CHAPTER 10

AUXILIARY PROCESSES

INTRODUCTION

The Auxiliary Processes within IGrds are discussed in this chapter. Each process is discussed individually, including a description of the user interface and processing. The processes include the following:

Drainage Location System

The purpose of the Drainage Location System is to provide facilities to define, display, modify, and label drainage structures. The drawings produced include both plan and sectional views with complete text and dimensioning.

Entrance Sheets

These processes provide for preparing plan and profile views of proposed private entrances.

IGrds Topographic Labeling Application

This process provides for labeling of topographic features contained in a 2D or 3D .dgn file relative to a roadway alignment (i.e., station and offset).

IGrds Design Data Metric/Imperial Conversion Utility

This conversion utility is used to convert design data within IGrds working files from metric units to imperial units and vice versa. The conversion utility is a standalone Windows utility (much like the current AN procedure), rather than an MDL application within MicroStation. The process is launched from an icon within the IGrds group.

CONTENTS	MANUAL PAGE

DRAINAGE LOCATION SYSTEM

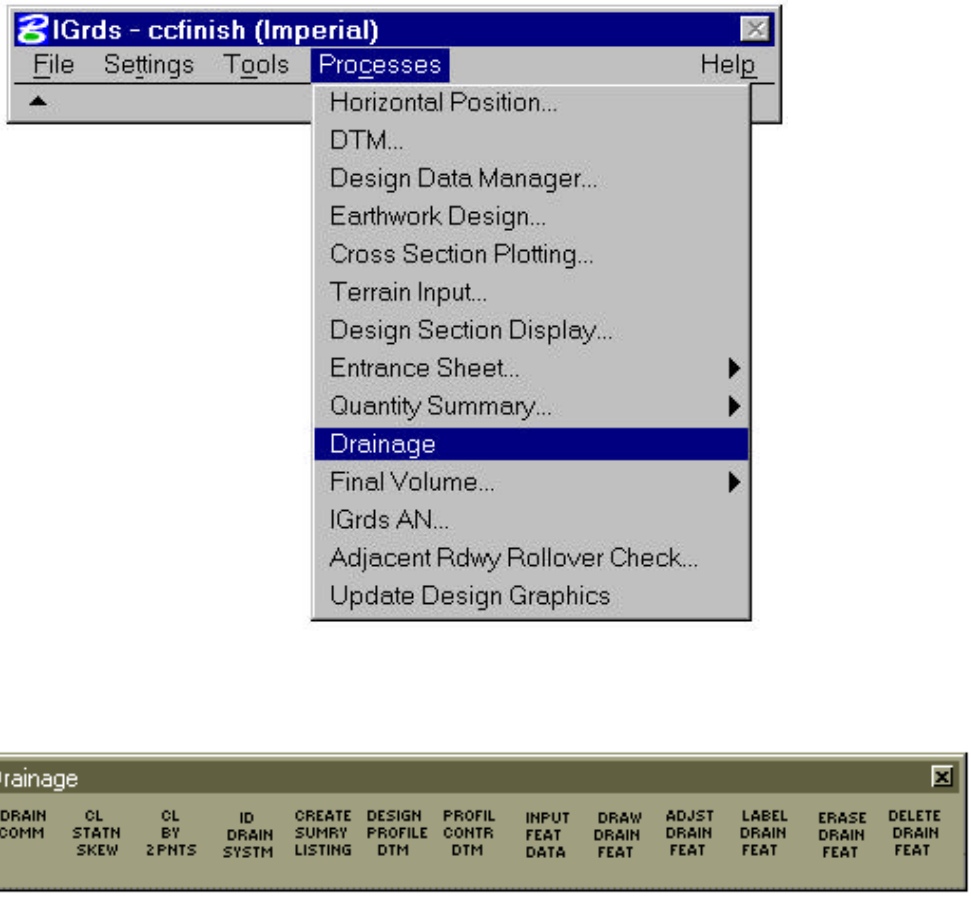


Figure 10-2
Drainage Process Menu and Tool Bar

CONTENTS **DRAINAGE LOCATION SYSTEM**	**MANUAL PAGE**

DRAINAGE LOCATION SYSTEM

INTRODUCTION

The purpose of the Drainage Location System is to provide facilities to define, display, modify, and label drainage system structures. The drawings produced include both plan and sectional views with complete text and dimensioning.

