous step. Once the CSV file is selected, the 'Add X/Y Data' window will automatically associate the coordinates in the X and Y columns with X and Y coordinates in ArcMap, click 'Okay' to add the coordinates.

Step 9) Begin editing the feature class added in step seven. Use ArcMap's editor tools to draw new features imported using the CSV file. It may be useful to turn on 'Snapping' under the 'Editor' drop-down menu and select the CSV file.

Step 10) One the new points have been added to an existing feature class, stop editing (make sure to save edits). The new total station data has been entered.

While the above steps may seem complicated at first, they are quickly mastered. This method allows a high-level of control over the data entered into the GIS files and is not as time consuming as it may appear. This method was used to import nearly seven hundred points from the Old Longyear City site, and it only took three or four hours to edit the points into feature classes.

#### *Adding GPS Data*

The incorporation of GPS data into various feature datasets in the 2004 Svalbard Geodatabase is slightly faster than importing total station data.

Step 1) After transferring the files from the GPS receiver to a computer, start Trimble Pathfinder Office and open the transferred file(s).

Step 2) Under the 'Utilities' menu select 'Export' and the 'Export' dialogue window will open. Select the GPS files to transfer into the geodatabase, and select an output folder to store the file in. In the 'Choose and Export Setup' box select 'Sample ESRI Shapefile Setup'. Then, select properties.

Step 3) Set-up of 'Sample ESRI Shapefile' – Under the 'Data' tab, select 'Features' fro the 'Type of Data to Export'; all other set-up features can be left alone (or experimented with later). Hit 'Okay'. Hit 'Okay' again, this will export the file into a shapefile (feature class) usable by ArcCatalog.

Step 4) Start ArcCatalog and navigate to the feature class within the geodatabase that you wish to add to and right-click on it. This will open a menu, select 'Load' and the 'Load Data'.

Step 5) Select the file exported from Pathfinder Office in the 'Input Data' box, click 'Add' underneath the 'List of source data to load' box. Then, click 'Next' until a 'Finish' button appears, click this and the data will be imported into the geodatabase feature class.

The advantages of importing GPS data into the geodatabase is that the new data is automatically formatted into the feature class. This preserves the data collected by the GPS unit and places the same domain restrictions on the new data as the geodatabase.

### **Field Form**

The following two pages reproduce a field form designed in relation to work conducted as part of the 2004 Svalbard Project. This form is designed to integrate with total station and GPS work to facilitate addition to the GIS.

The following pages are formatted for this thesis. The copy on the CD-ROM does not include the same margins. As mentioned previously, the advantage of having an accessible digital copy of this form means that it can be updated at any time.

Svalbard Archaeology Field Form  
Michigan Technological University

Site Name/Number: \_\_\_\_\_ Date: \_\_\_\_\_

Recorder Initials: \_\_\_\_\_ Project Name: \_\_\_\_\_

Other Recordation Methods (GPS, TDS, etc): \_\_\_\_\_

Feature Number: \_\_\_\_\_

Feature Type:

- Artifact     Structure     Transportation     Other:

Feature Description: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Condition:

- Good     Fair

Poor

- Ruined     Standing

Currently in use:

- Yes     No

Materials Present:

- Wood     Brick     Posts-wood     Concrete     Stone  
 Iron  
 Glass     Coal     Other:

Photographs Take:

- Yes     No

Photograph info:

Roll #: \_\_\_\_\_ Exposure #: \_\_\_\_\_

Feature Use

- Residential     Industrial     Commercial     Unknown

