InRoads
Surface Check Report Guidelines

****InRoads Select Series 2****

Georgia Department of Transportation

Office of Design Policy & Support

Developed By	Office of Design Policy & Support
Product Version	InRoads Suite – Select Series 2 Edition
Document Revision	Version _1.2
Release Date	4-30-15

Revision History

Date	Revision Number	By	Section	Description
02-01-13	1.00	CB-HC-JB	ALL	ALL
07-15-13	1.1	CB-HC-JB	7-11, 7-13	Revised the Report Screen Capture to reflect the change in Project Units text from Imperial to US Survey Foot.
04-30-15	1.2	CB-HC	3-3, 3-4	Revised document Hyperlinks to reference/open the associated GDOT TravelSmart Web Page links.

This Page Left Intentionally Blank

Preface

The InRoads Surface Check Guidelines have been developed as part of the statewide GDOT implementation of MicroStation V8i and InRoads V8i Select Series 2. The intent of this document is to provide guidelines and standards for utilizing InRoads and the associated InRoads "**GDOT Surface Check Report**" style sheet for verifying the accuracy of the Existing DTM database as compared to the associated Field Survey Data. These guidelines must be followed in detail in order to conform to the current GDOT standards for producing the required tolerance and computation reports for Digital Terrain Model verification. Updates to this document will be made periodically when minor revisions, additional information, and/or enhancements are added.

NOTE: The InRoads "**GDOT Surface Check Report**" style sheet uses a specific Alpha Code and/or Feature Style naming convention (MPCKGRD and TOPO_E_ MPCKGRD) and (MPCKPAV and TOPO_E_MPCKPAV) which are discussed in more detail in these guidelines. If there is any deviation from the Alpha Code/Feature Style conventions as prescribed by this document, the "**GDOT Surface Check Report**" style sheet will not produce the requisite report.

All electronic **GDOT Surface Check Report** documentation (.HTML file format) shall be provided with the Project deliverables.

Contact Information

To submit any comments or questions regarding the information contained in this document, please contact the **Office of Design Policy & Support** by email at the following address:

SolutionsCenter@dot.ga.gov

In the Email Subject Header, please reference the **InRoads Surface Check Report Guidelines**

This Page Left Intentionally Blank

TABLE OF CONTENTS

TABLE OF FIGURES

TABLE OF TABLES

Overview

These Guidelines cover the GDOT standards for verifying the tolerance and accuracy of an Existing Digital Terrain Model (original terrain surface) as compared against associated field survey points by utilizing the MicroStation V8i and InRoads V8i Select Series 2 Software(s).

The guidelines also describe and list the required software needed, the standard Alpha Codes and/or Feature Styles for field survey collection, the Project Initialization Standards, the CSV Translation Process and the "**GDOT Surface Check Report**" generation procedures.

Document Content
Below is a list of topics covered in this document:

- Standard Software Required
- Standard Alpha Codes and Feature Styles
- InRoads Project Initialization Standards
- InRoads Database Preparation
- CSV File Translation Process
- ALG (Geometry Project) Import Process
- GDOT Surface Check Report Procedures
- Appendix A
- Appendix B

1

Standard Software Required

1. Standard Files and Software Required

The **GDOT Surface Check Report** is a Style Sheet generated from InRoads which reports the tolerance and accuracy of the Existing Digital Terrain Model surface when compared with field survey check points. This Style Sheet Generation process requires a CSV file(s) and stand-alone programs which are used in combination to automate the procedure of verifying the accuracy of original terrain data obtained from the Existing Digital Terrain Model surface.

This section covers the following File(s) and Software(s):

- Trimble CSV Survey File(s)
- InRoads V8i Select Series 2
- MicroStation V8i Select Series 2

1.1 Trimble CSV Survey File

Project Field Survey Data, which is stored in the Data Collector during the setting of the Horizontal and Vertical controls, will be downloaded to a computer in a CSV format. The .CSV files are comma delimited ASCII format files and contain Field Survey Data collected utilizing Data Collectors in the field (Topography, Property, Drainage, etc). The .CSV file is imported into the InRoads .FWD file (Electronic Field Book).

1.2 InRoads V8i Select Series 2

InRoads V8i Select Series 2 is the GDOT Civil Design Software. This program contains the Existing Digital Terrain Model - DTM (original terrain surface) which is to be verified by using the **GDOT Surface Check Report** Style Sheet in order to determine the accuracy of the DTM point data. This program must be open and operating for the **GDOT Surface Check Report** Style Sheet to function.

1.3 MicroStation V8i Select Series 2

MicroStation V8i Select Series 2 is the GDOT CADD Software utilized in conjunction with InRoads to provide temporary or permanent graphics in the CADD environment. This program must be open and operating for the **GDOT Surface Check Report** Style Sheet to function.

2

Standard Alpha Codes and Feature Styles

2. Standard Alpha Codes and Feature Styles

Survey personnel from the Office of Design Policy and Support/Location Bureau or District Surveyors will field collect random sections of points throughout the project corridor while the initial Horizontal and Vertical controls are being set. These points will consist of a representation of "ground" and "pavement" shots. These points will be saved in an .CSV file format and set aside for future use in the comparison/verification against the same XYZ associated coordinate in an Existing DTM surface model in **InRoads V8i Select Series 2** (GDOT's Civil Design software).

This section covers the following topics:

- Alpha Codes
- Feature Styles

2.1 Alpha Codes

The field survey points, which will be collected by the Survey personnel for DTM mapping data verification, will consist of two Alpha Codes (MPCKGRD and MPCKPAV). These Alpha codes **MUST** be used in order for the CSV Translation process in InRoads to work and the **GDOT Surface Check Report** Style Sheet to translate and generate the points according to GDOT standards. Following are the standard Alpha Codes for field survey point collection:

- **Alpha Code MPCKGRD** – This code represents "ground" shots and has the following definition:
  - Alpha Code – MPCKGRD
  - Feature Style – TOPO_E_MPCKGRD

- **Alpha Code MPCKPAV** – This code represents "pavement" shots and has the following definition:
  - Alpha Code – MPCKPAV
  - Feature Style – TOPO_E_MPCKPAV

Table 2.1

Alpha Code Description

Alpha Code	Feature Style
MPCKGRD	TOPO_E_MPCKGRD
MPCKPAV	TOPO_E_MPCKPAV

2.2 Feature Styles

Two Feature Styles are used by the **GDOT Surface Check Report** Style Sheet for point projection and comparison of the "Existing" DTM surface: TOPO_E_MPCKGRD and TOPO_E_MPCKPAV.

- **Feature Style TOPO_E_MPCKGRD** – This Feature Style represents "ground" shots and has the following definition:
  - Feature Style – TOPO_E_MPCKGRD
  - Description – Existing Map Check Ground
  - Point Type – "Exclude from Triangulation"
  - Feature Type – "Random"

- **Feature Style TOPO_E_MPCKPAV** – This feature code represents "pavement" shots and has the following definition:
  - Feature Style – TOPO_E_MPCKPAV
  - Description – Existing Map Check Pavement
  - Point Type – "Exclude from Triangulation"
  - Feature Type – Random

Table 2.2

Feature Style Description

Feature Style	Description	Point Type	Feature Type
TOPO_E_MPCKGRD	Map Check Ground	Exclude from Triangulation	Random
TOPO_E_MPCKPAV	Map Check Pavement	Exclude from Triangulation	Random

Once these field points are collected – the .CSV file will be uploaded from the data collector and set aside until the Photogrammetry process is completed and the "Existing" DTM surface is modeled. These field points will then be translated and imported into the InRoads Geometry database (ALG File) for point projection and comparison of the DTM surface in order to verify the accuracy and integrity of the "Existing" DTM. The typical tolerances for the "Existing" DTM surface in comparison to these field shots are **0.5 feet** for (ground shots) and **0.1 feet** for (pavement shots).

Table 2.3

Typical Tolerances To Utilize

Feature Style	Description	Tolerance
TOPO_E_MPCKGRD	Map Check Ground	0.5 feet
TOPO_E_MPCKPAV	Map Check Pavement	0.1 feet

3

InRoads Project Initialization Standards

3. InRoads Project Initialization Standards

Project Initialization Standards have been established in order to promote consistency and assist in the organization of project data for use in the **GDOT Surface Check Report** Style Sheet. These standard project schemes help to ensure uniformity on Surface Check projects.

This section covers the following topics:

- GDOT Standard Files (MicroStation and InRoads)
- Standard Project Structure for Surface Checks
- Starting MicroStation V8i and InRoads V8i Select Series 2
- Overview of InRoads Interface
- InRoads Project Defaults
- Survey Default Preferences
- InRoads "Locks"
- Application and Variable Manager Add-Ins

3.1 GDOT Standard Files – MicroStation and InRoads

In order to conform to current policy for deliverables – GDOT provides the requisite files needed to standardize InRoads and MicroStation to GDOT requirements. The first step in the development of an InRoads and MicroStation Project for Surface Checks is to ensure that these standard files are being utilized. Instructions for downloading/installing the executables are included on the GDOT web page (see the links depicted below). These files are required for any Projects generated for GDOT as well as for use in utilizing the **GDOT Surface Check Report** Style Sheet.

- ***MicroStation Standard Files Location For Internal GDOT Users*** – a server location has been established to map a drive (an N:\ Drive) in order to access the latest MicroStation Files. Once the internal user maps the N:\ drive – all of the standard MicroStation Files will be available through this mapped drive.

- ***MicroStation Standard Files Location For External Users -*** a MicroStation (CaddALL.exe) executable file is available and located in a download executable which can be accessed from the GDOT web page. This executable contains all of the GDOT MicroStation V8i Select Series 2 standard files. This file can be downloaded by navigating to the MicroStation and InRoads links from the following location:

  http://www.dot.ga.gov/PS/DesignSoftware/Microstation

- ***InRoads Standard Files Location For Internal and External Users*** - an InRoadsALL executable file (InRoadsALL.exe) is available and located in a download executable which can be accessed from the GDOT web page. This executable contains all of the GDOT InRoads V8i Select Series 2 standard files. This file can be downloaded by navigating to the MicroStation and InRoads links from the following location:

  http://www.dot.ga.gov/PS/DesignSoftware/InRoads

The **InRoadsALL.exe** file contains all of the standard GDOT files which are required to generate projects to GDOT standards. The user will perform the following steps to extract and set-up the GDOT Standard InRoads Files:

1. Close MicroStation V8i and InRoads V8i Select Series 2 if they are still open.

2. Navigate to the InRoads links from the following web page: http://www.dot.ga.gov/PS/DesignSoftware/InRoads

3. Save the ***InRoadsALL.exe*** file to the hard drive and then double click the file.

4. The self-extractor will download the GDOT InRoads Standard Files to the following locations:
   a. **C:\InRoads Data\Standards**
      - GDOT_Standard V8i_SS2.xin
      - GDOT_Standard V8i_SS2.itl
      - Project_Data_Sheet_MultipleAlign.docm
      - Photogrammetry_InRoads QA.pdf
      - Survey Data Processing_InRoads QA.pdf
      - Design Data_ InRoads QA.pdf
      - GDOT (PI#) Pay Item Database.mdb

   b. **C:\InRoads Data\Component Documentation**
      - GDOT Component Description Help Documentation

   c. **C:\InRoads Data\Style Sheet Documentation**
      - GDOT Style Sheet Help Documentation

   d. **C:\InRoads Data\Style Sheets\GDOT**
      - GDOT Style Sheets

5. For detailed instructions on downloading and installing **InRoadsALL.exe** - navigate to the InRoads links from the GDOT web page and click on the ***Downloading and Running InRoadsALL.pdf*** document for installing these standard files.

3.2 Standard Project Structure for Surface Checks

The Standard File Structure for Surface Checks in InRoads is a Project Folder (which is named for the PI# of the Project – *Example:* **1234567**) located as a sub-folder under **C:\InRoads Data** – *Example:* **C:\InRoads Data\1234567**. The Project Files are then located directly under this PI#. This Folder contains the individual InRoads Data Files. (See *Table 3.1*)

Table 3.1	
InRoads Project Structure	
InRoads Project Structure	C:\InRoads Data\PI Number
InRoads Project Structure (Example)	C:\InRoads Data\1234567

Although InRoads contains several different file types -- the *"Surface Check" data will usually consist of the following file types and will be located in the **C:\InRoads Data\PI Number** folder:

- 3D "Working" DGN file ----------**Example:** (**GDOT 3D Working File.dgn**). Location: **C:\InRoads Data\PI Number\Standards**
- **Processed Existing DTM Surface file --------- (**PI#_ Exist.dtm or PI#_SDE.dtm**) **Example: 1234567_Exist.dtm or 1234567_SDE.dtm**
- Processed ALG Geometry File ------ (**PI#Z.alg**) ----------**Example: 1234567Z.alg**
- Processed FWD Survey File(s) ------ (**PI#Z.fwd**) ----------**Example: 1234567Z.fwd**
- Field Survey CSV File ---------- **(PI#Z.csv)** ----------**Example: 1234567Z.csv**

***NOTE:**

The Existing DTM that is to be checked may be named **PI#_ Exist.dtm** if the DTM is received from the Designer or a Consultant. The DTM will usually be named **PI#_SDE.dtm** if the DTM is received from an SDE.

****NOTE:**

The Surface Check CSV File (**EX: 1234567Z.csv**) as well as the additional InRoads Project Files will utilize a "**Z**" in the naming conventions to delineate these files as Surface Check data. The files will only be utilized for the verification of the Existing Surface Data to ensure compliance to GDOT standards.

These "Surface Check" files will not be used on actual production projects.

3.3 Starting a Surface Check Project in InRoads

After creating the Project folder of **C:\InRoads Data\PI Number** – copy the **Standards** folder (which is downloaded through the InRoadsALL.exe executable) to the **C:\InRoads Data\PI Number** folder.

3.3.1 Copy the "Standards" folder which is downloaded from InRoadsALL.exe

Important Step:

After installing InRoadsALL.exe – the user will copy the **Standards** folder under **C:\InRoads Data** to the Project Location. The rest of the Standard Files will remain in the default install location.

Whenever a new Project is created – the user will download and install InRoadsALL.exe. The files will be extracted to the Default Location(s). The user will then perform the following step:

- The user will copy the **C:\InRoads Data\Standards** Folder to the **InRoads Data\PI#** folder. (Example: **C:\InRoads Data\1234567\Standards**).

Table 3.2		
Copy Standards Folder to Project Folder		
C:\InRoads Data\Standards	**Copy To ►►**	**C:\InRoads Data\PI #**

3.4 Starting MicroStation V8i and InRoads V8i

The user will be working in both **MicroStation V8i Select Series 2** (the CADD Software) and **InRoads Suite V8i Select Series 2 (**the Survey/Design Software). The **MicroStation CADD Software** is used for the viewing and manipulation of graphics derived from **InRoads**. The **InRoads Software** is the database in which the Surveying data for the Surface Check is created and processed. The user will select the standard GDOT 3D "seed" file to use as the "seed" DGN in order to create the three dimensional "Working" DGN file. This "Working" DGN file is used to display the temporary and/or permanent graphics in **InRoads**.

This section details the following processes:

- Steps to Create a Survey "Working" DGN File
- Steps to Open an Existing Survey "Working" DGN File

The "Working" DGN file will be saved to the following folder location:
C:\InRoads Data\PI Number\Standards

Table 3.3	
Standard Naming Convention of the "Working" DGN File	
Working DGN File Name	**C:\InRoads Data\PI Number\Standards** GDOT 3D Working File.dgn

The **MicroStation** software will open first before **InRoads**. After the **MicroStation** Splash Screen appears, the **MicroStation Manager** dialog (See *Figure 3-1*) will open so that a "**Working**" DGN file can be created or an existing "**Working**" DGN file can be opened. The **InRoads** software can then be initiated.

3.4.1 Steps to Create a Survey "Working" DGN File

The Survey "Working" DGN file will be created from the **GDOT_V8_3D.dgn** seed file. Following are the steps to create a **Survey "Working" DGN File**:

1. From the desktop, double-click on the **GDOT MicroStation V8i SS2 (x86)** icon.

Double click on the icon labeled **GDOT MicroStation V8i SS2 (x86).**

2. After the **MicroStation** Splash Screen appears, the **MicroStation Manager** dialog box will open. (See *Figure 3-1*).

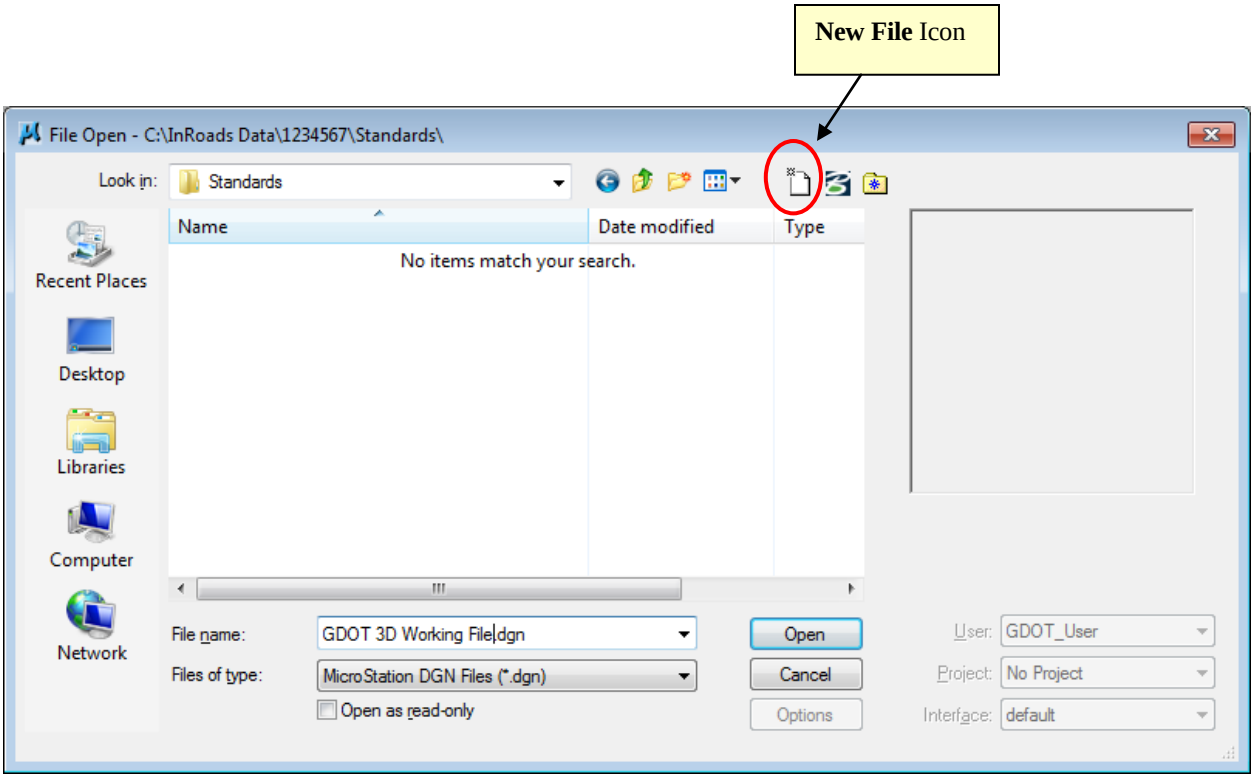


Figure 3-1 Starting MicroStation V8i and InRoads V8i

3. In the **MicroStation Manager** dialog box, click on the **New File** icon  (See *Figure 3-1*) depicted above. The **New File** command will be used to create the "Working" DGN file.

4. After the **New File**  command is selected, the **MicroStation New File** dialog box will open. (See *Figure 3-2*).

- Click in the **Save in:** Pulldown - and browse to the ***C:\InRoads Data\PI Number\ Standards*** location to save the new "Working" DGN file
- In the **File name:** Pulldown – enter ***GDOT 3D Working File.dgn***
- In the **Save as type:** Pulldown – select ***MicroStation DGN Files (*.dgn)***
- In the **Seed:** Field - ensure the seed file name is **GDOT_V8_3D.dgn**

The Seed File should already be entered in the field based on the current MicroStation configuration.

The inputs should now be similar to the screen capture depicted in *Figure 3-2* (as shown below).

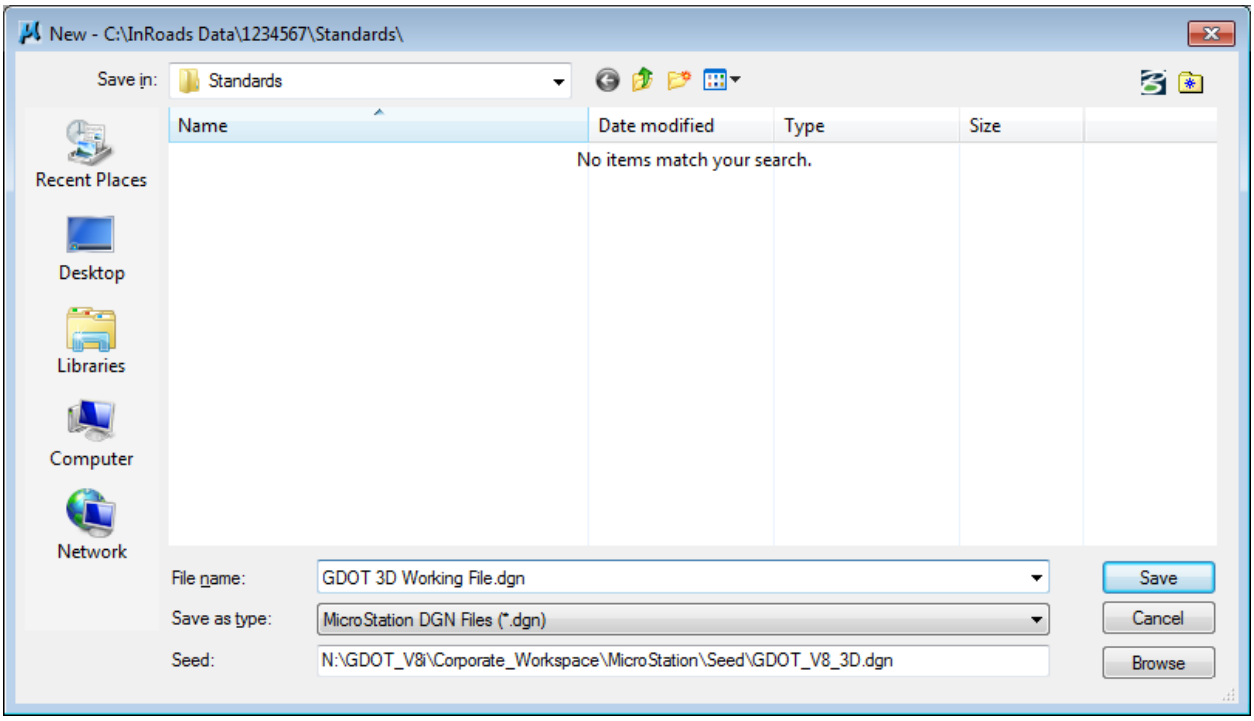


Figure 3-2 MicroStation New File Window

5. Click the **Save** command button and the **MicroStation Manager** dialog box will appear.

6. In the **MicroStation Manager** Dialog box – highlight the file just created (***GDOT 3D Working File.dgn***) and click the **Open** button.