This process is a series of steps (see sketch on the next page):

1. Define (in plan view) the centerline of the drainage structure(s).

2a. If Original Ground Data is to be extracted from a DTM, identify the DTM and the Original Ground Surface as well as the Design Surface. Draw the original and design profiles for the drainage structure centerline (drainage cross section).

2b. Or, define the original ground profile for the drainage structures centerline. Identify the DTM and the Design Surface and draw the original and design profiles for the drainage structure centerline (drainage cross section).

3. Define sizes and materials for the drainage structure.

4. Draw the drainage structure in both plan and profile view.

5. If necessary, modify the drainage structure (in sectional view).

6. Label the drainage structure.

The current version has the following limitations:

a. Only transverse, straight structures (pipes, boxes, etc.) may be defined.

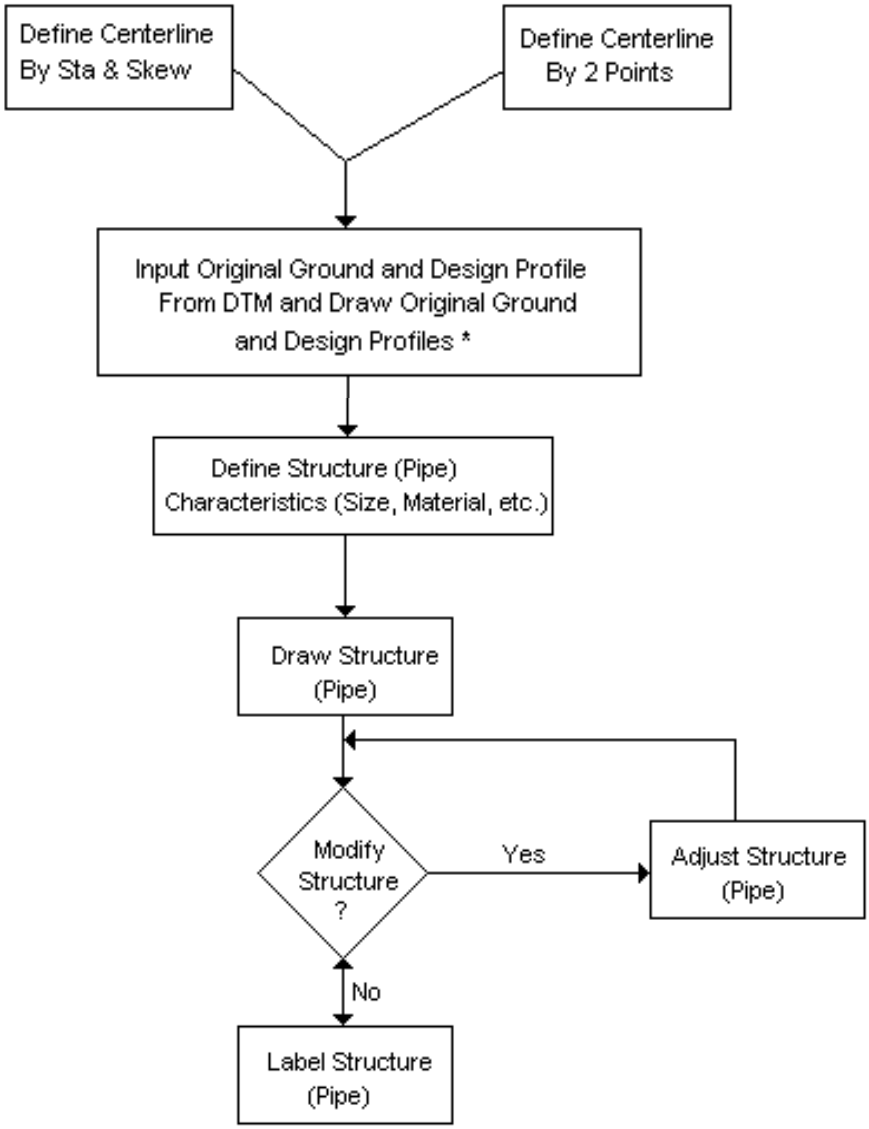
b. The process is limited to single drainage structure centerlines.

Note:

1. Step 3 may be executed before steps 2a or 2b, if desired.

2. It is not necessary to execute all steps for one drainage structure consecutively. For example, the centerlines for several structures can be defined first, then the sizes and materials, and so on.

DRAINAGE PROCESS



*A command exists to input original ground from contours when no Original Ground DTM is available. It should, however, be used with great caution since the contours may not match the original cross section data from which the design was developed.