7. The **MicroStation V8i Select Series 2** interface will then finish opening.

8. In the ***Main MicroStation Pull-down Menu*** – click on the following InRoads pull-downs:

9. Select ***InRoads ►InRoads Suite (SELECTseries 2) V8i 08.11.07.566*** - and the **InRoads V8i Select Series 2** interface will open. Once **InRoads** and **MicroStation** are up and running, the desktop should look similar to that of *Figure 3-3* and *Figure 3-4.*

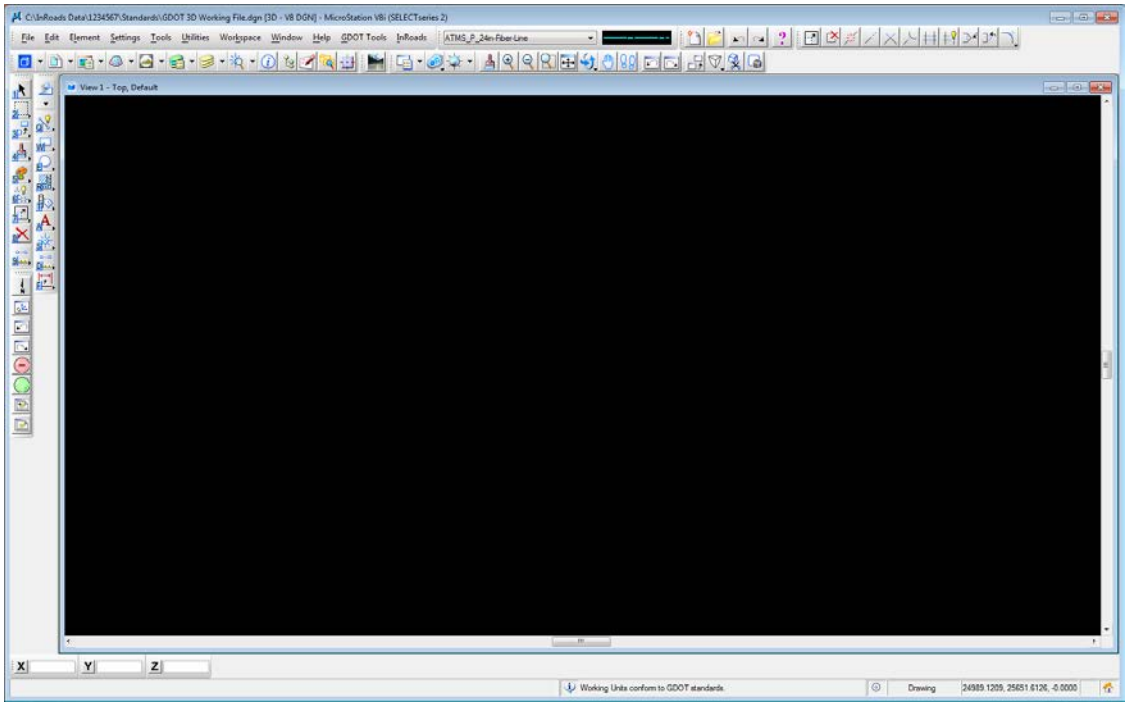


Figure 3-3 Main InRoads

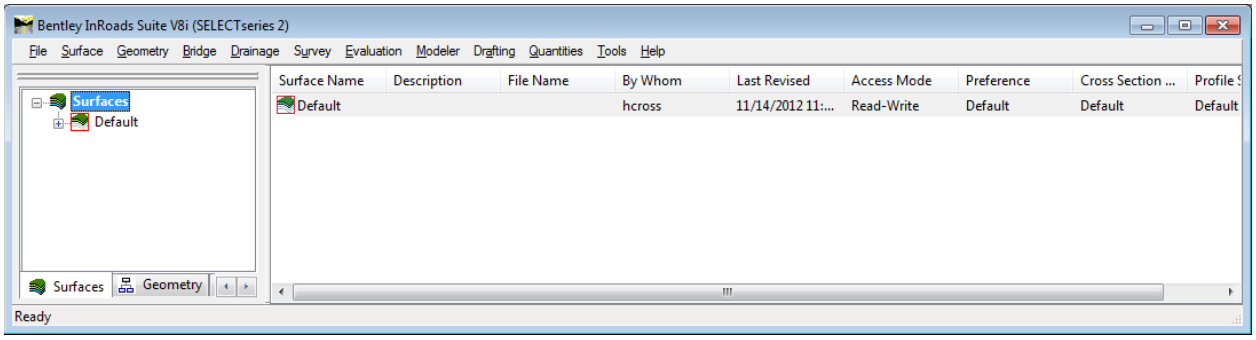


Figure 3-4 Main InRoads

3.4.2 Steps to open an existing Survey "Working" DGN File

If the Survey "Working" DGN file has been created previously – use the following steps to open a **Survey "Working" DGN File**:

1. From the desktop, double-click on the **GDOT MicroStation V8i SS2 (x86)** icon.

Double click on the icon labeled **GDOT MicroStation V8i SS2 (x86).**

2. After the **MicroStation** Splash Screen appears, the **MicroStation Manager** dialog box will open. (See *Figure 3-5*).

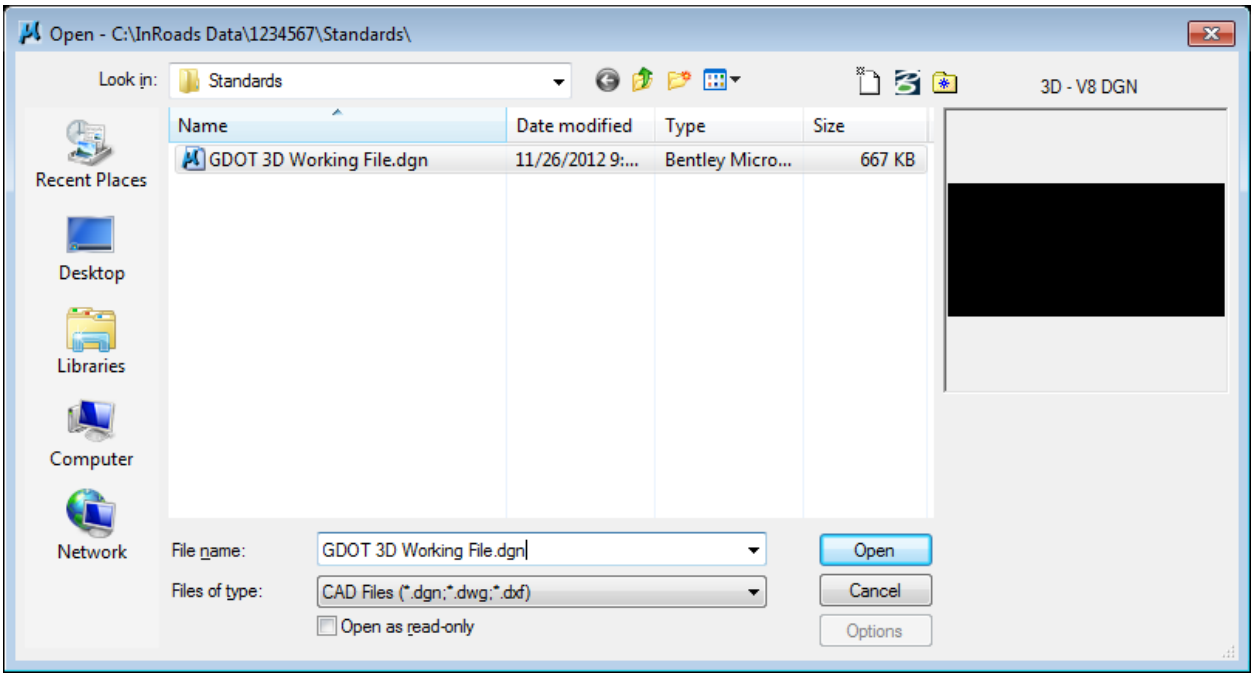


Figure 3-5 Starting MicroStation V8i and InRoads V8i

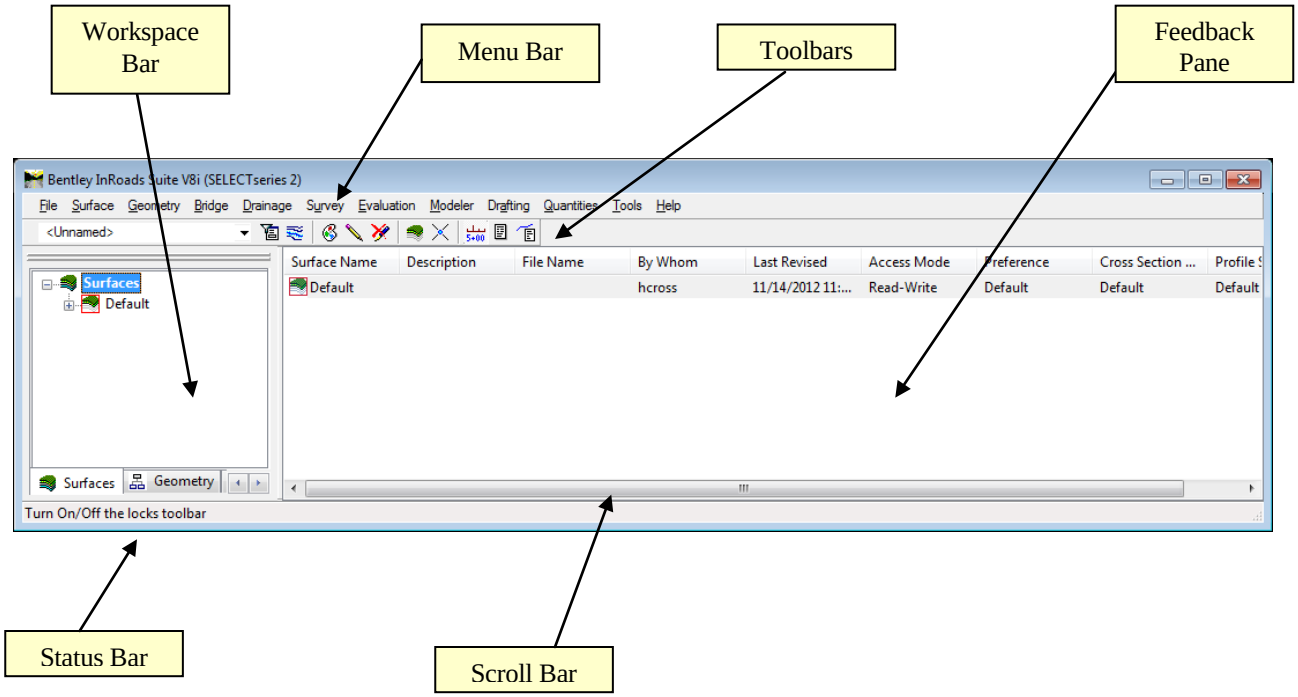
3. In the **MicroStation Manager** dialog box, browse to the ***C:\InRoads Data\PI Number\Standards*** location and highlight the (***GDOT 3D Working File.dgn***) and click the **Open** button.

4. The **MicroStation V8i Select Series 2** interface will then finish opening. Then select ***InRoads ►InRoads Suite (SELECTseries 2) V8i 08.11.07.566***— and the **InRoads V8i Select Series 2** interface will open. Once **InRoads** and **MicroStation** are up and running, the desktop should look similar to that of previous screen captures *Figure 3-3* and *Figure 3-4.*

3.5 Overview of InRoads Interface

As mentioned previously - the user will be working in both the **InRoads Design Software** and the **MicroStation CADD Software**. The **InRoads Software** is the database in which the Surveying data is created and processed.

Shown below is a **diagram** which depicts the InRoads Explorer objects and a brief overview of the InRoads Explorer Interface:



- **Workspace Bar** – Contains all of the InRoads Project Data information
- **Menu Bar** – Contains the pull-down menus to access InRoads commands
- **Toolbars** – Contains default and customized toolbars to access InRoads commands
- **Feedback Pane** – Contains details of selected Project Data from the Workspace Bar
- **Scroll Bar** – Enables the user to view more of the InRoads Explorer Interface. (The Scroll Bar may not be visible if the InRoads Interface is already viewed to extents).
- **Status Bar** – Contains InRoads messages and prompts (Please note: InRoads may direct you to locate something graphically in MicroStation -- some of these prompts may display in the MicroStation Status Bar instead). It is very important that the user review both the InRoads and the MicroStation Status Bar for prompts and information.

3.6 InRoads Project Defaults

The **InRoads Project Defaults** setting allows you to define the "default folder locations" for projects (in this case a Surface Check Project). A ***Project Default*** configuration can then be saved for each Surface Check project so that multiple projects can be accessed. This configuration allows you to easily navigate between projects. Once the Project Folder locations are saved in the Configuration, the projects can then be accessed by selecting the appropriate Project Configuration Name. The Project Defaults also contain the location for selecting the standard GDOT InRoads Preference File (**GDOT_Standard V8i_SS2.xin**).

The standard Project Default Configuration for ***Surface Check Projects*** will be **PI Number_Z**. Each Surface Check Project Default setting will consist of this naming structure in order to easily navigate between projects. (See *Table 3.4*)

Once the Project Default Location is set for a particular project – this will also be the default folder location whenever the InRoads commands of **File▶Save and **File▶Close** are used.

Table 3.4	
Project Defaults Configuration	
Project Default Structure	PI Number_Z
Project Default Structure (Example)	1234567_Z

Following are the steps to create a **Surface Check Project Default Configuration** (**Substitute the appropriate PI # as required**):

1. Click **File▶Project Defaults** from the InRoads pull-down menu to access the **Set Project Defaults** dialog box.

2. Click **New** and enter **1234567_Z** in the **New Configuration** dialog box. Then click **OK**.

3. Under the **Default Preferences** section - Click in the **Preferences (*.xin):** field and then click the **Browse** button to navigate to the following file: **C:\InRoads Data\1234567\Standards\GDOT_Standard V8i_SS2.xin** file and click **Open**.

4. Under the **Default Directory Paths** Section - Click in the **Project Default Directory:** field and then click the **Browse** button to navigate to the folder: **C:\InRoads Data\1234567**. Next - click **Open**.

5. Under the **Default Directory Paths** Section – copy and paste the following text into each entry field shown below: **C:\InRoads Data\1234567**

   - Report Directory: - **C:\InRoads Data\1234567**
   - Projects (*.rwk): - **C:\InRoads Data\1234567**
   - Surfaces(*.dtm): - **C:\InRoads Data\1234567**
   - Geometry Projects: (*.alg): - **C:\InRoads Data\1234567**
   - Template Libraries:(*.itl): - **C:\InRoads Data\1234567**
   - Roadway Design: (*.ird): - **C:\InRoads Data\1234567**
   - Survey Data: (*.fwd): - **C:\InRoads Data\1234567**
   - Drainage: (*.sdb): - **C:\InRoads Data\1234567**
   - Quantity Manager: (*.mdb): - **C:\InRoads Data\1234567**
   - Site Modeler Projects (*.gsf): - **C:\InRoads Data\1234567**

6. Under the **Default Directory Paths** Section - Click in the **Style Sheet (*.xsl):** field and then click the **Browse** button to navigate to the folder: **C:\InRoads Data\Style Sheets\GDOT**. Next - click **Open**.

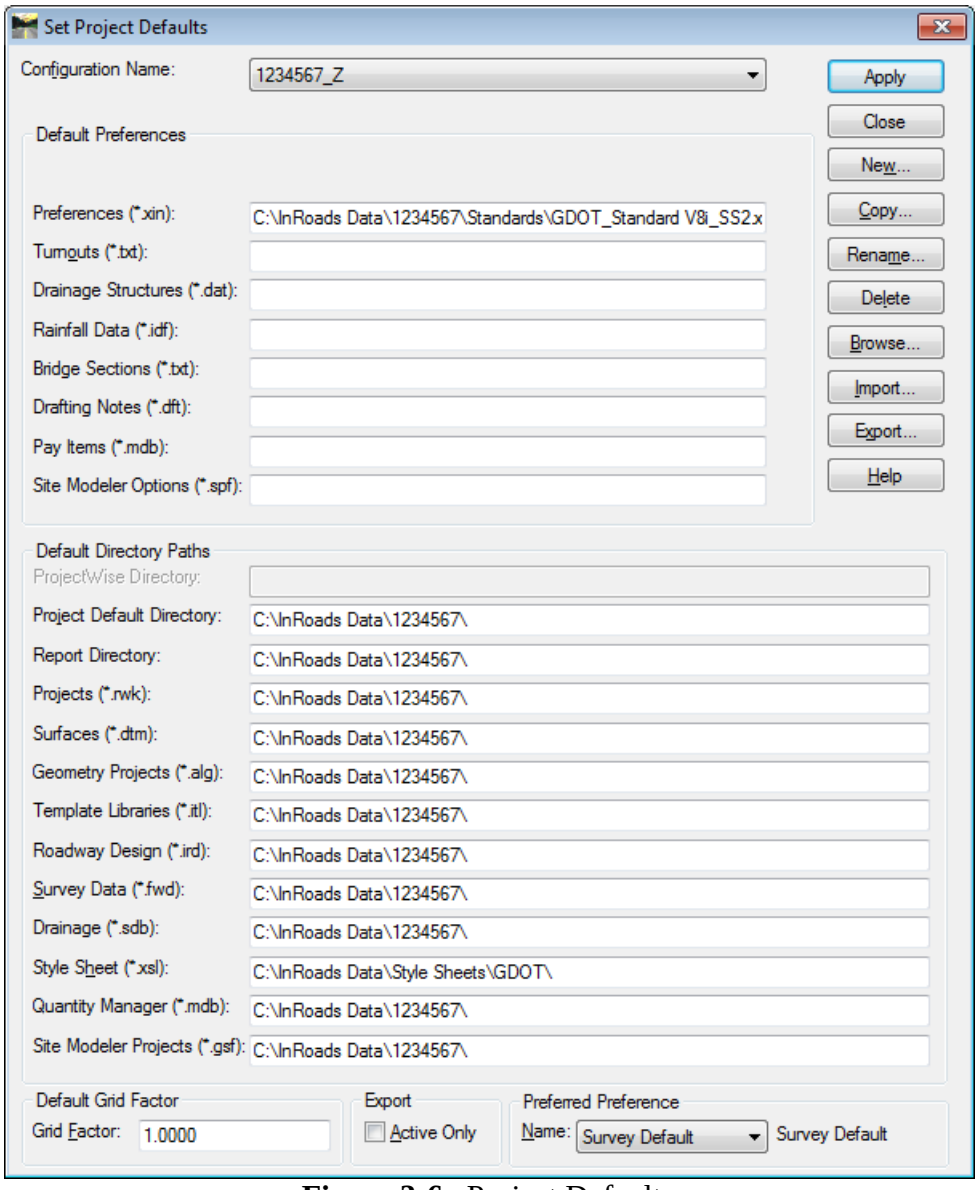


Figure 3-6 Project Defaults

7. The **Project Defaults** should look similar to the screen capture depicted in *Figure 3-6* (as shown above). Click **Apply** and then click **Close**.

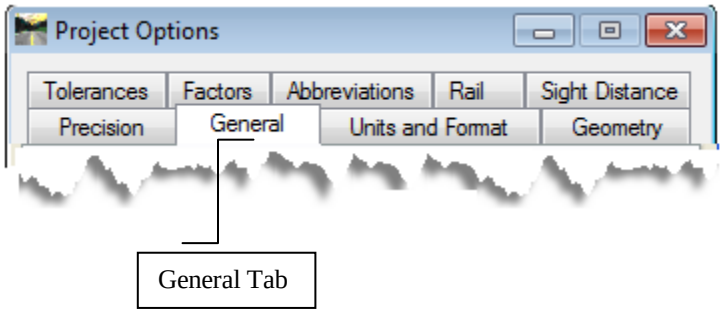
3.7 Survey Default Preferences

The **Survey Default** Preferences must be loaded in InRoads in order to conform to standards for the processing of Surface Check Projects. This is a very important step to ensure that standards are followed for any Surface Check processes that will be performed. The **Survey Default** Preference loads the Precision Settings, Tolerances, Units and Formats, Default Point and Alignment Numbering scheme(s), etc. Once the **Survey Default** Preference is loaded – the project will retain these settings each time the project is accessed.

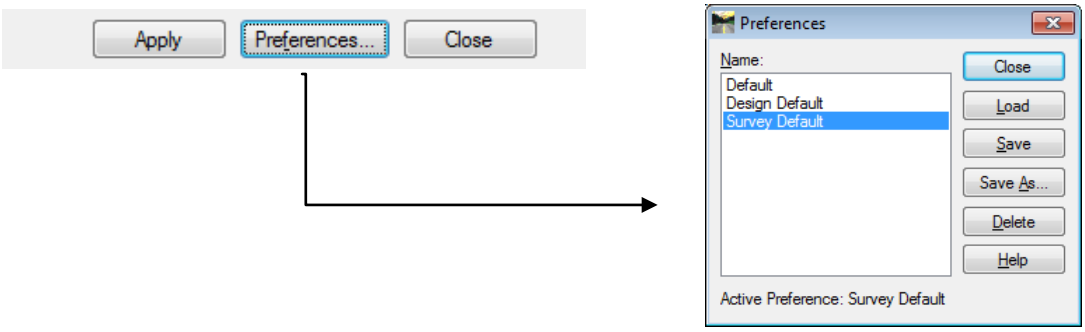
Following are the steps to set the **Survey Default Preferences**:

1. Click **File▶ Project Options** from the InRoads pull-down menu to access the **Project Options** dialog box.

2. In the **Project Options** dialog box - click on the **General Tab** and the **General Tab** dialog box will appear.



3. In the **General Tab** dialog box click the command button named **Preferences…** (Located at the bottom of the dialog box) and the **Preferences** dialog box will open.



4. In the **Preferences** dialog box – select **Survey Default**. Then click **Load** and then click **Close**.

5. The **Survey Default** Preference should now correspond to the screen capture depicted in *Figure 3-7* (as shown below).