OBSERVATIONS ABOUT DESIGN PROFILE CALCULATIONS CURRENT IMPLEMENTATION

- For correct "cover" calculations, the user must specify a finish grade template with (0.0) surface depth or a subgrade template with zero (0.0) elevation correction on the profile grade. This would likely consist of a separate set of design data for drainage that calculates the finished grade instead of subgrade.

- The design surface is derived from IGrds Cross Sections (merged into a DTM) which are longitudinally connected to create feature lines. The user is encouraged to add extra cross sections around the Drainage Location Areas so that the centerline profiles will be more representative of the final-built project.

- Design Surface discontinuities may affect profile drawing in cut/fill crossover areas.

TO EXECUTE THE DRAINAGE LOCATION SYSTEM

Required Data Files

The Drainage Location System requires that the IGrds Working files have been created. Within the working files, the required design data (Horizontal Alignment, Vertical Alignment, Template, Sideslope) must be defined for all design roadways. Superelevation, Widening, Median, Right-of-Way, Special Ditch, Maximum Slope, and Design Exception are optional design data and may be used as needed.

From these data, the user must create a design (design cross sections) and store the data in the cross section (.xsN) file.

The cross section data is exported to the DTM using IGrds Send to DTM Command: Design to DTM. This command sends the design surface to the DTM and draws design surface ridgelines. This command creates a clipped polygon and .srv file. Use the .srv file to create a new "design" surface for skewed cross section extraction (centerline profiles). Drainage use of these data require that you do not merge them with another surface.

If original ground data is to be extracted from a DTM, these data must also be available.

Setup For Drainage

In order to execute the Drainage program, the following steps are necessary:

A. Enter IGrds specifying the desired working files.

B. Be sure DTM surface(s) have been defined. Establish an Original Ground DTM surface by storing field-acquired DTM data and establish the design surface by using the Design to DTM command.

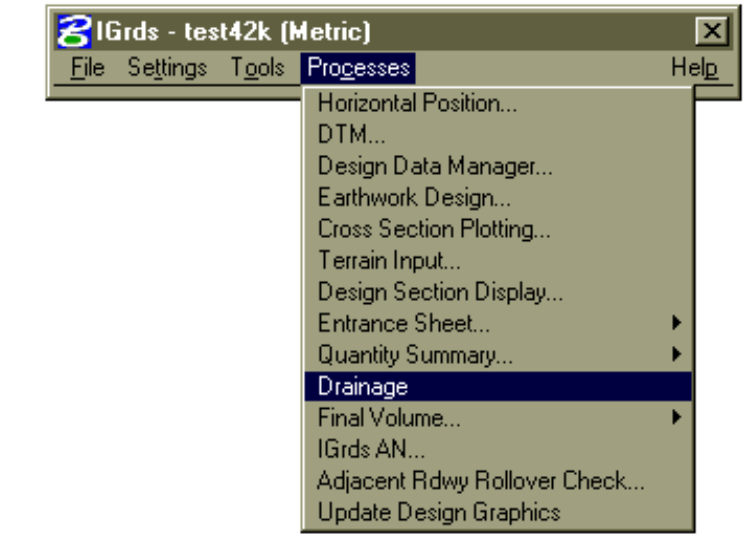
C. Display plan and profile data needed for drainage structure location definition. Catch lines defined in this step could be very helpful in later steps.

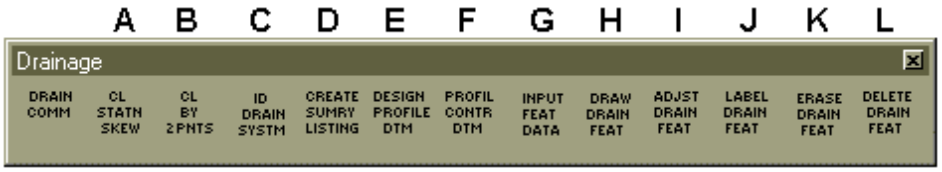
D. Begin Drainage Location Definition. The user can intermix IGrds, Drainage, and MicroStation system commands as required.

Getting Started

When you initiate an IGrds execution with the desired project and graphic files, you have access to all of the functions described in this document. Some of the functions require that horizontal alignments be defined before they can be used, but this may be done in the same session.

Starting an IGrds run in the normal fashion brings a top menu bar. The "Processes" pull down provides access to the Drainage functions. Pressing "Processes" and pulling down to Drainage and then clicking, displays the Drainage tool bar as shown.