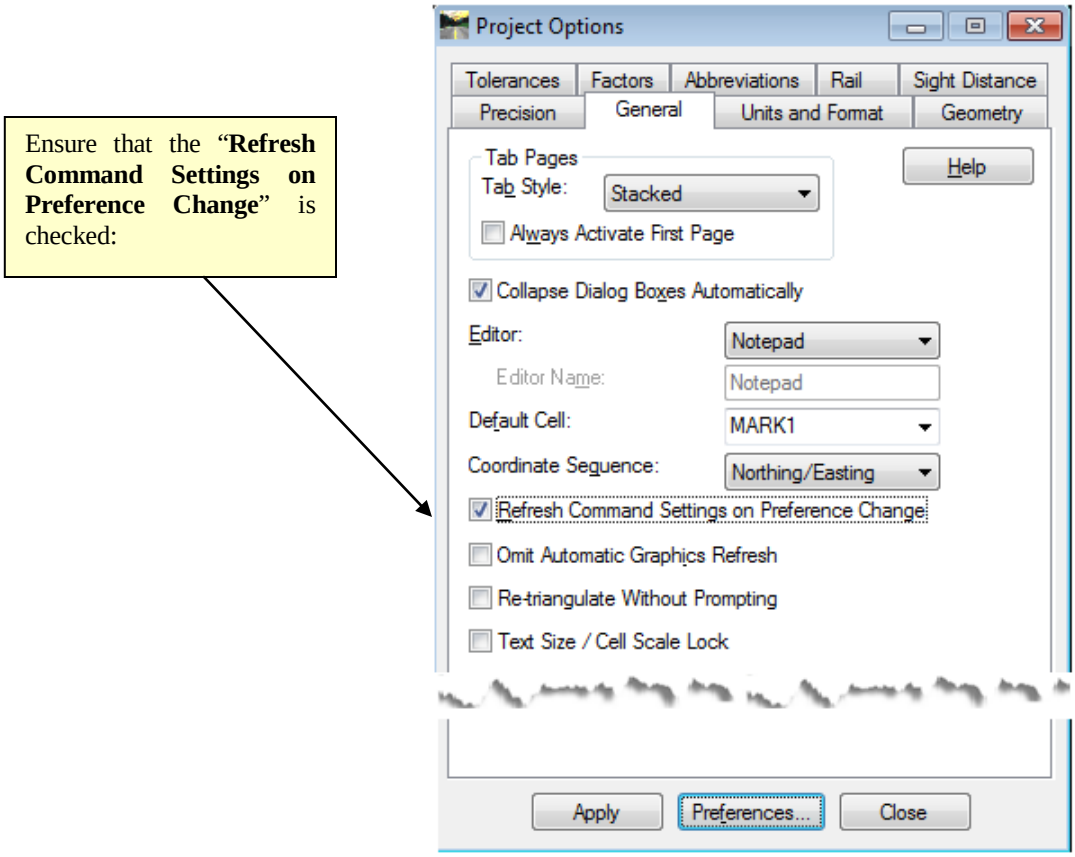


Figure 3-7 Survey Default Settings

6. Click **Apply** and then click **Close**.

The **Survey Default** Preference is now loaded. This Preference loads the appropriate data for ALL of the tabs in the Options dialog box. The individual tabs (Tolerances, Geometry, Units and Format, etc.) will automatically be configured for use in Survey calculations. The Point and Alignment Numbering scheme(s) are also automatically configured for the standard Survey conventions in the **Survey Default** Preference. These individual tab options will NOT need to change. Once the **Survey Default** Preference is loaded – the project will retain these settings each time the project is accessed on this computer. These settings are specific to this computer Profile/XIN file. If the Project is accessed on another computer – these settings may need to be re-applied in order to load the correct **Survey Default** Preference.

3.8 InRoads "Locks"

InRoads contains several "Locks" which are used by many InRoads commands to control different aspects of the selection and viewing of data as well as the reporting of data. There are basically two types of "Locks" – On/Off "Locks" and Switch "Locks". (Switch "Locks" contain different modes but one mode is always active and the user can switch between modes). Both types of "Locks" can be changed by the user as the situation dictates during the course of the database generation. These locks affect many commands – so it is very important that the user understand the use of these locks. If an InRoads command does not function as expected when utilizing the Surface Viewing or Reporting commands -- a "Lock" may have been inadvertently turned on/off.

The following section contains a brief overview of some of the InRoads "Locks". Only the "Locks" pertaining to the Survey aspect will be reviewed. As mentioned previously the "Locks" may be changed as situations dictate – but the settings depicted in the following section are applicable for most Survey Projects. It is a very important step to ensure that the "Locks" are set accordingly. (See *Table 3.5*)

Following are the steps to access the InRoads "Locks":

Click **Tools▶Locks** from the InRoads pull-down menu. Each time a "Lock" is changed – the pull-down menu will close and the user must click on **Tools▶Locks** again to access the Locks pull-down.

Table 3.5

InRoads Locks Settings

Feature Filter	Unchecked
Feature Highlight	Unchecked
Style	Unchecked
Pencil/Pen	Set to Pencil
Delete Ink	Unchecked
Locate	Set to Features
Point Snap	Checked
Element Snap	Unchecked
Station	Unchecked
Report	Checked
Cogo Audit Trail	Unchecked
Toolbar	Checked

Following is a brief overview of the InRoads "Locks":
(See *Table 3.6)*

Table 3.6
InRoads Locks Overview

Feature Filter
displays or obscures Surface Features based on a filter (also controls Survey Style Filter)

Feature Highlight
highlights the feature in plan view when selected from a list

Style
determines if a dialog box is displayed for a surface command or cross sections

Pencil/Pen
controls the redisplaying of Graphics

Delete Ink
allows redisplayed graphics to replace graphics in pen mode

Locate
controls if Locate Buttons snap to Graphics or Features

Point Snap
controls the ability to snap to points in Geometry Project

Element Snap
controls the ability to snap to elements in Geometry Project

Station
controls the Stationing as it pertains to Cross Sections

Report
controls if Report is displayed or not displayed in a dialog box

Cogo Audit Trail
controls the reporting of coordinate geometry results to a text file

Toolbar
displays or turns off the Locks Toolbar

3.9 Application and Variable Manager Add-Ins

InRoads contains several Application and Variable Manager "Add-Ins" which must be selected and added to the InRoads Program in order to access the standard GDOT customized menu applications/translators for Survey. Once the Application and Variable Manager Add-Ins are selected – the settings are written to registry keys in the user's profile. This ensures that each time InRoads is accessed in the user profile -- these settings will already be available. These add-ins will only need to be added once and will then be accessible in all of the InRoads Modules and InRoads Projects.

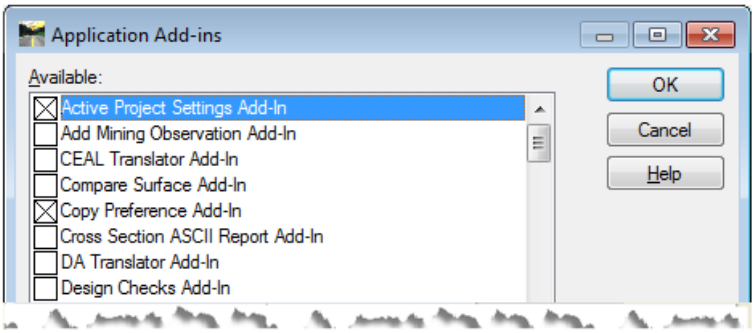
The "Application and Variable Manager Add-Ins" must be set accordingly in order to access the required GDOT Survey commands and translators.

This section details the following processes:

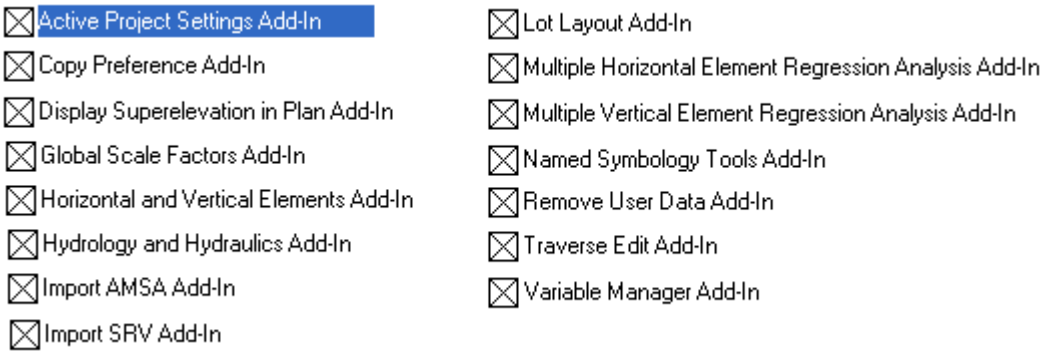
- Steps to select the Application Add-Ins
- Steps to select the Variable Manager Add-Ins

3.9.1 Steps to select the Application Add-Ins:

1. Click **Tools▶Application Add-Ins** from the InRoads pull-down menu and the following dialog box will appear:



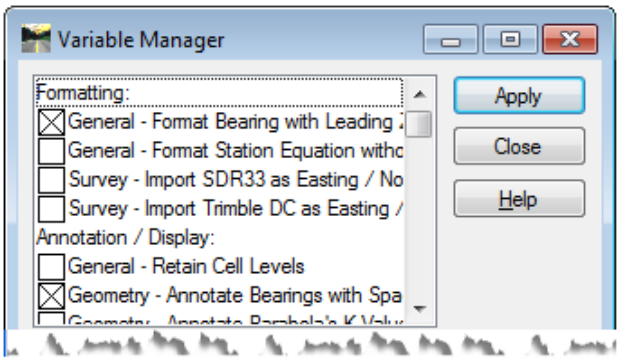
2. Select the following Application Add-Ins by clicking an ☒ by the appropriate Add-In:



3. Click **OK** to accept the settings and to close out of the dialog box.

3.9.2 Steps to select the Variable Manager Add-Ins:

1. Click **Tools▶Variable Manager** from the InRoads pull-down menu and the following dialog box will appear:



2. Select the following Variable Manager Add-Ins by clicking an ☒ by the appropriate Variable:

☒ General - Format Bearing with Leading Zero Option

☒ Geometry - Annotate Bearings with Spaces

☒ Geometry - Alphanumeric Names in Create/Edit Alignment by Cogo Points

3. Click **Apply** to accept the settings and then click **Close** to close out of the dialog box.

4

InRoads Database Preparation

4. InRoads Database Preparation

This section provides an overview of the necessary steps to ensure that the **InRoads** project database(s) contain the required information for use in the Surface Check verification procedures. In order for the "**GDOT Surface Check Report**" Style Sheet to function as intended, the project database **MUST** contain an Existing DTM Surface. This is the surface model which will be compared to the field survey points (CSV Data) to ensure the accuracy of the DTM original terrain data.

The user will receive an Existing Surface file (**.DTM).** This is the Surface file which is to be verified/checked for accuracy. This **.DTM** file will be copied into the **C:\InRoads Data\PI# Folder** (***Example C:\InRoads Data\1234567***). **Substitute applicable PI# as required**. This DTM will be used as the base surface for the DTM Surface Check.

This Section covers the following topics:

- Opening the MicroStation V8i and InRoads Select Series 2 Interface(s)
- Opening an InRoads Existing Surface (.DTM) File

Note:
The InRoads Surface that is provided may be named either PI#_Exist.dtm OR PI#_SDE.dtm).

4.1 Opening the MicroStation V8i and InRoads Interface(s)

The user will be working in both **MicroStation V8i Select Series 2** (the CADD Software) and **InRoads Suite V8i Select Series 2 (**the Survey/Design Software). The **MicroStation CADD Software** is used for the viewing and manipulation of graphics derived from **InRoads**. The **InRoads Software** is the database in which the Surveying data for the Surface Check is created and processed. Following are the Steps to open a MicroStation "**GDOT 3D Working File.dgn**".

4.1.1 Steps to open an existing "Working" DGN File

If the "Working" DGN file has been created previously – use the following steps to open the **"Working"** DGN File. **(See Section 3.3.1 in the previous Chapter for details on creating a DGN file if one does not yet exist).**

1.	From the desktop, double-click on the **MicroStation** icon labeled **GDOT MicroStation V8i SS2 (x86).**  Double click on the icon labeled **GDOT MicroStation V8i SS2 (x86).** *The MicroStation Software will open.*
2.	After the **MicroStation** Splash Screen appears, the **MicroStation Manager** dialog box will open. (See *Figure 4-1*). *The MicroStation Manager dialog box opens.*

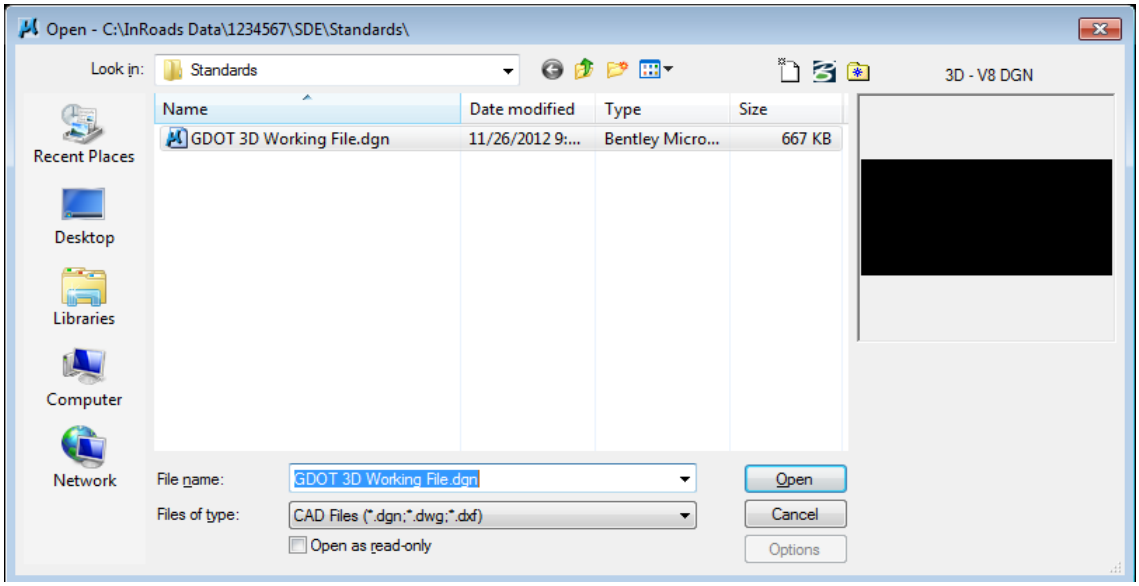


Figure 4-1 Starting MicroStation V8i and InRoads V8i

3.	In the **MicroStation Manager** dialog box, navigate to the ***C:\InRoads Data\PI Number\Standards*** folder location and highlight the (***GDOT 3D Working File.dgn***) and click the **Open** button. **Substitute applicable PI# location as required**. *The MicroStation V8i interface will then finish opening.*
4.	Then select ***InRoads ▶Windows 7 ▶ Windows 7 (SELECTseries 2) ▶ InRoads Suite (SELECTseries 2) V8i 08.11.07.566***— and the **InRoads V8i Select Series 2** interface will open. Once **InRoads** and **MicroStation** are up and running, the desktop should look similar to the screen captures shown below in *Figure 4-2* and *Figure 4-3*. *The MicroStation V8i interface and InRoads interface appear.*

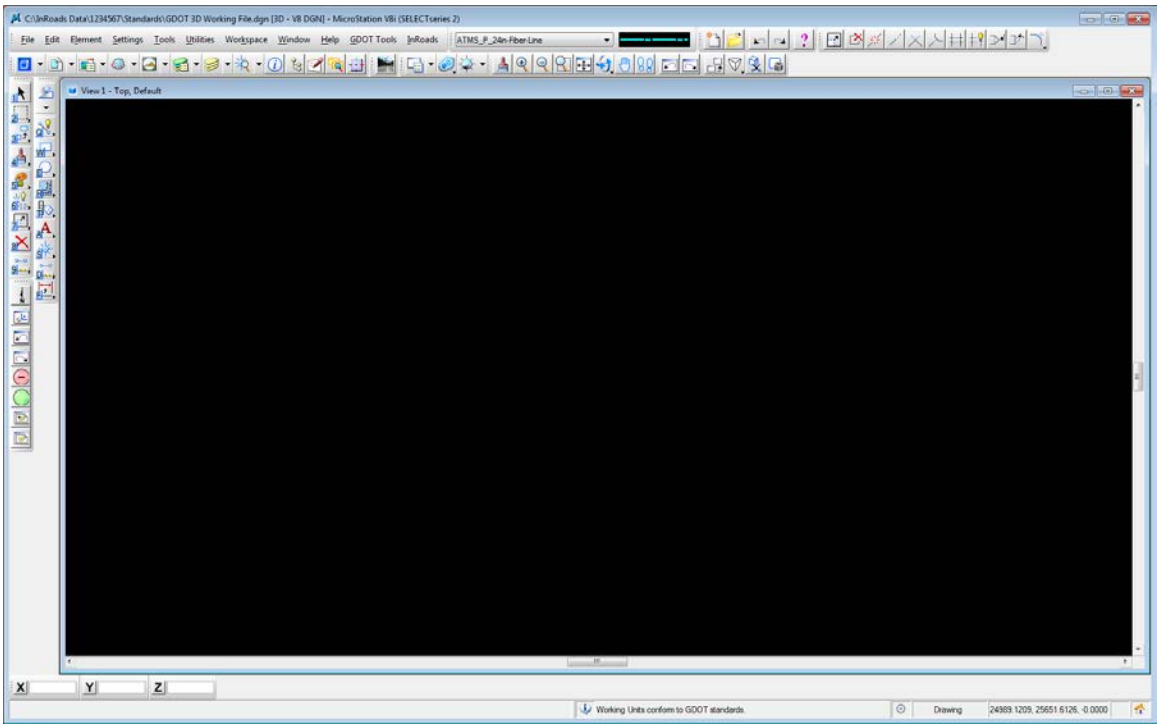


Figure 4-2 Main MicroStation V8i Window

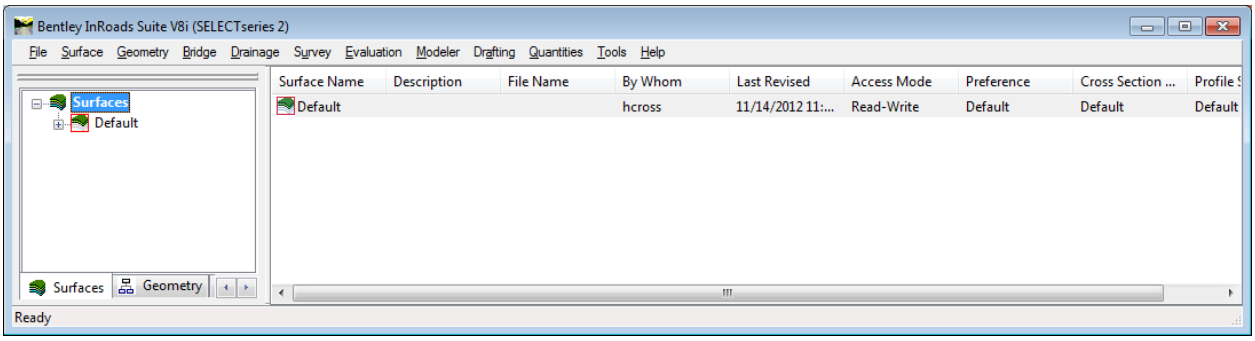


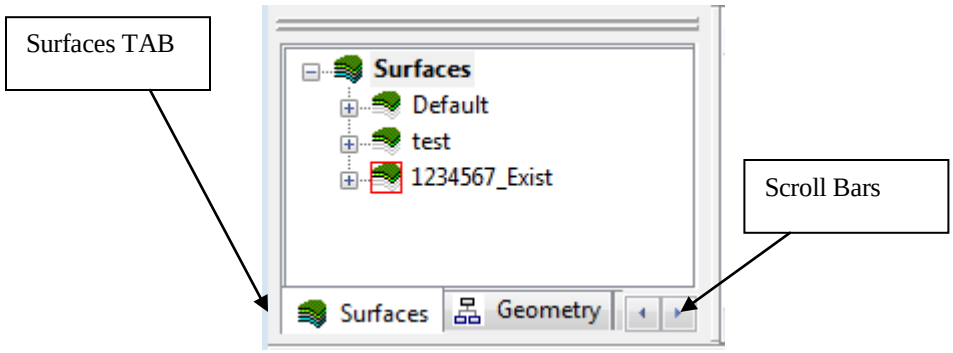
Figure 4-3 Main InRoads V8i Window

4.2 Opening an InRoads Existing Surface (.DTM) File

As mentioned previously, in order for the "**GDOT DTM Check Report**" Style Sheet to function as intended, the project database **MUST** contain a triangulated Existing DTM surface. This is the surface model which will be compared to the field survey points (CSV Data) to ensure the accuracy of the DTM original terrain data. The user will receive an Existing Surface file (**.DTM)**. This is the Surface file which is to be verified/checked for accuracy. This **.DTM** file will be copied into the **C:\InRoads Data\PI# Folder** (***Example C:\InRoads Data\1234567***). **Substitute applicable PI# as required**. This DTM will be used as the base surface for the Surface Check.

4.2.1 Steps to open an Existing Surface (.DTM) file

Following are the steps and processes to open the Existing Surface File. Please remember to substitute applicable PI# as required.

5.	**Load the InRoads Surface File** *[The triangulated **.DTM** file will be copied into the **C:\InRoads Data\PI# Folder (Example C:\InRoads Data\1234567**).]* Then select **File▶Open** from the **InRoads Menu**. The Project Defaults (which were set up in **Chapter 3**) are set to the following Path: **C:\InRoads Data\1234567** Browse to the following path: **C:\InRoads Data\1234567** Select the file named: **1234567_Exist.dtm (Example file name for the DTM)** Click **Open** and then click **Cancel**. *The 1234567_Exist.dtm Surface file will open.*
6.	Click on the **Surfaces Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface). If this tab is not visible – use the scroll bars to scroll to the **Surfaces Tab**.  *Opens the Surface Tab in the InRoads Explorer Interface.*

7.	**Information Only:** Review the InRoads Explorer ***Data Type*** frame (by highlighting the 1234567_Exist name depicted in the screen capture above) and note that the Surface Project contains ***Data Types*** that have Features that are active and have been populated with points and breaklines. This panel will also inform you of the triangles that have been created. (See *Figure 4-4*). If this panel contains all ***0's*** depicted in the ***Data Types*** in the InRoads Explorer – this means that the surface is empty and contains no data. The Surface must be triangulated in order for the "**GDOT Surface Check Report**" Style Sheet to function correctly. If the Surface has not been triangulated – the user will need to be provided a triangulated Existing DTM for use in Surface Checks. *Depicts information used to determine if the Surface has been triangulated.*

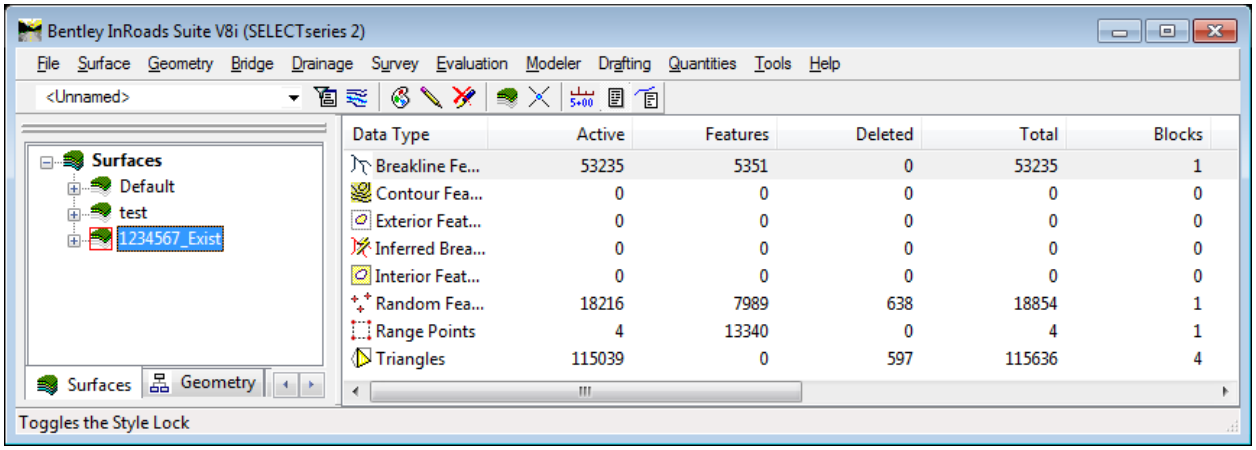


Figure 4-4 Surface Tab – InRoads Explorer (Depicting Triangulated DTM)

5

CSV File Translation Process

5. CSV File Translation Process

The DTM Surface which is submitted by the Designer or Consultant is the surface model which will be compared to the field survey points (CSV Data) to ensure the accuracy of the DTM original terrain data for use in compliance checks.

In order to import the field survey points for comparison to the DTM, an InRoads Survey Data Field Book (.FWD File) must be created and must be made active in order to import and translate the CSV Data from Survey. In these Guidelines, an example Project **1234567Z.fwd** (Survey Data Field Book File) will be created. This active field book database will be used to import, generate and translate the "CSV" data from Survey.

InRoads contains a **Translator** which converts the CSV file into a format that is usable for InRoads. The translator converts the .CSV file based on a format of **Point Number**, **Northing**, **Easting**, **Elevation**, **Feature Code** and **Attribute**. After the CSV file is translated and imported into the Field Book, the data will then be imported into a Geometry Project. The importation into the Geometry Project will be discussed in the next **Chapter 6**.

***Please Note:**
The field survey points, which will be collected by the Survey personnel for DTM mapping data verification, will consist of two Alpha Codes (MPCKGRD and MPCKPAV). These Alpha codes **MUST** be used in order for the CSV Translation process in InRoads to work and the **GDOT Surface Check Report** Style Sheet to translate and generate the points according to GDOT standards.

This section covers the following topics:

- Create a Survey Data Field Book Project (**Project 1234567Z.fwd**)
- Save the Survey Data Field Book Project (**Project 1234567Z.fwd)**
- Translate and Import the CSV File
- Review the Survey Data in the Field Book and correct errors as needed
- View the Planimetric Survey Data in InRoads/MicroStation

5.1 Create 1234567Z Survey Data Project (1234567Z.fwd) Fieldbook

An InRoads EXAMPLE Survey Data Field Book (1234567Z.fwd) will be created and saved to the Project Folder. This Survey Data Field Book data will be used in the next **Chapter 6** to create an .ALG (Geometry database).

8.	If **MicroStation** and **InRoads** are not open, follow the steps depicted in the previous **Chapter 4** to open MicroStation and InRoads. *Starts the MicroStation and InRoads Software Product(s).*

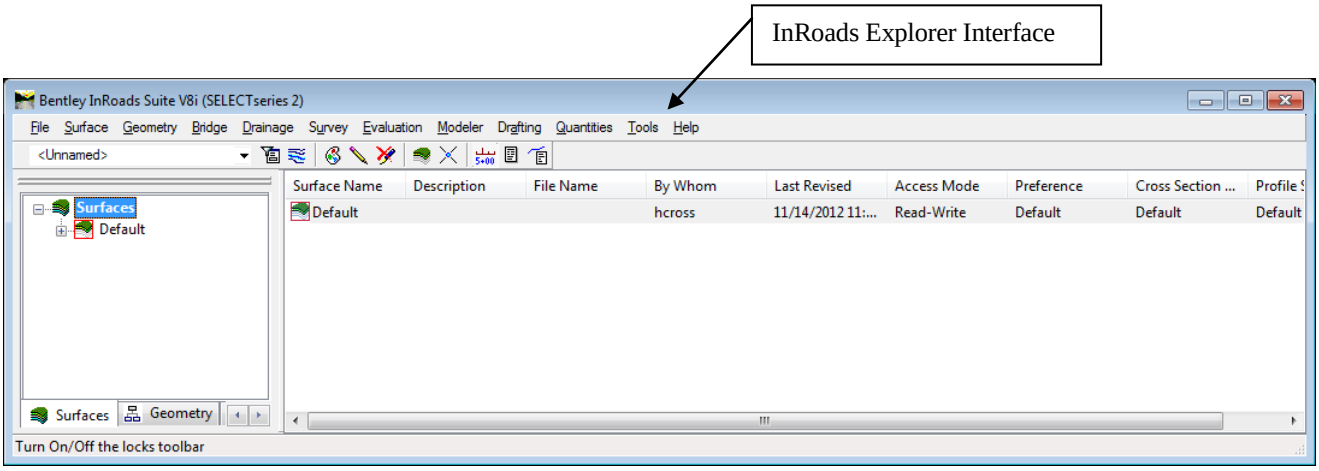
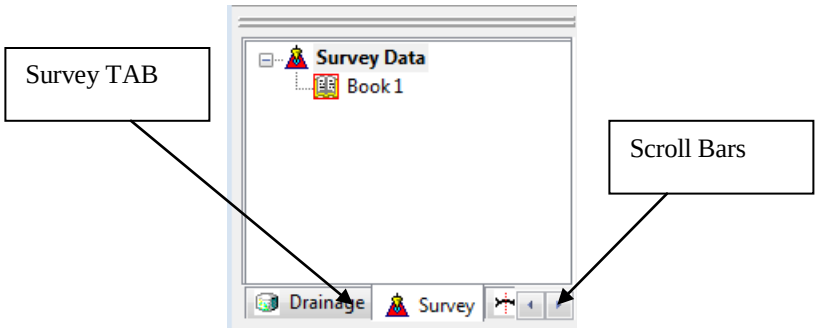


Figure 5-1 InRoads Interface

9.	Click on the **Survey Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface). If this tab is not visible – use the scroll bars to scroll to the **Survey Tab**.  *Opens the Survey Tab in the InRoads Explorer Interface.*

10.	Create the ***1234567Z.fwd*** Survey Data Project by selecting **File▶New** from the **InRoads Menu**. The **New** dialog box will open. Select the **Survey Data Tab**. • In the **Name:** Field – enter ***1234567Z*** The inputs should now correspond to the screen capture depicted in *Figure 5-2* (as shown below). Verify to ensure that your input matches the screen capture. *Opens the New dialog box allowing you to create a Survey Data Project.*

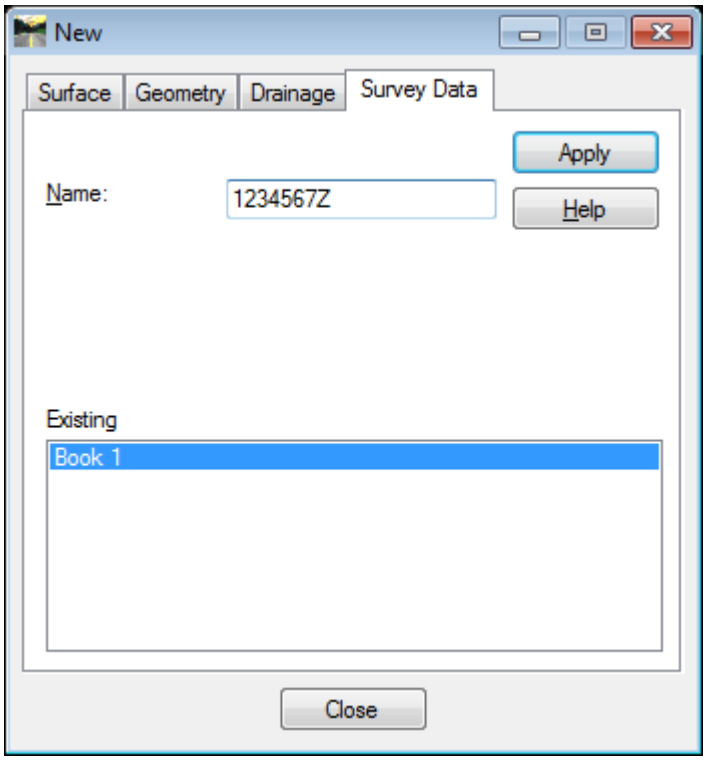


Figure 5-2 "New" Survey Data Project

11.	Click **Apply** and then click **Close** to create the **Survey Data Project**. *The Survey Data Project is created and the New dialog box closes.*

12.	Even though the InRoads Survey Data Project was created – it has not yet been saved. InRoads retains the data in temporary memory but does not save the data on the fly. It is highly recommended to Save the project periodically after any major modifications or changes to the data. • Select **File ▶ Save ▶ Survey Data** from the **InRoads Menu**. • The **Save As** dialog box will appear as shown in *Figure 5-3*.

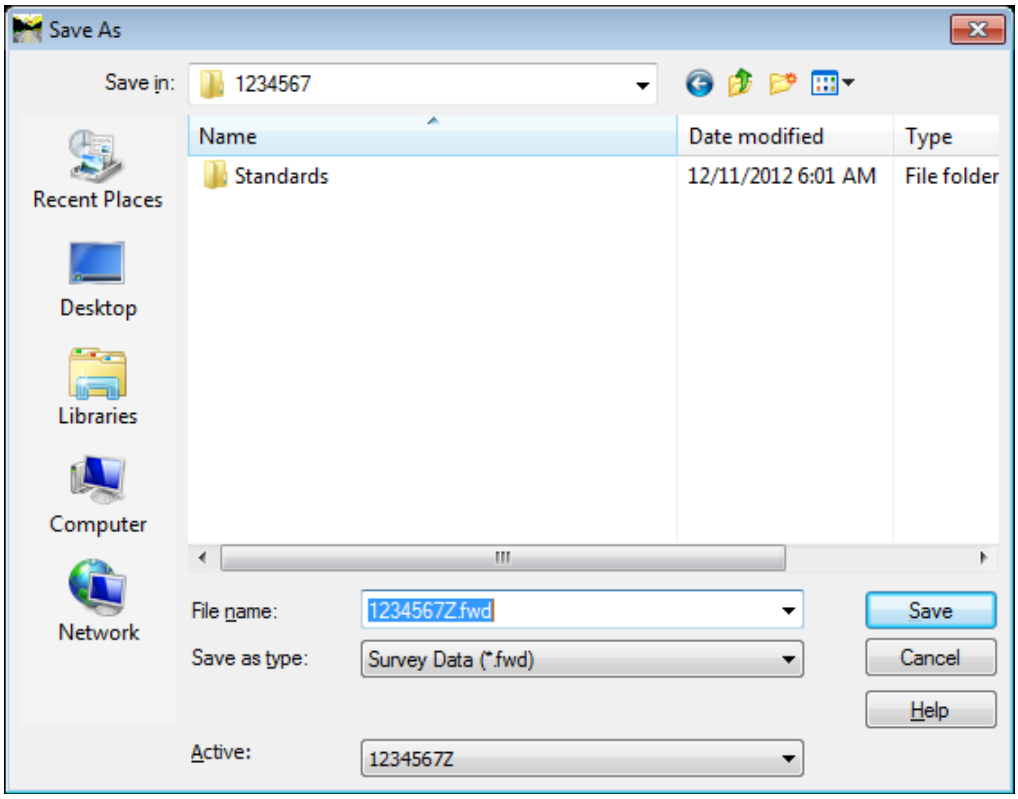
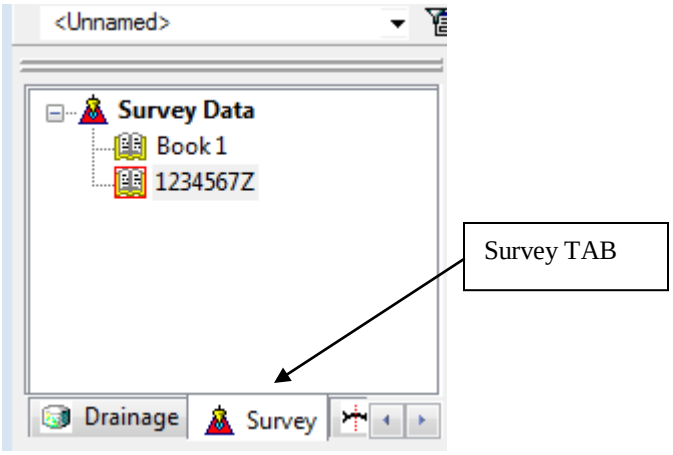


Figure 5-3 Save As 1234567Z.fwd

13.	**Save the 1234567Z.fwd file.** • Navigate to **C:\InRoads Data\1234567** • Enter the **File name:** as ***1234567Z*** • Enter the **Save as type:** as ***Survey Data (*.fwd)*** • Click **Save** and then click **Cancel.** *The FWD File is saved to the following location:* ***C:\InRoads Data\1234567***

14.	Click on the **Survey Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface).  Then *double-click* on the **1234567Z** Survey Data Project. Note that the Survey Project has been created but is currently empty and contains no data – this is denoted by the "blank" coordinate data in the InRoads Explorer Interface. See *Figure 5-4* (as shown below). *Opens the InRoads Survey Tab and displays the 1234567Z Survey information in the InRoads Explorer Interface.*

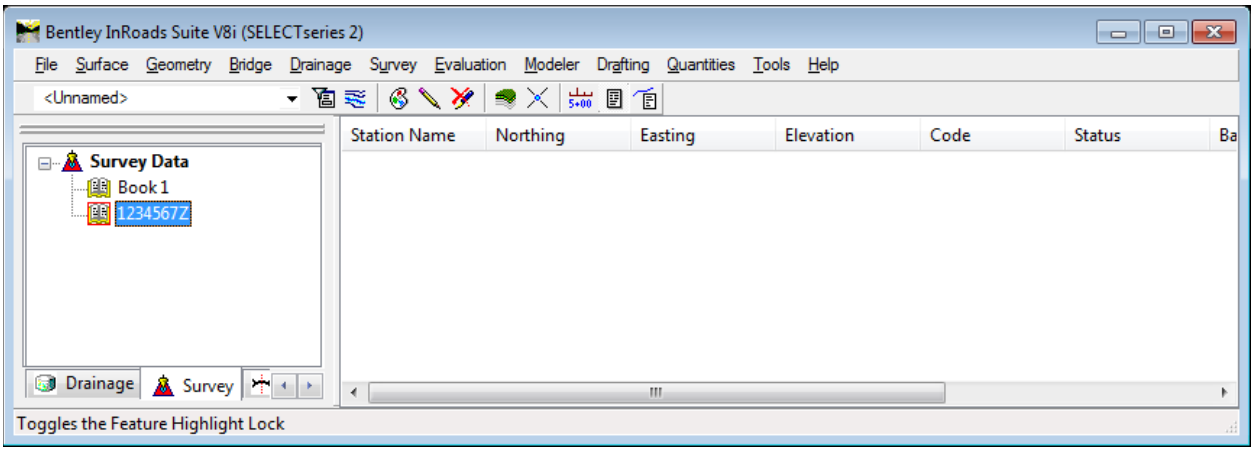
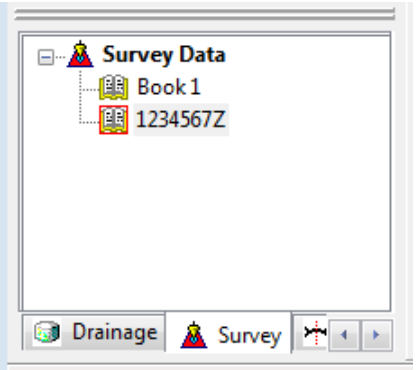


Figure 5-4 Survey Tab – InRoads Explorer (Before File Importation)

15.	In the screen capture depicted below – Note that in the InRoads Explorer Interface Workspace Bar that the **1234567Z** Survey project has a "Red Rectangle" around the icon. This denotes that this is the "Active" Survey Project. Any survey commands will be initiated and performed on the current "Active" Survey Project.  Also note that there will <u>always</u> be a Default "Book 1" Project listed. InRoads includes this Default "Book 1" for internal InRoads functionality --- **<u>Remember to never save data to this Default Survey Data Book.</u>** *Displays a red rectangle around the 1234567Z Survey icon to reflect that this is the Active Survey Project upon which commands will be performed.*

5.2 Translate and Import the CSV File

In the following EXAMPLE – a CSV Field Survey File will be translated and imported into the 1234567Z.fwd field book by using the InRoads "**Import Survey Data**" command. After the data has been translated and imported – the Survey Data will be saved to the 1234567Z.fwd Survey Project. You will need to copy the .CSV Check File to the Project Folder so that it will be in the **C:\InRoads Data\1234567** directory path.

16.	**For Information Only:**
	Following is an example format of the GDOT standard CSV File which contains the "Check Points" which will be used to verify the accuracy of the DTM Data:
	
	(**Point Number – Northing –Easting – Elevation – Alpha Code – Attribute**)
	
	`48516,1777879.319,2005394.542,806.38649,MPCKPAV,ATTRNAME,`
	`48517,1777923.656,2005415.726,808.18836,MPCKPAV,ATTRNAME,`
	`48518,1777966.443,2005436.094,809.86092,MPCKPAV,ATTRNAME,`
	`48519,1778011.337,2005457.523,811.52587,MPCKPAV,ATTRNAME,`
	`48520,1778056.606,2005479.069,813.25172,MPCKPAV,ATTRNAME,`
	`48521,1778101.767,2005500.445,814.92304,MPCKPAV,ATTRNAME,`
	`48522,1778146.877,2005521.845,816.26879,MPCKPAV,ATTRNAME,`
	`48523,1778190.987,2005542.866,817.499,MPCKPAV,ATTRNAME,`
	
	Depicts "Example" format of standard GDOT CSV File.

17.	The CSV File will be translated and imported: (**1234567Z.CSV)** Select **File▶Import▶ Survey Data** from the **InRoads Menu**. The **Import** dialog box will open. Select the CSV file by browsing to the file in the "**Look in**" drop down box. Navigate to the CSV file which is located in the following path: **C:\InRoads Data\1234567** Select the **1234567Z.csv** file --- by left-clicking on the file. • In the **File name:** Pulldown – ensure ***1234567Z.csv*** is listed • In the **Files of type:** Pulldown – ensure **GDOT Trimble Format(*.csv)** is listed • The **Template:** Pulldown – should be blank • The **Linear Units:** Selection - should be US Feet • The **Angular Units:** Selection – should be Degrees The inputs should now correspond to the screen capture depicted in *Figure 5-5* (as shown below). Verify to ensure that your input matches the screen capture. *Opens the Import dialog box allowing you to import a CSV File.*

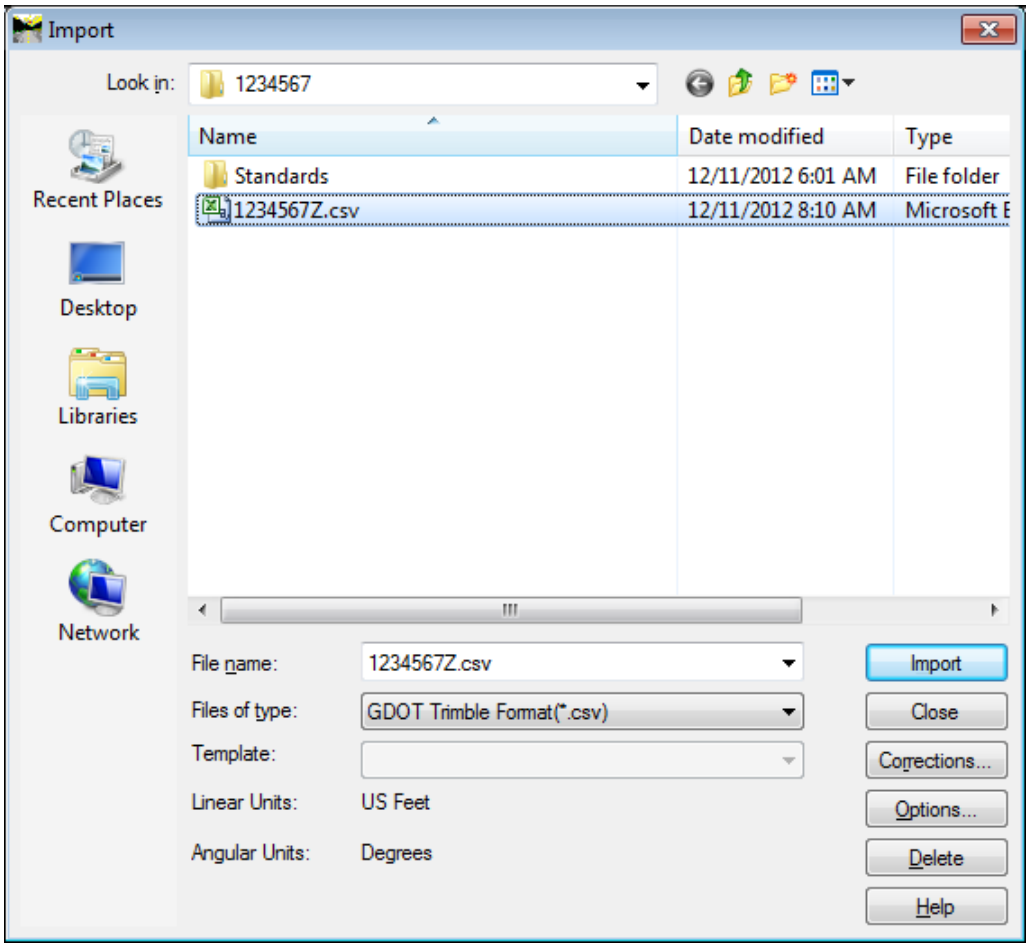


Figure 5-5 Import CSV Translator

18.	Click **Import.** (This command selects the data to be imported.) Click **Close**. (The Survey Data is actually imported when the **Close** command is selected.) **Please Be Patient!** **It may take a while for the CSV data to import depending on the size of the file!** Once the data is imported – the **Import** dialog box will close automatically. *The CSV File data is translated and imported into the 1234567Z Survey Project.*

19.	The CSV File data is now imported into the **1234567Z** Survey Project. Click on the **Survey Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface) and then *double-click* on the **1234567Z** Survey Project. *Click* on the **1234567Z** sub-folder. Review the InRoads Explorer ***data*** frame and note that the Survey Project now contains point data and coordinate information. Your InRoads Explorer Interface should look similar to the screen capture shown below (See *Figure 5-6*). *Opens the InRoads Survey Tab and displays the **1234567Z** Survey Data information in the InRoads Explorer Interface.*

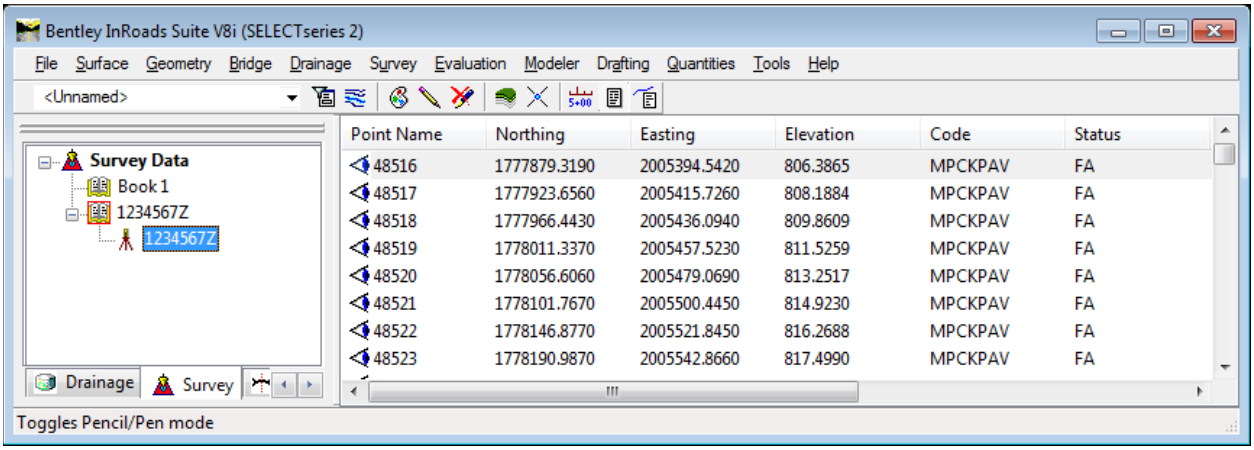
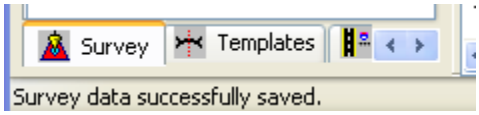


Figure 5-6 Survey Tab – InRoads Explorer (After File Importation)

20.	Even though the CSV data has been imported into the InRoads Survey Project (1234567Z.fwd) – the data has not yet been saved. As mentioned previously, InRoads retains the data in temporary memory but does not save the data on the fly. Whenever a change has been made to an InRoads Survey Project – it is advisable to Save the project and its associated modifications or changes. Select **File ▶ Save ▶ Survey Data** from the **InRoads Menu**. Please Note: (The "Save As" dialog box may not appear because the Survey Project has already been saved initially). The Survey Project (***1234567Z.fwd***) will be saved to the following path: **C:\InRoads Data\1234567** Note that the **InRoads Status Bar** (Located at the bottom of the InRoads Interface) will depict a message when the Survey Project has been saved. (See screen capture below): Survey Project Saved →  *The **1234567Z** Survey Project has now been saved to the following path:* ***C:\InRoads Data\1234567***

5.3 Review the Survey Data in the Survey Field Book

In the following Section – the CSV Field Survey data will be reviewed for accuracy in the Survey field book to determine if there was any erroneous data introduced in the CSV file. Although the Field Book is a good tool to utilize for reviewing and determining error in the data – it is highly advisable to use this field book as a review tool only. If any errors are found during the review – the user needs to make any corrections or adjustments of the data in the **original CSV file** or recompile the survey data contained in the data collector to create a new CSV file.