KEY	COMMAND NUMBER	DESCRIPTION	MANUAL PAGE
A	851	CREATE CENTERLINE FROM STATION AND SKEW ANGLE	10-11
B	852	CREATE CENTERLINE FROM 2 POINTS	10-12
C	855	IDENTIFY DRAINAGE SYSTEM	10-13
D	856	CREATE SUMMARY LISTING	10-14
E	860	DEFINE AND DISPLAY ORIGINAL GROUND AND DESIGN PROFILES FROM DTM	10-15
F	861	DEFINE AND DISPLAY ORIGINAL GROUND AND DESIGN PROFILES FROM CONTOURS AND DTM	10-16
G	881	INPUT FEATURE DATA	10-17
H	882	DRAW DRAINAGE FEATURE	10-19
I	883	ADJUST DRAINAGE FEATURE	10-20
J	884	LABEL DRAINAGLE FEATURE	10-21
K	891	ERASE FEATURE DATA	10-22
L	892	DELETE DRAINAGE CENTERLINE AND FEATURE	10-23

GENERIC OPTIONS

Action Buttons

On each dialog box, there are one or more action buttons at the bottom. Below is a description of the meaning of each button.

OK Execute the process and remove the dialog box (or tool). In some cases, an error message also has an OK button to remove the message.

APPLY Execute the function. Do not remove the dialog box (or tool).

CANCEL Remove the dialog box (or tool) and do not execute the command.

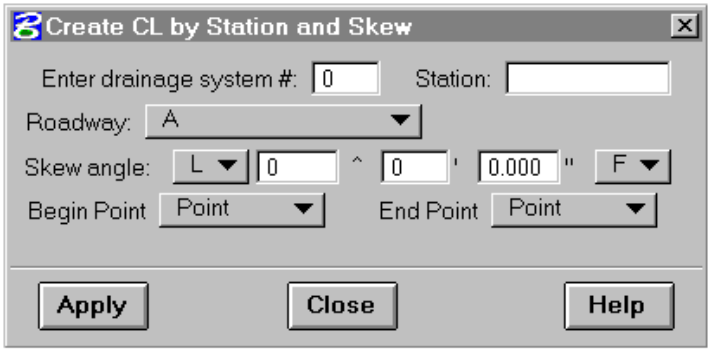
CLOSE Remove the dialog box (or tool) and do not execute the command.

HELP Pops up a Help Information dialog box concerning the given drainage command.

Roadways

Some of the commands in the Drainage Location System require a roadway to be specified. Drainage dialog boxes requiring a roadway utilize the same type of option button mechanism that is currently used in all IGrds commands to select the desired roadway.

CREATE CENTERLINE FROM STATION AND SKEW ANGLE

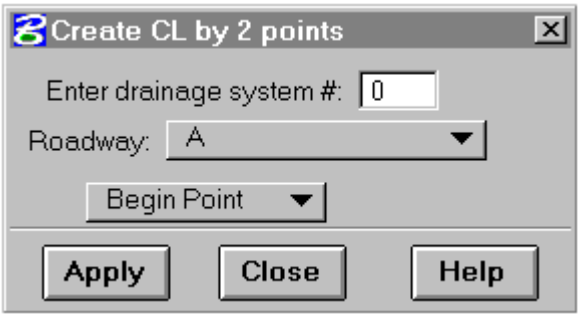


This command creates a drainage structure centerline at a given station and skew angle to a known horizontal alignment. The centerline is the plan view path where drainage structure(s) (pipes, for example) will be placed.

Enter Drainage System #	Enter new drainage system number or use the default value displayed.
Station	Enter or select the Station where drainage centerline crosses the roadway centerline.
Roadway	Select Roadway.
Skew Angle	Enter skew angle at which the drainage centerline crosses the roadway centerline in Left/Right (L/R) angle (Degrees, Minutes, and Seconds) and Forward/Back (F/B) form. The L/R and F/B are selected using option buttons for each. The degrees, minutes, and seconds are keyed into the text boxes. L0^0'0.000"F is the default.
Begin Point	Select the method to limit the centerline display (Distance or Point). If Distance is selected, enter +/- distance. If Point is selected, digitize the begin point.
End Point	Select the method to limit the centerline display (Distance or Point). If Distance is selected, enter +/- distance. If Point is selected, digitize the end point.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

Note: The digitized begin and end points are projected to the line defined by the station and skew angles. These projections are the actual begin and end points of the centerline.