The field book can be utilized to determine the validity of many aspects regarding point data represented in the CSV file. Although this section does not demonstrate all of the review functions contained in the field book – following are some of the tools available for point/alignment verification:

- Unrecognized Feature Codes/Feature Styles which are not found in InRoads (will be highlighted in Red)
- Errors in Elevation (Busts in elevations)
- One Point on Chain Check

As mentioned previously if any errors are found during the review of the field book data – all corrections should be made in the original CSV file or data collector.

21.	Select **Survey►Fieldbook Data** from the **InRoads Menu** and the ***1234567Z*** Survey Field Book will open. Briefly review the field book data information for potential errors/problems. See the Survey Field Book screen capture depicted in *Figure 5-7* (as shown below). *Opens the Fieldbook dialog box for review.*

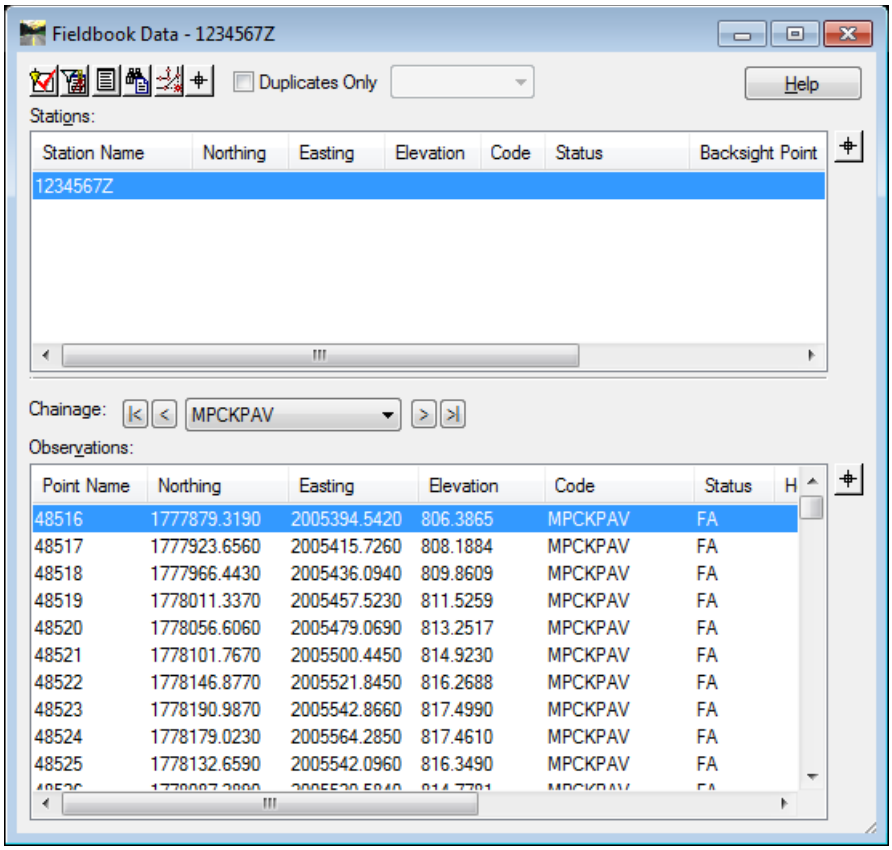
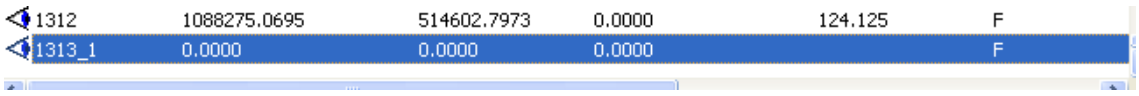
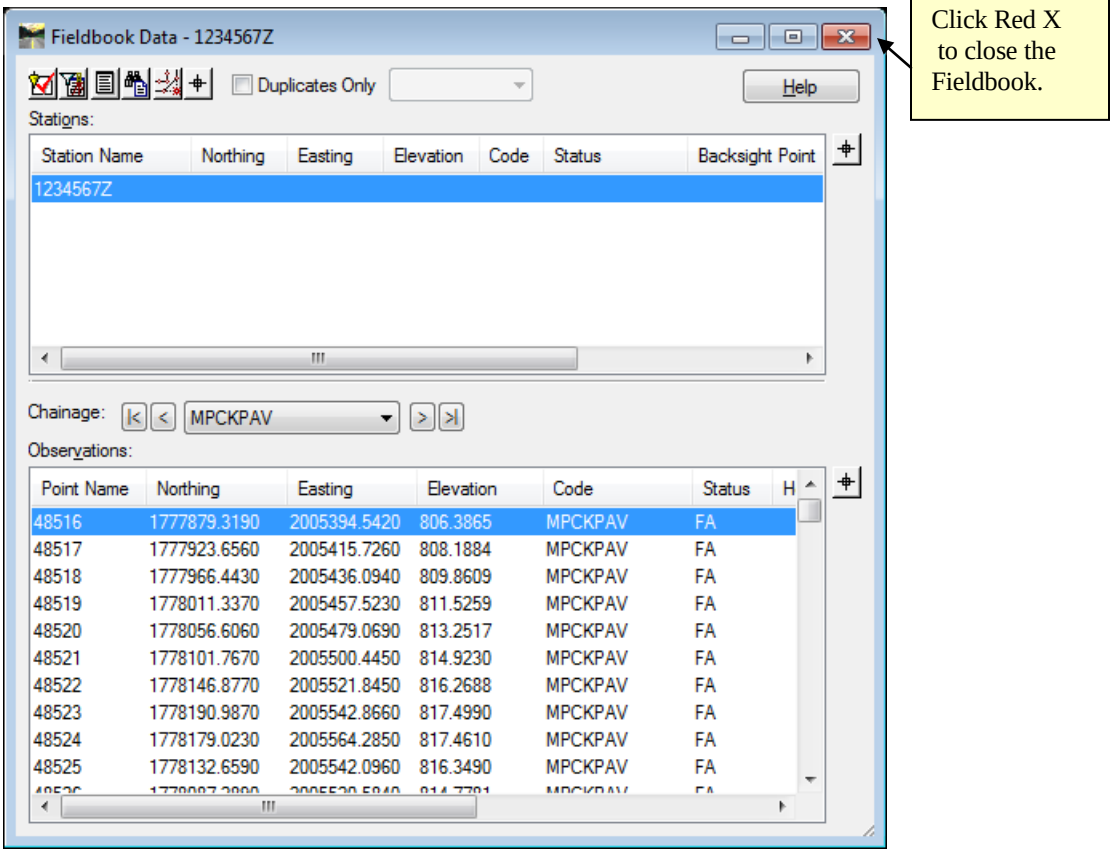


Figure 5-7 Survey Field Book

22.	**For Information Only:** <u>Very Important!</u> If the CSV file is manually edited to correct an error – please be sure that there is NOT a hard return after the last entry in the CSV file (Depicted by a blank line beneath the last entry). If this should occur and is not corrected in the CSV file – the last entry in the InRoads Field Book will be erroneous. If this situation is present in the field book – it will be as depicted by the screen capture shown below highlighted in Blue –  To resolve the issue – edit the CSV file by deleting the last blank line represented in the CSV file. *Depicts example of a common error in the InRoads Field Book.*

23. **Close the Fieldbook Data dialog box.**

Left click on the Red X in the upper right corner of the Fieldbook Data dialog box as shown here.

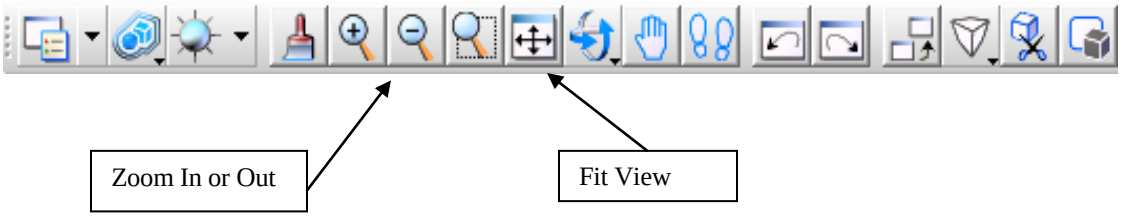


Closes the Fieldbook Data dialog box.

5.4 View the Planimetric Survey Data

When the Survey Data is imported into the Survey Field Book, the data can be viewed as Planimetric data in MicroStation.

Please Note:
At this time - the data can be viewed only. This data is not actually written as Graphics to the DGN file. The user may zoom in or out in MicroStation but actual manipulations to the data cannot be initiated because it has not yet been imported into a Surface and/or Geometry database.

24.	**View** the selected Features in the [MicroStation Software] by using the following commands located under the MicroStation View 1 Window: In the [MicroStation Software] – Select the "Zoom In or Zoom Out" or "Fit View" Icons as appropriate to view the Features.  *Views the Features in MicroStation.*
25.	**To turn Planimetric Survey Data on/off:** The Planimetric View can be turned on/off in InRoads by the following steps: Select **Survey►View Survey Data► Planimetrics** from the **InRoads Menu**. A check mark by Planimetrics – turns the planimetric data on for viewing. Removing the check mark by Planimetrics – turns the planimetric viewing data off. *Steps to view the Planimetric Survey Data in InRoads/MicroStation.*

6

ALG (Geometry Project) Import Process

6. ALG (Geometry Project) Import Process

Please Note that when using the "GDOT Surface Check Report**" Style Sheet and its associated processes, a different method of Survey Import is utilized. In most Survey Processing Procedures – Topo data is imported into the Surface Project (.DTM) and the Property data is imported into the Geometry Project (.ALG). **When using the "GDOT Surface Check Report" Style Sheet process – both the MPCKGRD and MPCKPAV Feature Code Points are always imported into the Geometry Project (.ALG).** If the points are not imported into a Geometry Project (.ALG) – the "**GDOT Surface Check Report**" Style Sheet will not function.

In the previous **Chapter 5**, the field survey data was translated and imported into InRoads by using a Survey Project (an .FWD Survey Field Book). The next Chapter depicts the process of creating a Geometry Project (.ALG) and importing the translated survey data into this database.

The survey data which is imported into the Geometry Project (.ALG) will consist of the MPCKGRD and MPCKPAV Feature code points. These points are used to compare the associated point data in the Existing surface model to ensure that the DTM surface is within compliance.

In order to automate this process - Survey Style Filters have been created which automatically "filters" the data so that the appropriate data will import into the Geometry Database. In the case of the "**GDOT Surface Check Report**" Style Sheet compliance checks – these filters will need to be turned OFF for the Geometry Project import.

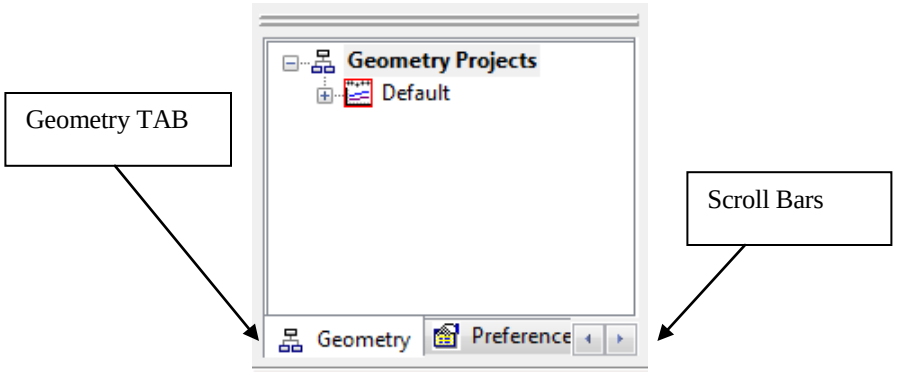
The following Section depicts the procedures to create the Geometry Project (.ALG) and the process of importing the Survey Data into the database.

This section covers the following topics:

- Create and Import data into an InRoads ALG (Geometry Database Project)
- Learn how to use Survey Style Filters and Feature Filter "Locks"
- View the Graphical Geometry Information

6.1 Create a Geometry Project Database (.ALG)

In this Chapter you will be creating a Geometry Project Database. This database will be used to import the Point Data information contained in the Survey Field Book (.FWD) into the Geometry Project Database (.ALG).

26.	If **MicroStation** and **InRoads** are not open, follow the steps depicted in the previous **Chapter 4** to open MicroStation and InRoads. *Starts the MicroStation and InRoads Software Product(s).*
27.	**Information Only:** Make sure the following files are open – **Substitute applicable PI# as required**. • **1234567_Exist.dtm** --- the Existing Surface which is to be verified • **1234567Z.fwd** --- the "Check" Survey Points obtained from the CSV File *Ensures the Existing DTM and Survey Field Book databases are open.*
28.	Click **Tools►Locks** from the InRoads pull-down menu. Ensure that the following Lock is turned **OFF**. There should **NOT** be a check mark next to the following: **Feature Filter** is not checked **This is an important step**. If the Feature Filter is turned on (has a check mark next to it) – the Survey Style Filter will not work correctly… *Ensures that the appropriate Lock is turned OFF.*
29.	Click on the **Geometry Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface). If this tab is not visible – use the scroll bars to scroll to the **Geometry Tab**.  *Opens the Geometry Tab in the InRoads Explorer Interface.*

30.	Create the ***1234567Z.alg*** Geometry Project by selecting **File►New** from the **InRoads Menu**. The **New** dialog box will open. Select the **Geometry Tab**. • In the **Type:** Pulldown – select ***Geometry Project*** • In the **Name:** Field – enter ***1234567Z*** • In the **Description:** Field – enter ***Training Data*** • In the **Style:** Field – (Leave Blank) • In the **Curve Definition:** Field – (Leave Blank) The inputs should now correspond to the screen capture depicted in *Figure 6-1* (as shown below). Verify to ensure that your input matches the screen capture. *Opens the New dialog box allowing you to create a Geometry Project.*

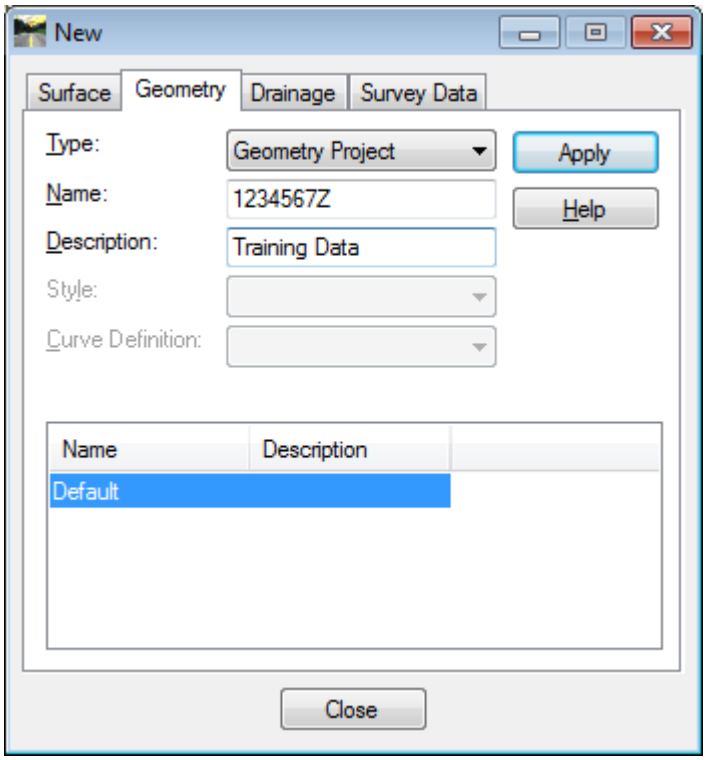


Figure 6-1 "New" Geometry Project

31.	Click **Apply** and then click **Close** to create the **Geometry Project**. *The Geometry Project is created and the New dialog box closes.*
32.	Even though the InRoads Geometry Project was created – it has not yet been saved. InRoads retains the data in temporary memory but does not save the data on the fly. It is highly recommended to Save the project periodically after any major modifications or changes to the data. Select **File ▶ Save ▶ Geometry Project** from the **InRoads Menu**. Navigate to the following location: **C:\InRoads Data\1234567** Save the Geometry Project (***1234567Z.alg***) to the above path and then click **Save** and then click **Cancel**. See *Figure 6-2* (as shown below). *The **1234567Z** Geometry Project has now been saved to the following path:* ***C:\InRoads Data\1234567***

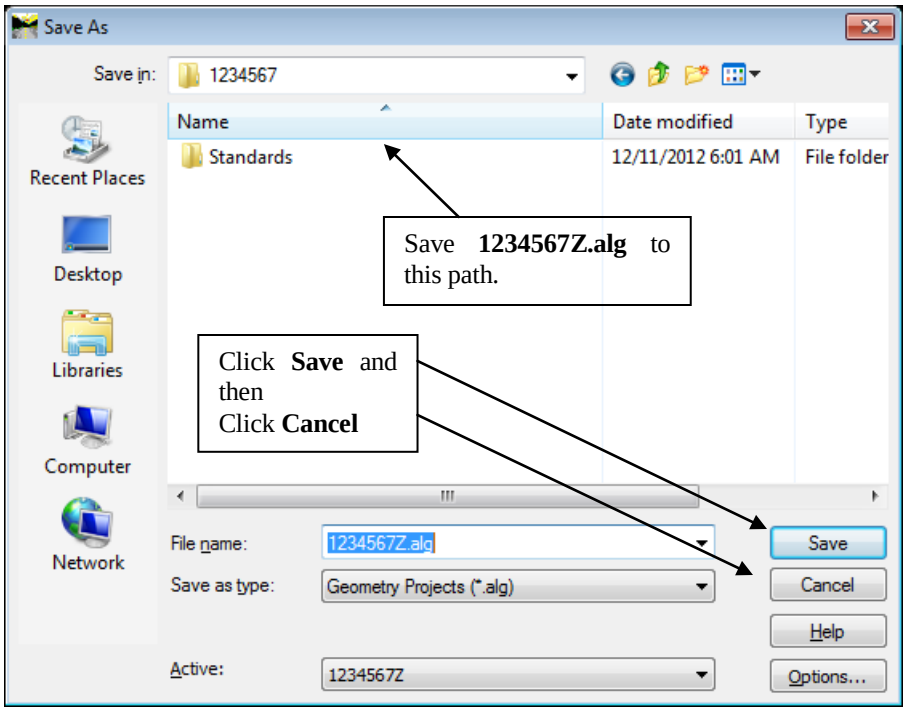
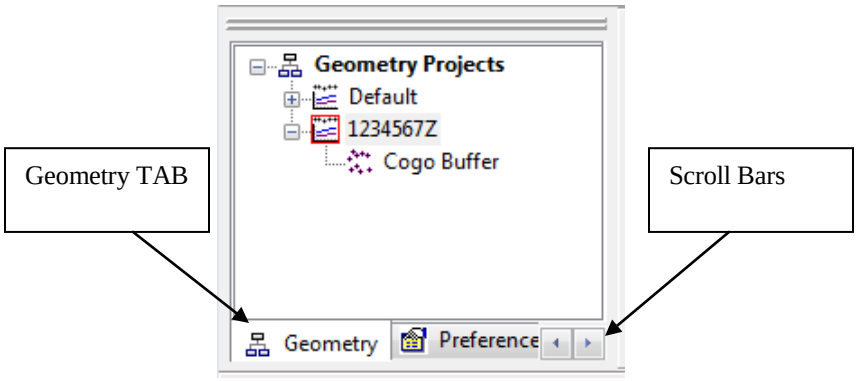
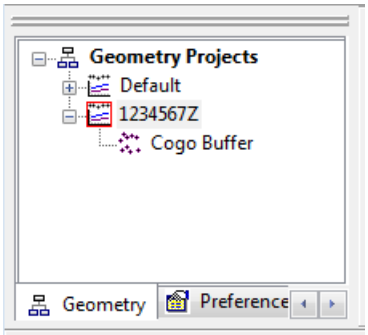


Figure 6-2 Save As 1234567Z.alg

33.	Click on the **Geometry Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface). If this tab is not visible – use the scroll bars to scroll to the **Geometry Tab**.  Then *double-click* on the **1234567Z** Geometry Project. Note that the Geometry Project has been created but is currently empty and contains no data – this is denoted by the "blank" point/coordinate data in the InRoads Explorer Interface. *Opens the InRoads Geometry Tab and displays the 1234567Z Geometry information.*
34.	In the screen capture depicted below – Note that in the InRoads Explorer Interface Workspace Bar that the **1234567Z** Geometry project has a "Red Rectangle" around the icon.  This denotes that this is the "Active" Geometry Project. Any Geometry commands will be initiated and performed on the current "Active" Geometry Project. Also note that there will always be a Default Project listed. InRoads includes this Default Project for internal InRoads functionality --- **Remember to never save data to this Default Project.** *Displays a red rectangle around the 1234567Z Geometry icon to reflect that this is the Active Geometry Project upon which commands will be performed.*

6.2 Import Survey Data into the Geometry Project (.ALG)

In this Chapter you will be creating a Geometry Project Database. This database will be used to import the Point Data information contained in the Survey Field Book (.FWD) into the Geometry Project Database (.ALG).