CREATE CENTERLINE FROM 2 POINTS

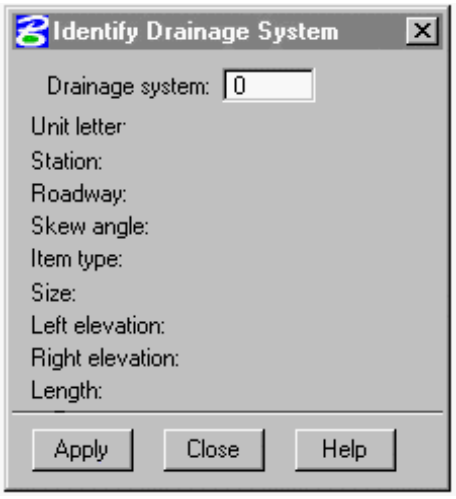


This command creates a drainage structure centerline from two points digitized by the user. These points define a line that must be able to intersect with the horizontal alignment specified. (Edge drains will be added at a later release.) The command computes a station and skew angle (in the IGrds form) at the point where the drainage structure centerline and roadway alignment intersect.

Enter Drainage System #	Enter new drainage system number or use the displayed default value or use the active roadway.
Roadway	Select roadway.
Begin Point	When this option is selected, the user is prompted for and should digitize the begin point of the drainage centerline.
End Point	When this option is selected, the user is prompted for and should digitize the end point of the drainage centerline.
Apply	Execute the function. Do not close the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

IDENTIFY DRAINAGE SYSTEM

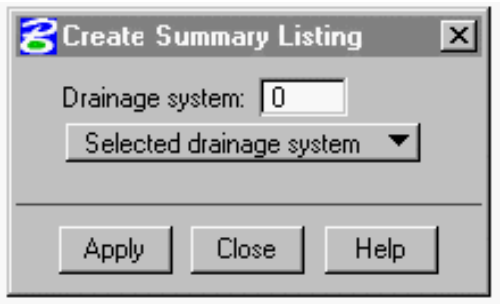
This command displays data for a selected drainage structure.



After selecting or entering the drainage system, the items listed below are displayed. Unit Letter, Station (with roadway), Skew Angle, Item Type (material), Size, Left Feature (drainage structure) Elevation, Right Feature (drainage structure) Elevation, and Feature (drainage structure) Length. This command defaults to the active (most recently used) drainage system.

Drainage System	The user is prompted to select the drainage structure centerline by pointing at it or keying in the number. The system highlights the line. Then the user uses the left button to accept or the right button to reject. The accepted drainage system number is then displayed in this field and all available data about it is also displayed. The selected system then becomes the active drainage system.
Apply	Execute the function. Do not close the tool.
Close	Remove the dialog box and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

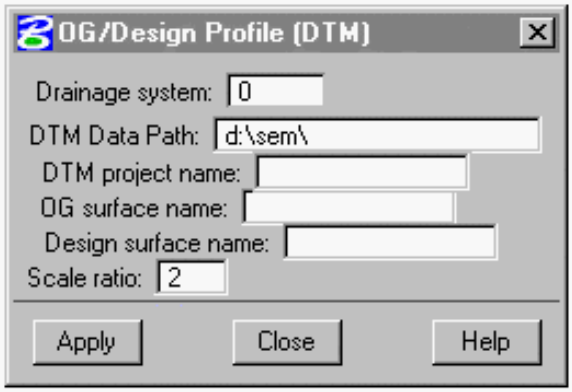
CREATE SUMMARY LISTING



This command creates a summary listing of all or selected structures for the centerlines stored in the drainage file (.drn). The user may also limit the list to the centerline structures for one drainage system. The list is in the file: "working file name" .tmp.