The following Section depicts the process of importing in the Survey Data (MPCKGRD and MPCKPAV Check Points) into the **1234567Z** Geometry Project.

35.	**Important Step!** Click **Tools►Locks** from the InRoads pull-down menu. Ensure that the **Feature Filter Lock** is turned **OFF**. There should **NOT** be a check mark next to the Feature Filter Lock. *Ensures that the Feature Filter Lock is turned OFF.*
36.	From the **InRoads Menu** - click **Survey ►Survey Data to Geometry** and the **Survey Data to Geometry** dialog box will appear: • In the **Project Name:** Pulldown – select ***1234567Z*** • In the **Description:** Pulldown – select the default ***Use Style Description*** • In the **Curve Stroking:** Pulldown – select the default ***Horizontal and Vertical*** • In the **Duplicate Names:** radio button – select default of ***Rename*** Leave all other entries as default. The inputs should now correspond to the screen capture depicted in *Figure 6-3* (as shown below). Verify to ensure that your input matches the screen capture. *Opens the Survey Data to Geometry dialog box.*

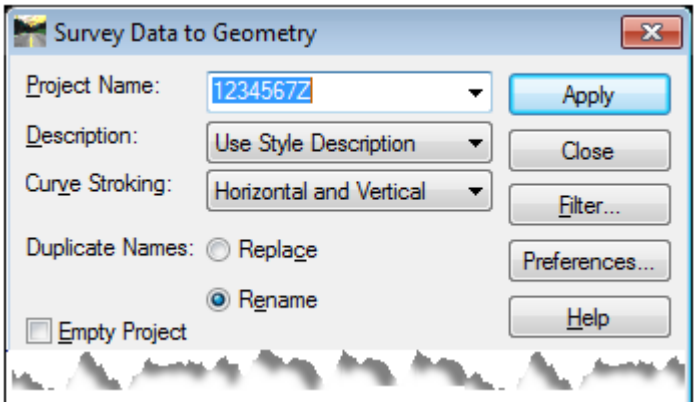
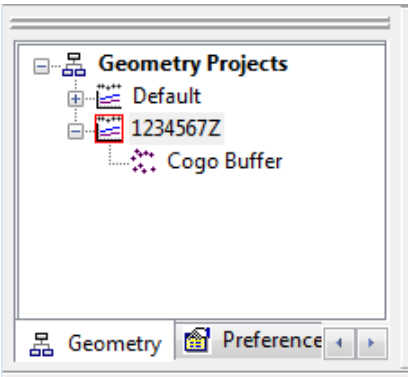
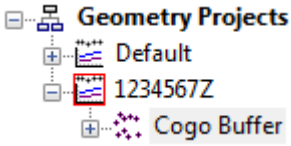


Figure 6-3 Survey Data to Geometry

37.	Click **Apply** and then click **Close**. The Survey Data (Check Points) will be imported into the ***1234567Z*** Geometry Project and the **Survey Data to Geometry** dialog box will close. *The Survey Data is imported and the Survey Data to Geometry dialog box closes.*
38.	The Survey Data is now imported into the Geometry Project. Click on the **Geometry Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface).  Then *double-click* on the **1234567Z** Geometry Project. A **Cogo Buffer** folder will appear. *Double-click* on the **Cogo Buffer** folder.  Review the InRoads Explorer ***data*** frame and note that the Geometry Project now contains point data and coordinate information. Your InRoads Explorer Interface should look similar to the screen capture shown below (See *Figure 6-4*). *Opens the InRoads Geometry Tab and displays the **1234567Z** Geometry Data information in the InRoads Explorer Interface.*

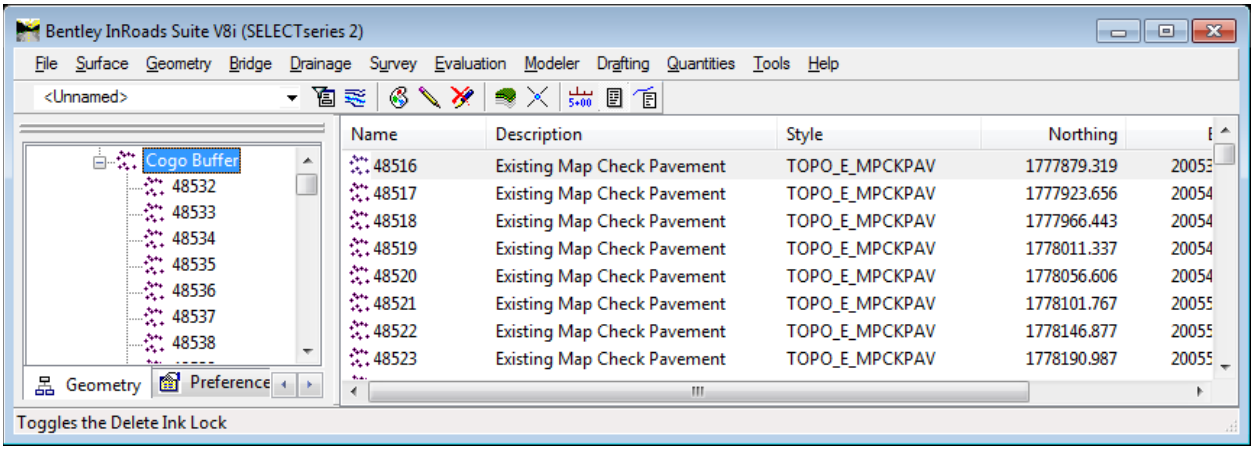
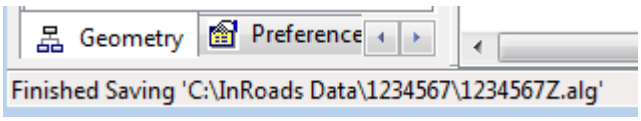
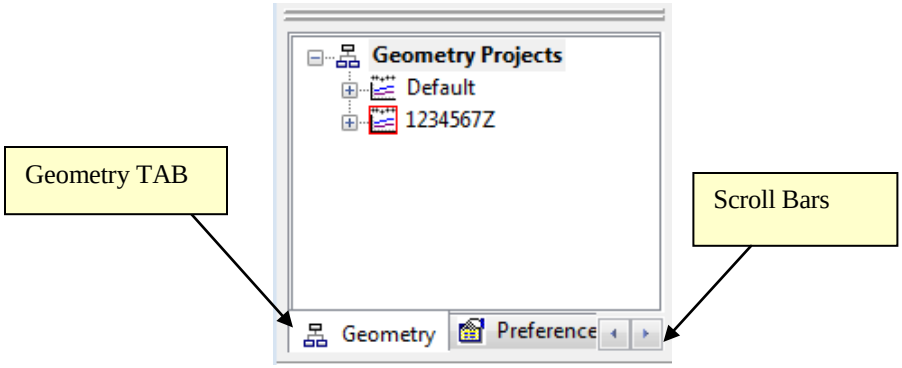


Figure 6-4 Geometry Tab – InRoads Explorer (After File Importation)

39.	**Save the InRoads Geometry Project:** Even though the Survey data has been imported into the InRoads Geometry Project (1234567Z.alg) – the data has not yet been saved. As mentioned previously, InRoads retains the data in temporary memory but does not save the data on the fly. Whenever a change has been made to an InRoads Geometry Project – it is advisable to Save the project and its associated modifications or changes. Select **File ▶ Save ▶ Geometry Project** from the **InRoads Menu**. Please Note: (The "Save As" dialog box may not appear because the Geometry Project has already been saved initially). The Geometry Project (***1234567Z.alg***) will be saved to the following path: **C:\InRoads Data\1234567** Note that the **InRoads Status Bar** (Located at the bottom of the InRoads Interface) will depict a message when the Geometry Project has been saved. (See screen capture below): Geometry Project Saved →  *The **1234567Z** Geometry Project has now been saved to the following path:* ***C:\InRoads Data\1234567***

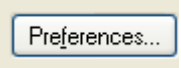
6.3 View the Graphical Geometry Information

The following Section depicts the process of viewing the Geometry Database information in InRoads and MicroStation. During the viewing of the data – numerous commands are utilized in the [MicroStation Software]. The user will need to become familiar with MicroStation commands in order to successfully perform the steps required to view the Geometry data. A good resource for this information is the "MicroStation Help Files" which are located in the [MicroStation Menu] under **Help ▶ Contents**. Please refer to this resource for additional information.

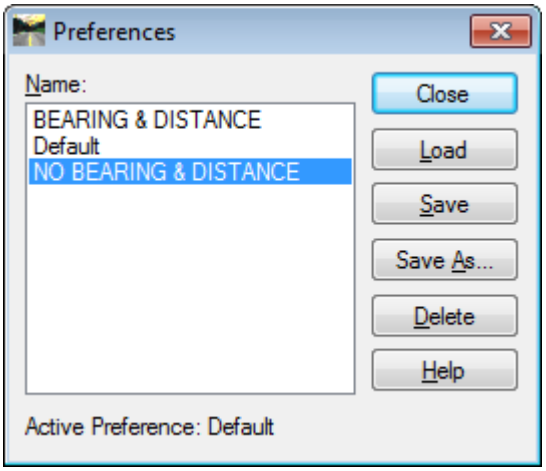
40.	**Steps to view the Geometry Data:** Click on the **Geometry Tab** (Located at the bottom – left hand side of the InRoads Explorer Interface). If this tab is not visible – use the scroll bars to scroll to the **Geometry Tab**.  Then click on the **1234567Z** Geometry Project. Note that the **1234567Z** Geometry Project has a "Red Rectangle" around the icon. This denotes that this is the "Active" Geometry Project. Any Cogo and viewing commands will be initiated and performed on the current "Active" Geometry. *Opens the InRoads Geometry Tab and displays the 1234567Z Geometry information in the InRoads Explorer Interface.*
41.	**View the Horizontal Annotation (Geometry Cogo Points)** In the **InRoads Software**: Select **Geometry ▶ View Geometry ▶ Horizontal Annotation** from the **InRoads Menu**. The **View Horizontal Annotation** dialog box will open. Select the **"Main"** Tab. *The View Horizontal Annotation dialog box opens.*

42. In the **View Horizontal Annotation "Main"** Tab:

- Click the **Preferences** button located at the bottom of the dialog box.



- In the **Preferences** dialog box that opens, highlight **NO BEARING & DISTANCE** by left clicking on it once.



- Click **Load** & **Close**.
- You are then returned to the **View Horizontal Annotation** Dialog.

The inputs should now correspond to the screen capture depicted in *Figure 6-5* (as shown below). Verify to ensure that your input matches the screen capture.

Sets the Viewing Options for the View Horizontal Annotations dialog box.

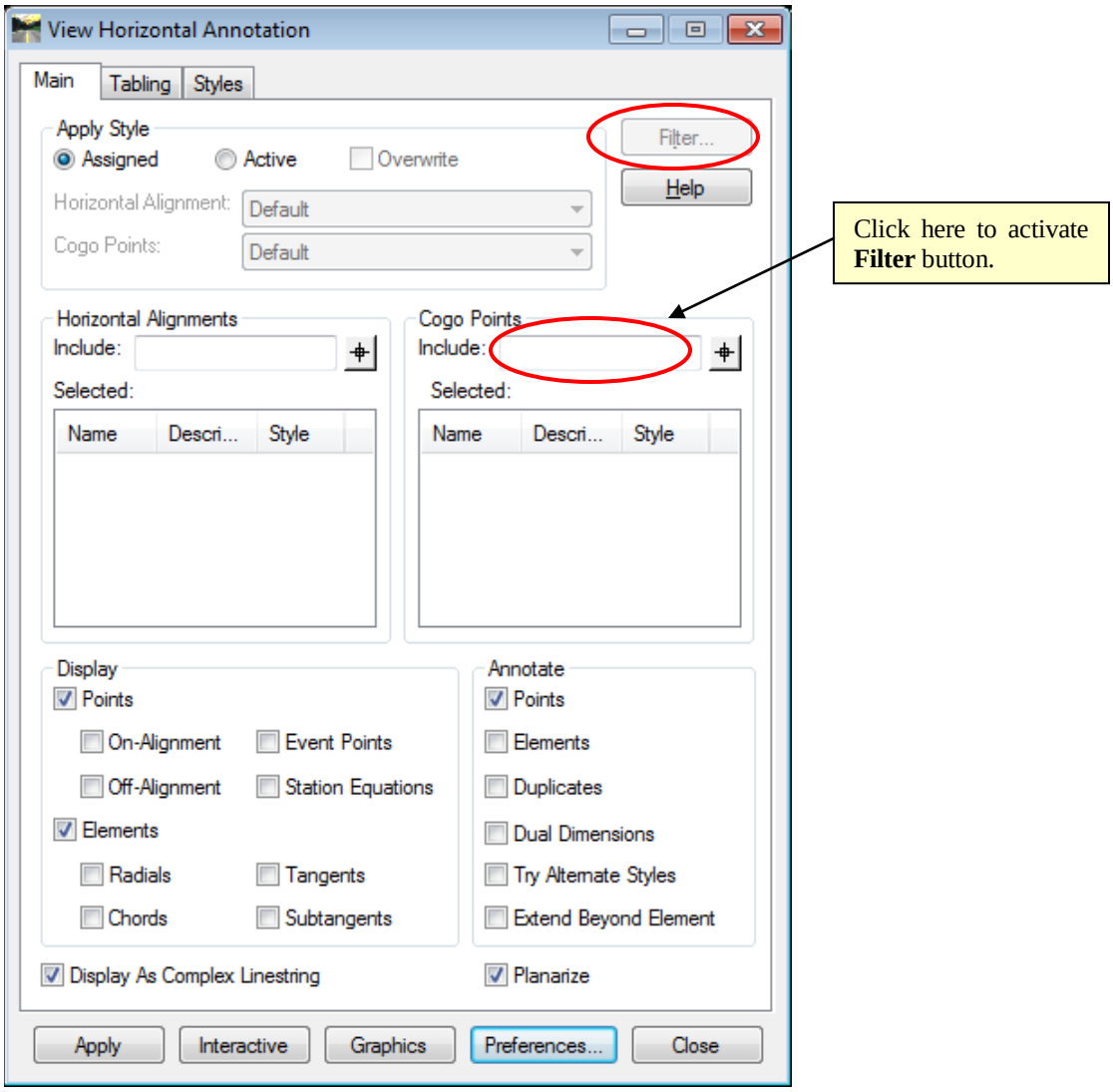


Figure 6-5 View Horizontal Annotation

43.	**Note:** This Geometry Project contains only Cogo Points (which were collected in the Field Survey) and does not contain any Horizontal Alignments. So only Cogo Points will be viewed in this Lab. • The **Filter** button on the dialog box will be grayed out. Place the curser in the **Cogo Points 'Include'** field to activate the **Filter** button. (See Screen Capture depicted above). • Click the **Filter** button to open the **Geometry Selection Filter** dialog box. See *Figure 6-6* (as shown below). *Activates the Filter button and opens the Geometry Selection Filter* dialog box.

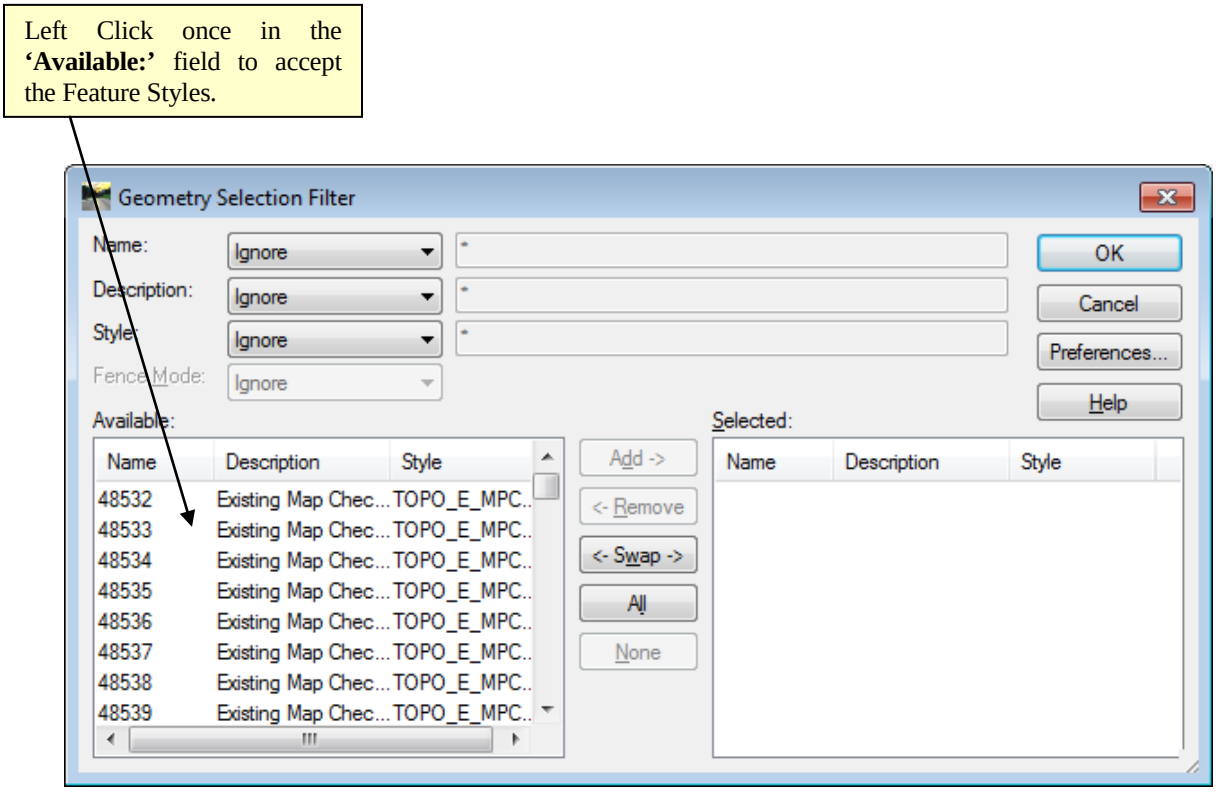


Figure 6-6 Geometry Selection Filter

44.	The **Geometry Selection Filter** will be utilized to view all of the Geometry Cogo points in the ***1234567Z.alg*** Project. ■ For this example – we leave all entries of **Name**, **Description** and **Style** -- as default of ***Ignore*** Once the default entries are selected – use the mouse to left click in the **Available:** field. See *Figure 6-6* (as shown above). *Selects the Feature Styles in the Geometry Selection Filter.*
45.	Once the data has been selected – it will be moved from the **Available:** field to the **Selected:** field. Click the **ALL** button. The data will be selected and moved -- then displayed in the **Selected:** field. The inputs should now correspond to the screen capture depicted in *Figure 6-7* (as shown below). Verify to ensure that your input matches the screen capture. *The filtered data is moved from the Available field to the Selected field.*

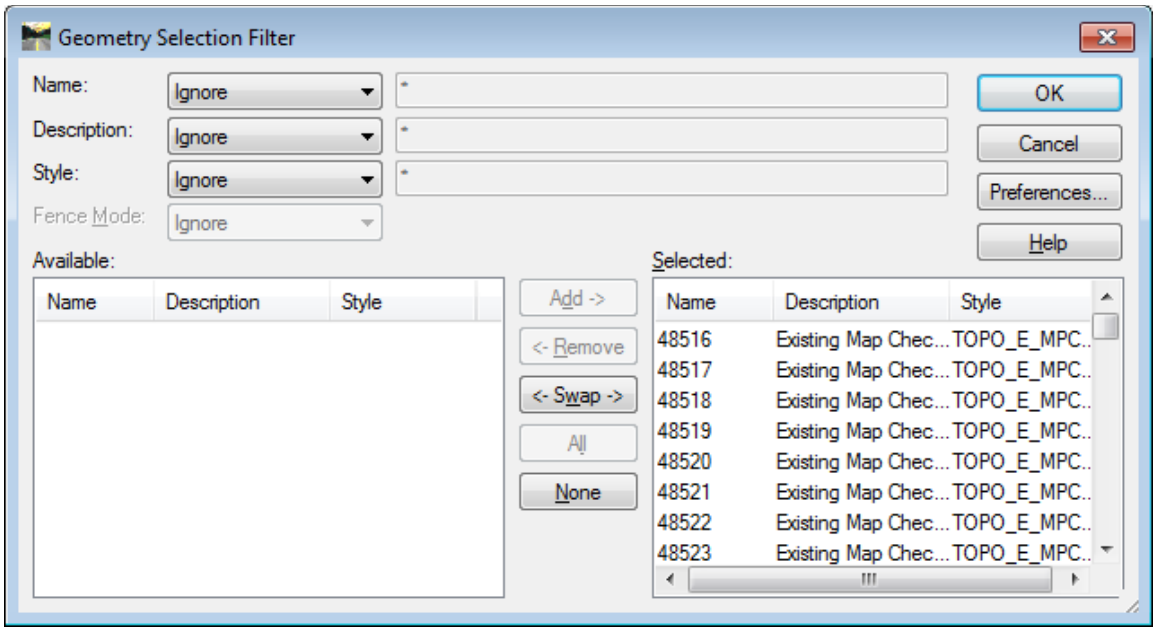


Figure 6-7 Geometry Selection Filter

46.	Click **OK** to close out of the **Geometry Selection Filter** dialog box**.** *Closes the Geometry Selection Filter dialog box.*
47.	**View Filtered Points** The Cogo points have been filtered and are available for viewing. The **View Horizontal Annotation** dialog box should still be active from the previous steps. This dialog box depicts the filtered points in the **Cogo Points** Area as **Selected:** points. The inputs should now correspond to the screen capture depicted in *Figure 6-8* (as shown below). Verify to ensure that your input matches the screen capture. *The filtered point data is available for viewing.*

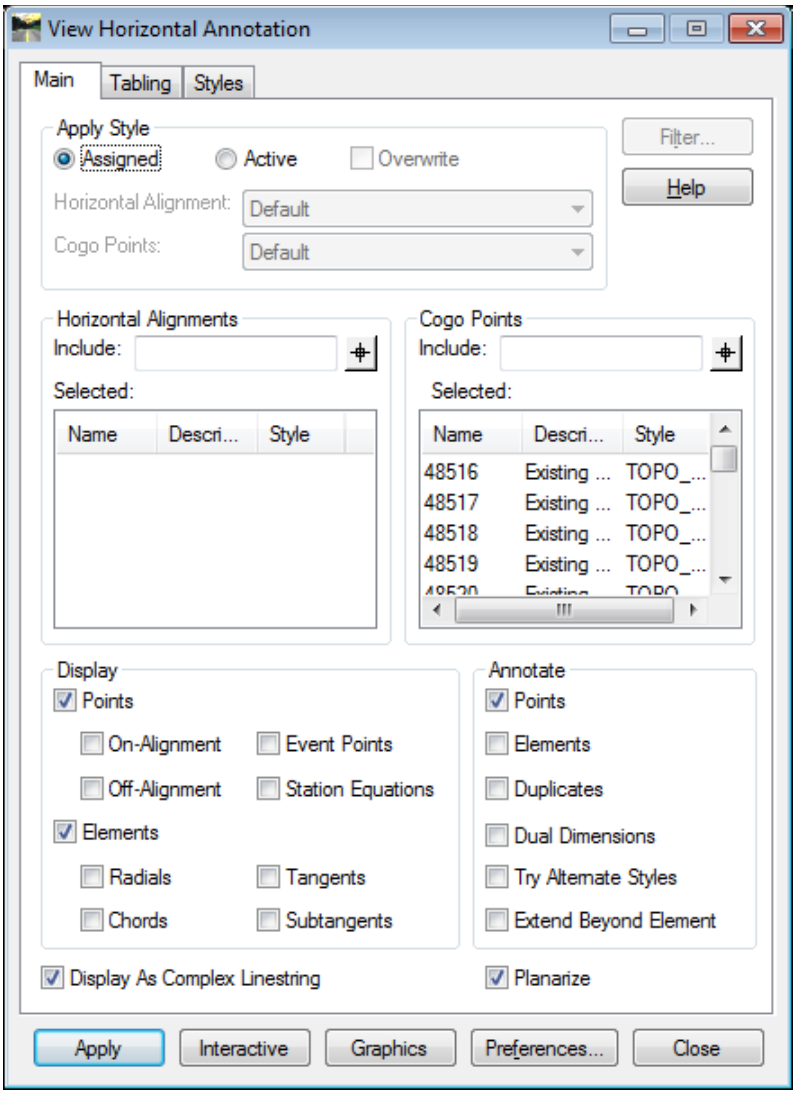


Figure 6-8 View Horizontal Annotation

48.	Click **Apply** and then click **Close** to close out of the **View Horizontal Annotation** dialog box. *The View Horizontal Annotation dialog box closes and the filtered Cogo Points are viewed in MicroStation.*

49.	**View** the selected Points in the [MicroStation Software] by using the following command located under the MicroStation View 1 Window: In the [MicroStation Software] – • Select the "Zoom In or Zoom Out" or "Fit View" Icons as appropriate to view the Points.  • The MicroStation view window will depict points similar to that shown in *Figure 6-9* below. • Then clear the MicroStation view by selecting **Edit ► Select All.** • Then select the **<DELETE>** key on the computer keyboard. All of the DGN Graphics will then be deleted from the ***GDOT 3D Working File.dgn***. *The points are displayed and the view is then cleared.*

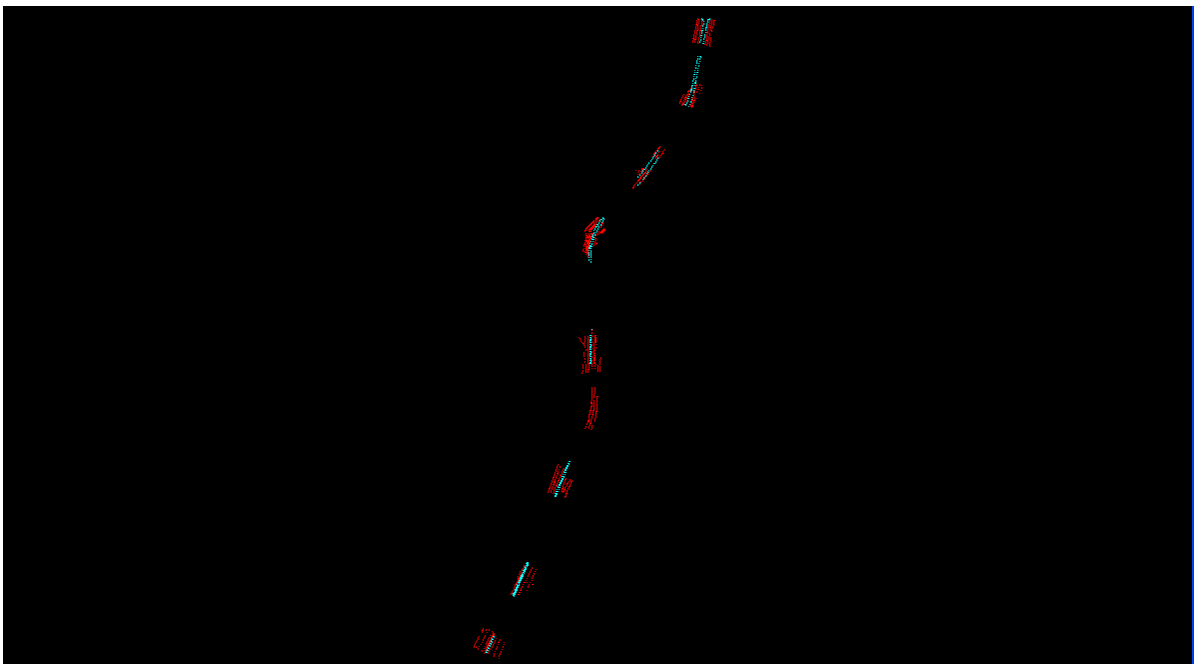


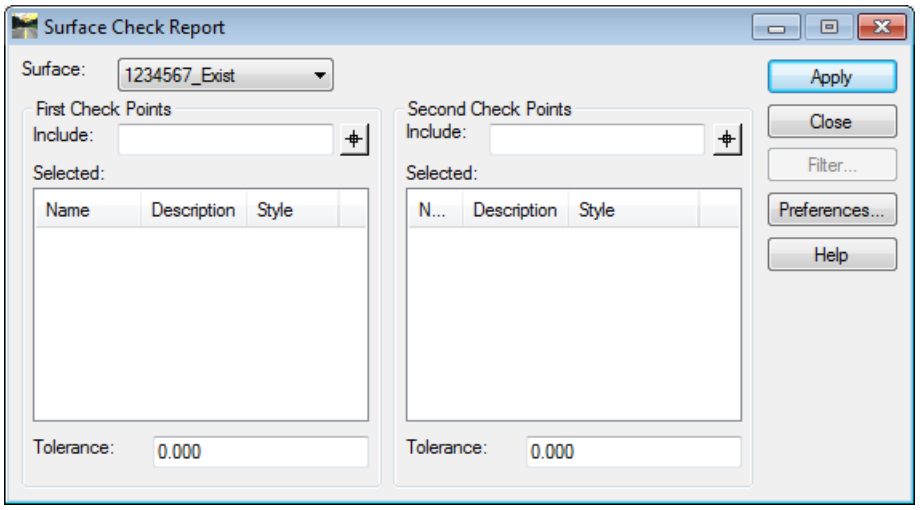
Figure 6-9 MicroStation View of Geometry Cogo Points

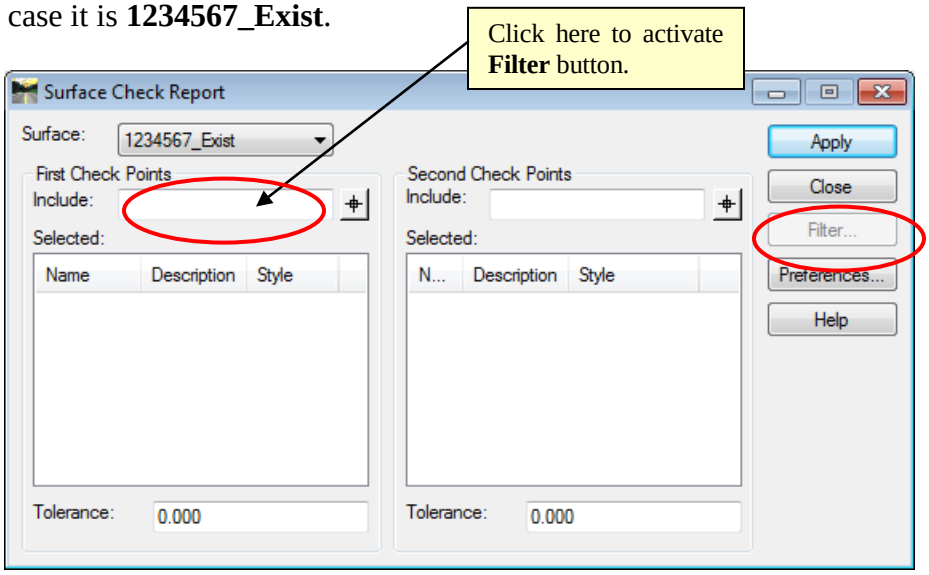
7

GDOT Surface Check Report Procedures

7. GDOT Surface Check Report Procedures

In the previous **Chapter 6**, the field survey data was imported into the Geometry Project and viewed. The field survey "check" data is now ready to utilize in the "**GDOT Surface Check Report**" Style Sheet. The following Chapter depicts the procedures for creating the "**GDOT Surface Check Report**" Style Sheet to determine the tolerance and compliance of the DTM Surface Data provided by the Designer or Consultant.

50.	**For Information Only: (<u>Substitute the appropriate PI # as required)</u>** A. The Surface Project (**1234567Exist.dtm**) is the Existing DTM. This is the Surface information which is to be verified for accuracy. B. The Survey Field Book (**1234567Z.fwd**) is the field surveyed shots obtained by translating the "Check Points" CSV file into a Field Book format. These field shots are compared to the DTM to verify that the DTM is accurate and corresponds (within a specified tolerance) to the field points. C. The Geometry Project (**1234567Z.alg**) contains only the Field Points (from the Survey Field Book). The field points must be imported into a Geometry Project in order to use the Surface Check Report.
51.	Click **Tools ▶ XML Reports ▶ Surface Check** and the **<u>Surface Check Report</u>** dialog box will appear:  *The <u>Surface Check Report</u> dialog box appears.*

52.	**Information Only:** The **First Check Points** will include the ***Map Check Ground Points*** (Feature Style of **TOPO_E_MPCKGRD**) with a **Tolerance** of ***0.5***. The **Second Check Points** will include the ***Map Check Pavement Points*** (Feature Style of **TOPO_E_MPCKPAV**) with a **Tolerance** of ***0.1***. *The Check Points **MUST** be selected in this order for the **Surface Check Report** to generate correctly. *The Surface Check Report Information.*
53.	**Select the Map Check Ground Points (TOPO_E_MPCKGRD):** In the **Surface Check Report** dialog box: • In the **Surface:** pulldown – select the 'Existing" DTM Surface to verify (in this case it is **1234567_Exist**.  • In the **First Check Points** – **Include:** field ---- enter the *Mapped Check Ground Points (Feature Style TOPO_E_MPCKGRD).* This is accomplished by left clicking in the **Include:** field to activate the **Filter** button. (See Screen Capture depicted above). • Click the **Filter…** command button and the **Geometry Selection Filter** dialog box will appear. See *Figure 7-1* (as shown below). *Opens the Geometry Selection Filter dialog box.*

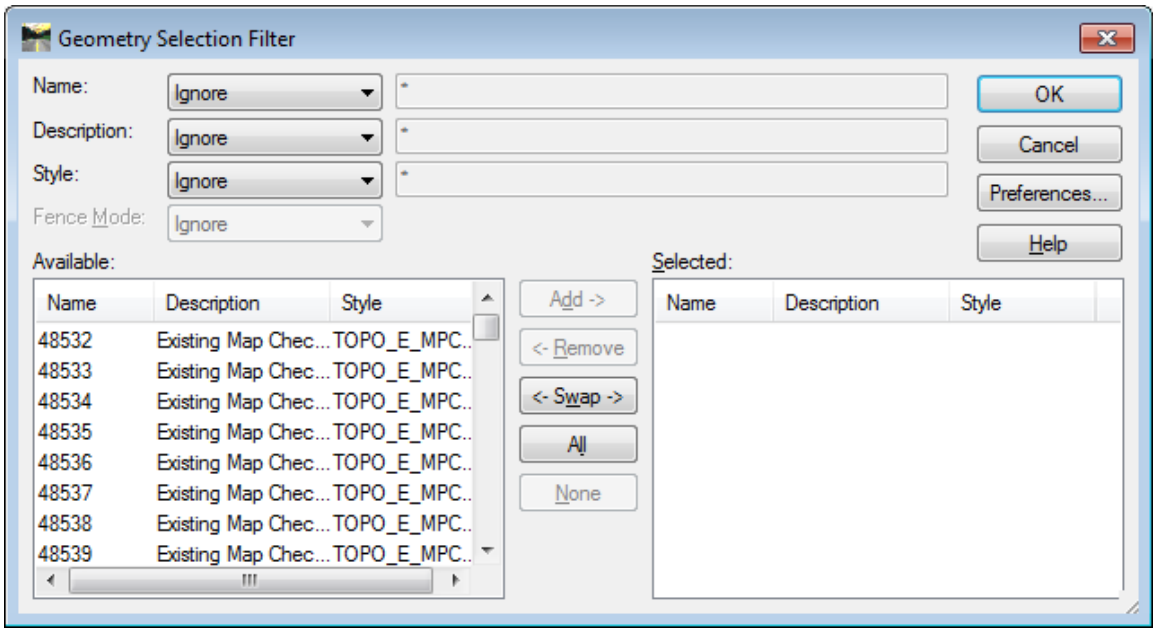
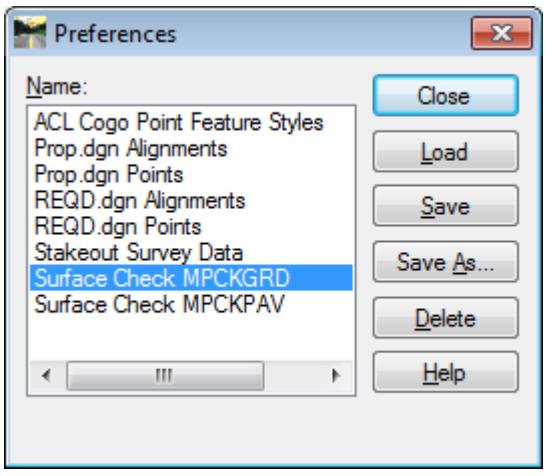


Figure 7-1 Geometry Selection Filter

54.	The **Geometry Selection Filter** will be utilized to filter all of the **TOPO_E_MPCKGRD** points in the ***1234567Z.alg*** Project. • Click the **Preferences…** command button and the **Preferences** dialog box will appear:  • Select "**Surface Check MPCKGRD**" from the **Name:** list • Click **Load** and then click **Close**. *Selects the Preference in the Geometry Selection Filter.*

55.	The **Geometry Selection Filter** dialog box should still be open. Once the data has been selected – it will be moved from the **Available:** field to the **Selected:** field. Click the **ALL** button. The data will be selected and moved -- then displayed in the **Selected:** field. The inputs should now correspond to the screen capture depicted in *Figure 7-2* (as shown below). Verify to ensure that your input matches the screen capture. Leave all other entries as default. *The filtered data is moved from the Available field to the Selected field.*

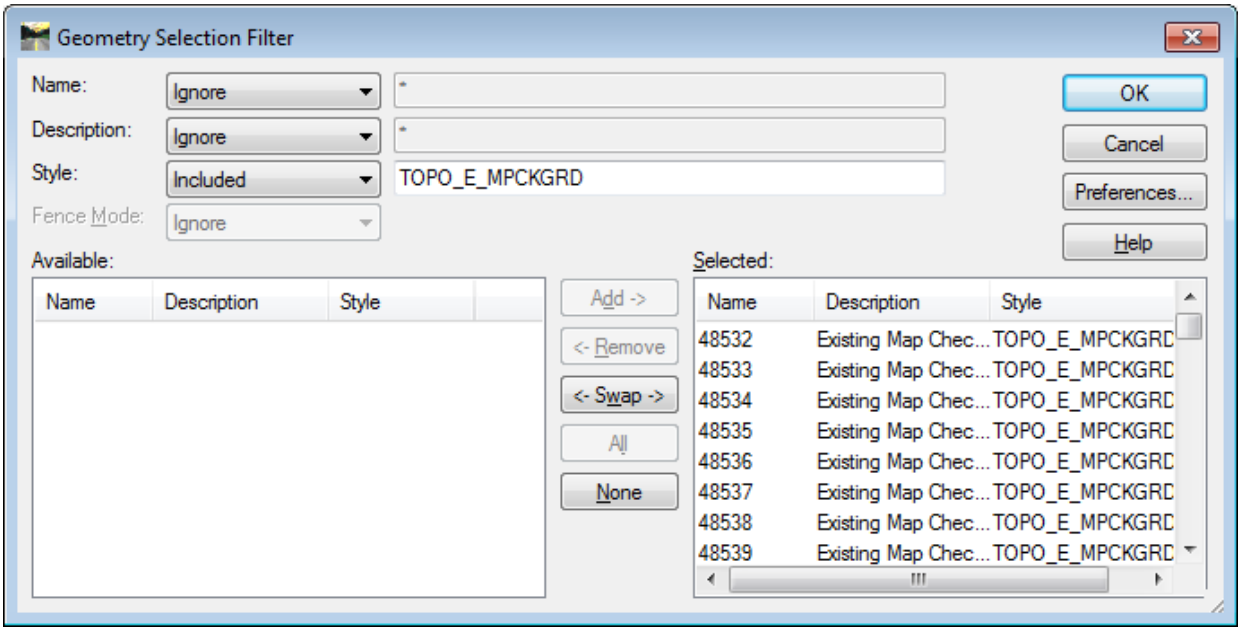


Figure 7-2 Geometry Selection Filter

56.	Click **OK** to close out of the **Geometry Selection Filter** dialog box**.** *Closes the Geometry Selection Filter dialog box.*

57.	• The **Surface Check Report** dialog box will reappear. The **First Check Points** frame will now list the **TOPO_E_MPCKGRD** points in the **Surface Check Report** dialog box. • Next – enter a **Tolerance** of ***0.5*** in the **Tolerance** Field under the **First Check Points** frame. The inputs should now correspond to the screen capture depicted in *Figure 7-3* (as shown below). Verify to ensure that your input matches the screen capture. *The TOPO_E_MPCKGRD point data is now listed in the Surface Check Report dialog.*

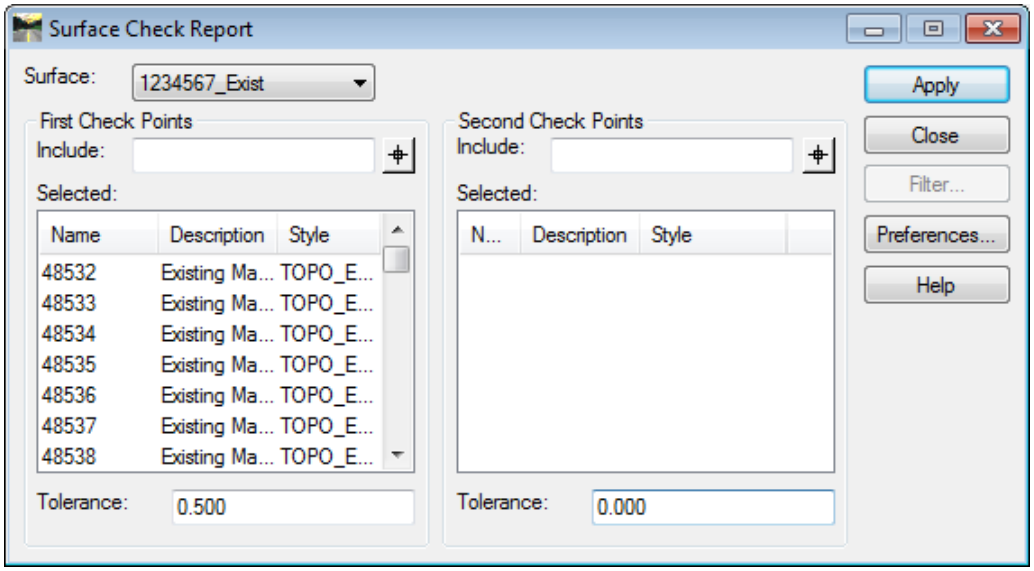


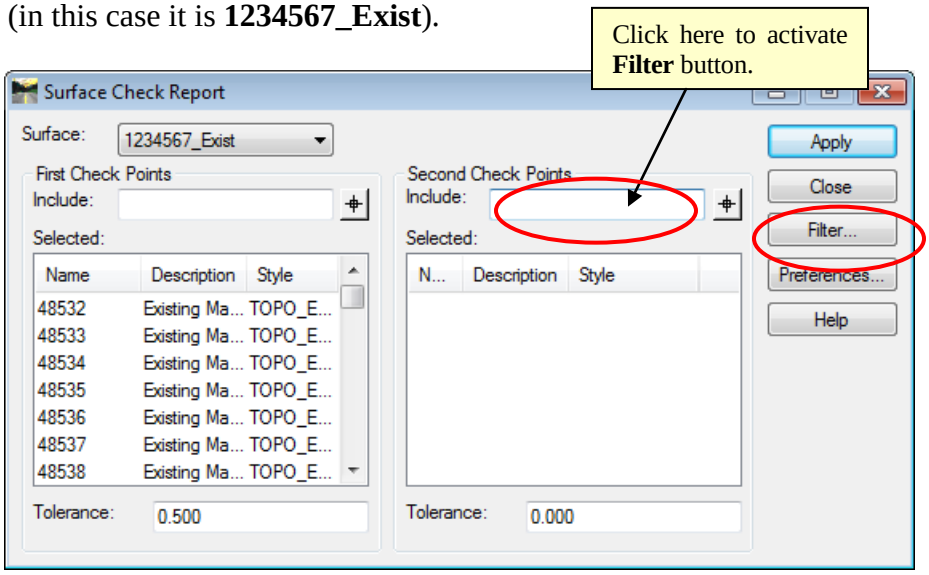
Figure 7-3 Surface Check Report

58.

Select the Map Check Pavement Points (TOPO_E_MPCKPAV):

In the **Surface Check Report** dialog box:

- In the **Surface:** pulldown – ensure the 'Existing" DTM Surface is still selected (in this case it is **1234567_Exist**).



- In the **Second Check Points** – **Include:** field ---- enter the *Mapped Check Pavement Points (Feature Style TOPO_E_MPCKPAV).* This is accomplished by left clicking in the **Include:** field to activate the **Filter** button. (See Screen Capture depicted above).

- Click the **Filter…** command button and the **Geometry Selection Filter** dialog box will appear. See *Figure 7-4* (as shown below).

Opens the Geometry Selection Filter dialog box.

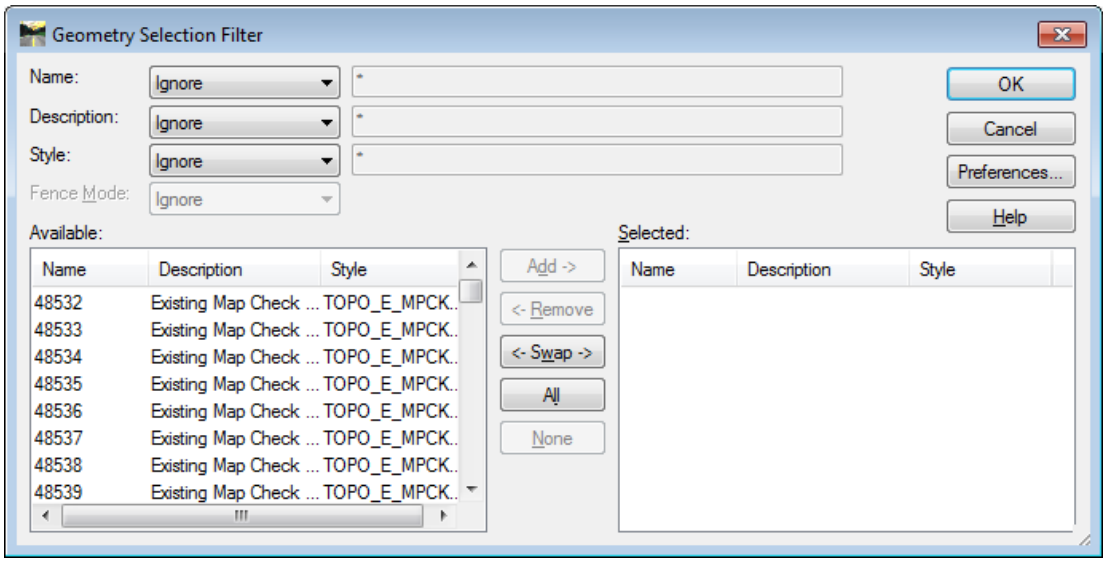
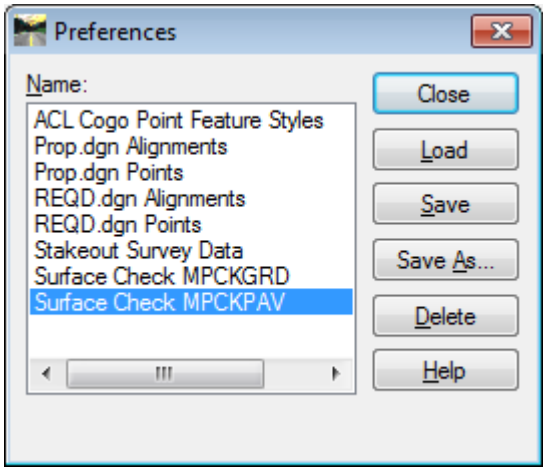


Figure 7-4 Geometry Selection Filter

59.	The **Geometry Selection Filter** will be utilized to filter all of the **TOPO_E_MPCKPAV** points in the ***1234567Z.alg*** Project. • Click the **Preferences…** command button and the **Preferences** dialog box will appear:  • Select "**Surface Check MPCKPAV**" from the **Name:** list • Click **Load** and then click **Close**. *Selects the Preference in the Geometry Selection Filter.*

60.	The **Geometry Selection Filter** dialog box should still be open. Once the data has been selected – it will be moved from the **Available:** field to the **Selected:** field. Click the **ALL** button. The data will be selected and moved -- then displayed in the **Selected:** field. The inputs should now correspond to the screen capture depicted in *Figure 7-5* (as shown below). Verify to ensure that your input matches the screen capture. *The filtered data is moved from the Available field to the Selected field.*

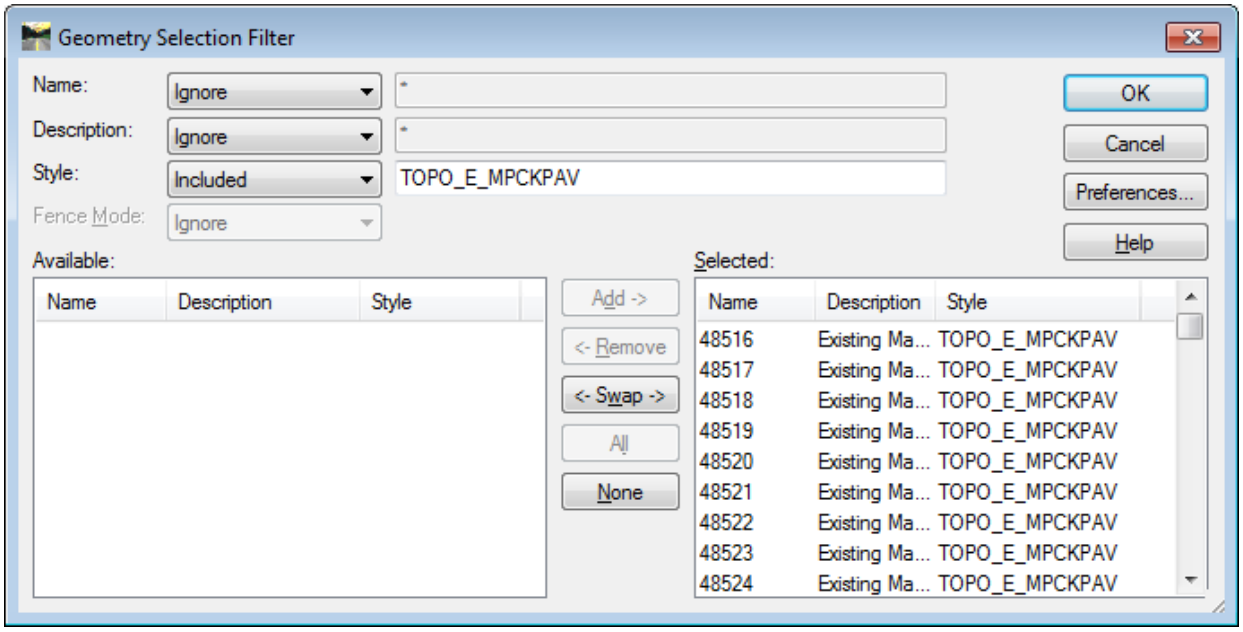


Figure 7-5 Geometry Selection Filter

61.	Click **OK** to close out of the **Geometry Selection Filter** dialog box**.** *Closes the Geometry Selection Filter dialog box.*

62.	• The **Surface Check Report** dialog box will reappear. The **Second Check Points** frame will now list the **TOPO_E_MPCKPAV** points in the **Surface Check Report** dialog box. • Next – enter a **Tolerance** of ***0.1*** in the **Tolerance** Field under the **Second Check Points** frame. The inputs should now correspond to the screen capture depicted in *Figure 7-6* (as shown below). Verify to ensure that your input matches the screen capture. *The TOPO_E_MPCKPAV point data is now listed in the Surface Check Report dialog.*

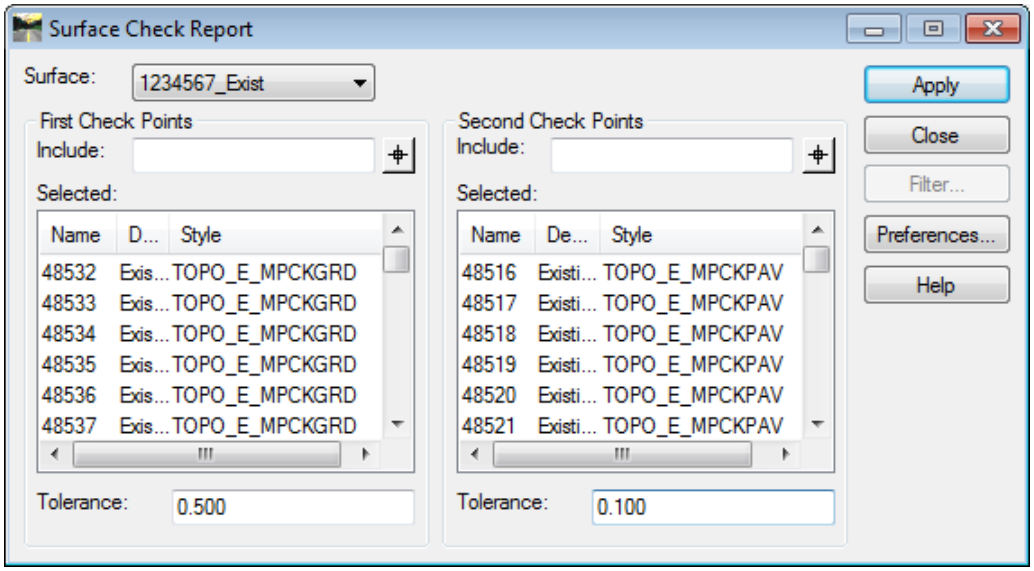


Figure 7-6 Surface Check Report

63.	Click **Apply** and the **Bentley Civil Report Browser** will appear: **(**The Default location for the **Civil Report Browser** was set in the Project Defaults set-up). See *Figure 7-7* (as shown below). *The GDOT Surface Check Report appears in the Bentley Civil Report Browser.*

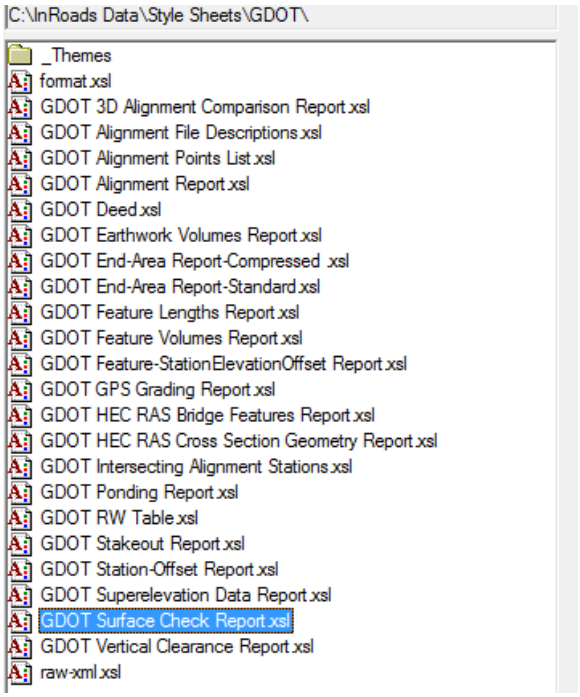


Figure 7-7 Bentley Civil Report Browser

64.	**Information Only:** The Name of the Style Sheet is '**GDOT Surface Check Report.xsl'** The Style Sheet should automatically appear because of the Project Defaults that were set up in the previous Chapters. If it does not automatically appear - click on the Style Sheet Name to select it. See *Figure 7-7*(as shown above). See *Figure 7-8* (as shown below) for depiction of the Style Sheet. *The GDOT Surface Check Report appears in the Bentley Civil Report Browser.*

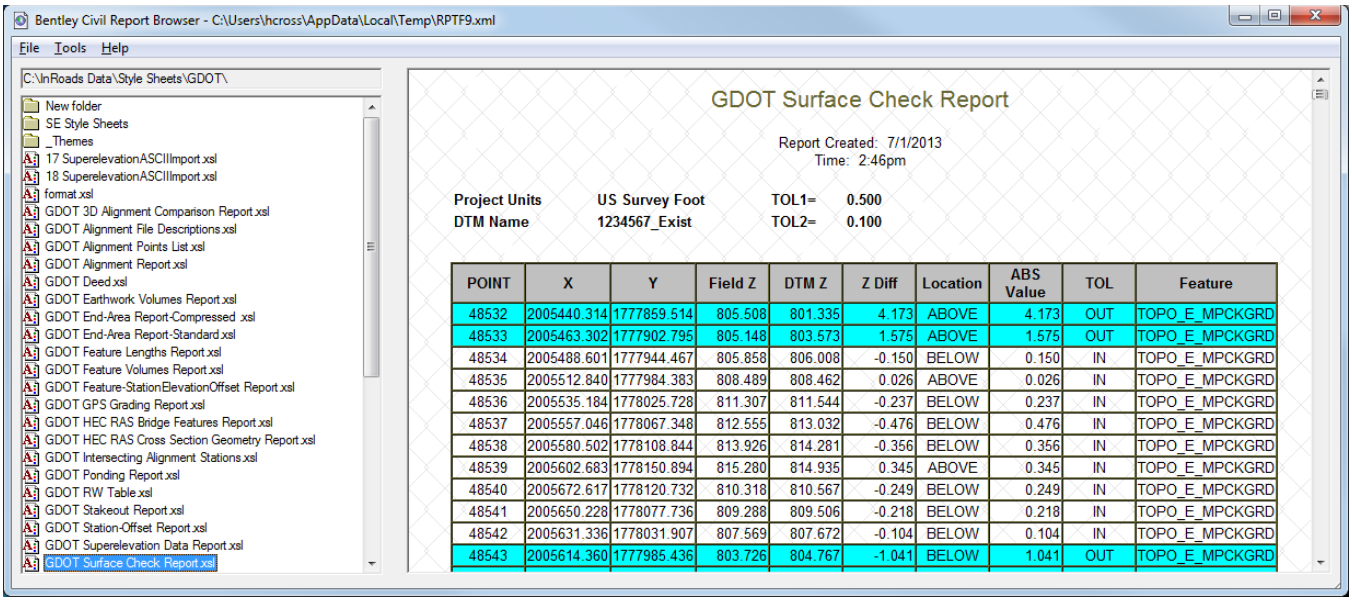


Figure 7-8 GDOT Surface Check Report

65.	Click **File►Save As** to save the .html file. The Save As dialog box will appear. See *Figure 7-9* (as shown below). *The GDOT Surface Check Report appears in the Bentley Civil Report Browser.*

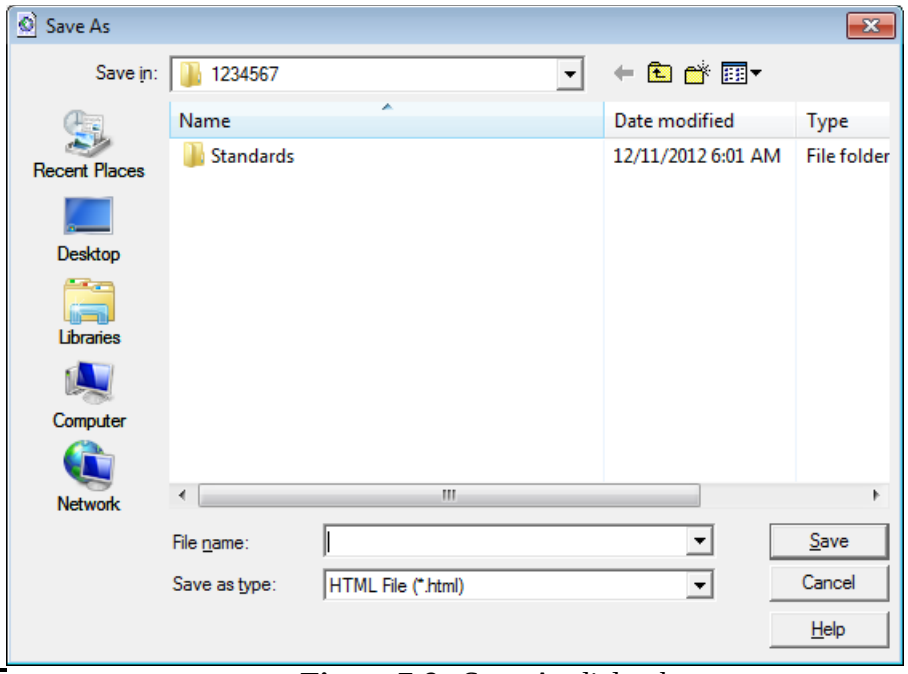


Figure 7-9 Save As dialog box

66.	• Enter the **File Name:** as PI#Z.html (Example 1234567Z.html) • Click **Save.** • The File can also been printed as needed. *The GDOT Surface Check Report is saved.*
67.	• In the **Bentley Civil Report Browser** click **File▶ Exit▶** to close out of the Report Browser. • The **Surface Check Report** Dialog Box will reappear. Click **Close** – to close out of the **Surface Check Report** dialog box. *The Surface Check Report dialog box is closed.*
68.	**Information Only:** If any additional Style Sheet Help is needed (right click on the XSL Style Sheet Name and select **Style Sheet Help**). The following are example screen captures of the Surface Check Report: *Example of the GDOT Surface Check Report.*

GDOT Surface Check Report

Report Created: 7/1/2013
Time: 2:46pm

Project Units	**US Survey Foot**	**TOL1=**	**0.500**
DTM Name	**1234567_Exist**	**TOL2=**	**0.100**

POINT	X	Y	Field Z	DTM Z	Z Diff	Location	ABS Value	TOL	Feature
48532	2005440.314	1777859.514	805.508	801.335	4.173	ABOVE	4.173	OUT	TOPO_E_MPCKGRD
48533	2005463.302	1777902.795	805.148	803.573	1.575	ABOVE	1.575	OUT	TOPO_E_MPCKGRD
48534	2005488.601	1777944.467	805.858	806.008	-0.150	BELOW	0.150	IN	TOPO_E_MPCKGRD
48535	2005512.840	1777984.383	808.489	808.462	0.026	ABOVE	0.026	IN	TOPO_E_MPCKGRD
48536	2005535.184	1778025.728	811.307	811.544	-0.237	BELOW	0.237	IN	TOPO_E_MPCKGRD
48537	2005557.046	1778067.348	812.555	813.032	-0.476	BELOW	0.476	IN	TOPO_E_MPCKGRD
48538	2005580.502	1778108.844	813.926	814.281	-0.356	BELOW	0.356	IN	TOPO_E_MPCKGRD
48539	2005602.683	1778150.894	815.280	814.935	0.345	ABOVE	0.345	IN	TOPO_E_MPCKGRD
48540	2005672.617	1778120.732	810.318	810.567	-0.249	BELOW	0.249	IN	TOPO_E_MPCKGRD
48541	2005650.228	1778077.736	809.288	809.506	-0.218	BELOW	0.218	IN	TOPO_E_MPCKGRD
48542	2005631.336	1778031.907	807.569	807.672	-0.104	BELOW	0.104	IN	TOPO_E_MPCKGRD
48543	2005614.360	1777985.436	803.726	804.767	-1.041	BELOW	1.041	OUT	TOPO_E_MPCKGRD
48544	2005597.370	1777940.230	799.682	800.230	-0.548	BELOW	0.548	OUT	TOPO_E_MPCKGRD

Points Outside of DTM									
48548	48549	48550	48551	48552	48553	48554	48555	48564	48565
48566	48567	48568	48579	48580	48581	48582	48583	48584	48585
48586	48587	49554	49555	49556					
Total Points Outside		25							

Summary		
	MPCKGRD TOL= 0.500	MPCKPAV TOL= 0.100
Points	763	271
In Tol	595	149
Out of Tol	168	122
% In Tol	77.98%	54.98%
% Out Tol	22.02%	45.02%
Max Above	12.162	30.763
Max Below	-2.686	-4.073

Appendix

A

One Point On Chain Check

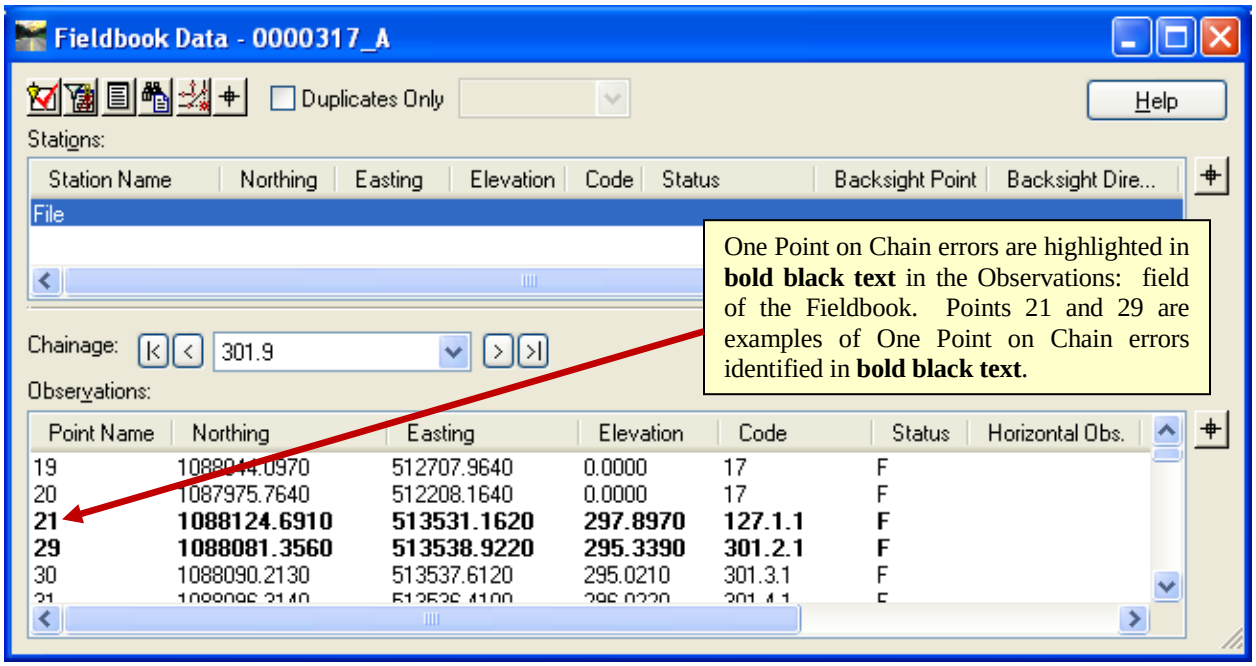
APPENDIX A ONE POINT ON CHAIN CHECK

General Information:

Prior to exporting field collected data from the InRoads Survey Field Book (FWD) to an InRoads Surface DTM file and an InRoads Geometry ALG file, the data should be reviewed for a one point on chain collection error. A one point on chain error occurs during field collection when an alignment code is entered into the data collector and then only one point is collected for that code. An alignment requires the collection of two or more points to be considered an alignment. Checking for a one point on chain error may be performed in the InRoads Survey FWD file.

Procedure to Check for a One Point on Chain Error

1. Create an InRoads Survey FWD file. For detailed instructions on creating an InRoads Survey FWD file, see Lab 2 of the ***Introduction to InRoads-SDE*** Training Material.
2. Load the field collected CSV file into the InRoads FWD. For detailed instructions describing the import process of field collected survey data, refer to Lab 2 of the ***Introduction to InRoads-SDE*** Training Material.
3. Open the InRoads Survey Field Book. This is accomplished in InRoads by selecting **Survey ► Fieldbook Data…**
4. Look for One Point on Chain errors. One Point on Chain errors are identified in the **Observations:** field of the InRoads Fieldbook in **bold black text** as shown here.



5. One point on chain errors are to be resolved in the original field surveyed CSV file prior to continuing work in InRoads.

Appendix

B

Surface Check Report Style Sheet

APPENDIX B SURFACE CHECK REPORT STYLE SHEET

General Information:

Style Sheets are used by InRoads to present data in a particular Report Format. The Style Sheets are XSL files which can be saved in different extensions depending on the Style Sheet used. In order to write out the Surface Check Data from InRoads into a spreadsheet format - the **GDOT Surface Check Report.xsl** Style Sheet is required. This Surface Check Report is used to generate an HTML file for use in Tolerance checks.

Surface Check Report Style Sheet Process:

The **GDOT Surface Check Report.xsl** Style Sheet is utilized to verify the tolerance and accuracy of an Existing Digital Terrain Model (original terrain surface) as compared against associated field survey points.

NOTES:

a) For Detailed Instructions on using the **GDOT Surface Check Report.xsl** Style Sheet – please see the GDOT Style Sheet Help Files which are located in the following path:

C:\InRoads Data\Style Sheet Documentation

b) The Surface Check CSV File (EX: 1234567Z.csv) as well as the additional InRoads Project Files will utilize a "Z" in the naming conventions to delineate these files as Surface Check data. The files are only to be utilized for the verification of the Existing Surface Data to ensure compliance to GDOT Standards.

c) To access the Style Sheet – select the following from the InRoads pull-down menu:

Tools ►XML Reports ► Surface Check

d) The **GDOT Surface Check Report.xsl** Style Sheet should be saved with an .HTML Extension.

e) The Naming Convention for the **GDOT Surface Check Report** will be **PI#_Surface Check Report.html** (Example: 1234567Z_Surface Check Report.html).