Drainage System	The active drainage feature is displayed if the option button discussed below is set to Selected Drainage System. If set to All Drainage Systems, the Drainage System text field is disabled. The user can change the active drainage system by entering or selecting a new structure centerline. If selected, the system highlights the line. The user accepts or rejects the highlighted CL. If the drainage system is accepted, the drainage system number is displayed in this field and the report is generated for the single drainage system by clicking the Apply button.
Selected Drainage System	Selecting this option generates a report for the selected drainage system.
All Drainage Systems	Selecting this button generates a report for all drainage systems.
Apply	Execute the report. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

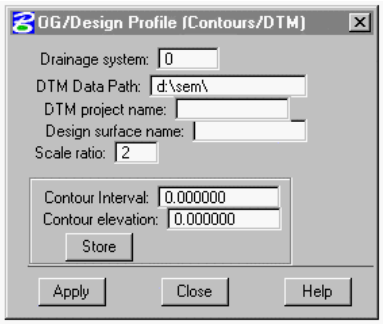
DEFINE AND DISPLAY ORIGINAL GROUND AND DESIGN PROFILES FROM DTM



This command computes, stores, and displays the original ground and design profiles along the drainage centerline from the DTM and design surfaces.

Drainage System	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
DTM Data Path	Enter the DTM Data Path Name (if other than the default given).
DTM Project Name	Enter the DTM Project Name.
OG Surface Name	Enter the Original Ground Surface Name.
Design Surface Name	Enter the Design Surface Name.
Scale Ratio	Enter the vertical to horizontal scale ratio. Default is 2.
Apply	This button prompts for an origin before computing the profile and erasing any old displays and displaying the new profiles. The user should digitize with the left mouse button the desired screen location for the profile displays.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

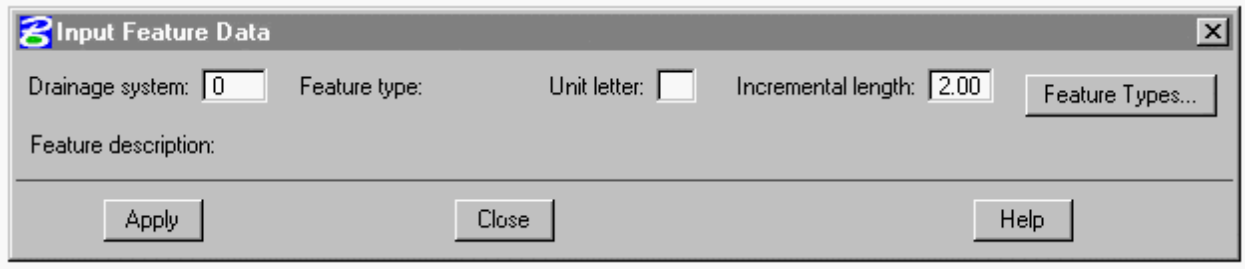
DEFINE AND DISPLAY ORIGINAL GROUND AND DESIGN PROFILES FROM CONTOURS AND DTM



This command defines the original ground profile, computes the design profile, and displays both profiles. The command collects profile data along the drainage structure centerline. Elevations are input manually or automatically defaulted to the next incremental value. Original Ground may be defined in any order.

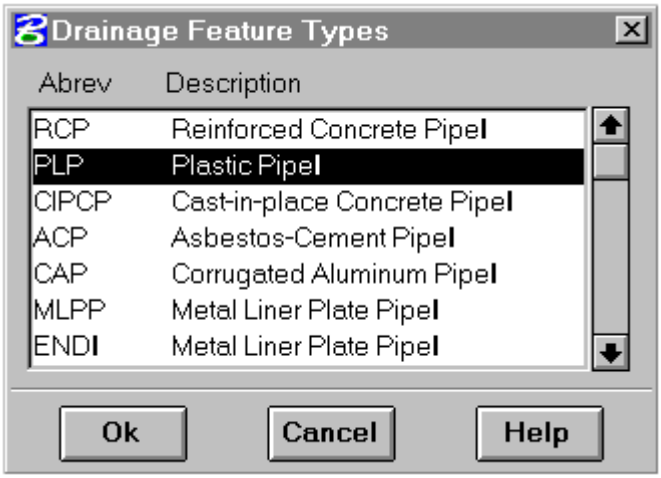
Drainage System	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
DTM Data Paths	Enter the DTM Data Path Name (if other than the default given).
DTM Project Name	Enter the DTM Project Name.
Design Surface Name	Enter the Design Surface Name.
Scale Ratio	Enter the horizontal to vertical scale ratio. Default is 2.
Contour Interval	Enter a contour interval to increment contour elevations.
Contour Elevation	Enter an elevation or accept the currently displayed elevation.
STORE	This button stores an original elevation at a point you are asked to digitize with the left mouse button.
Apply	This button prompts for an origin before computing the design profile and erasing any old displays and displaying the new profiles. The user should digitize with the left mouse button the desired screen location for the profile displays.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

INPUT FEATURE DATA

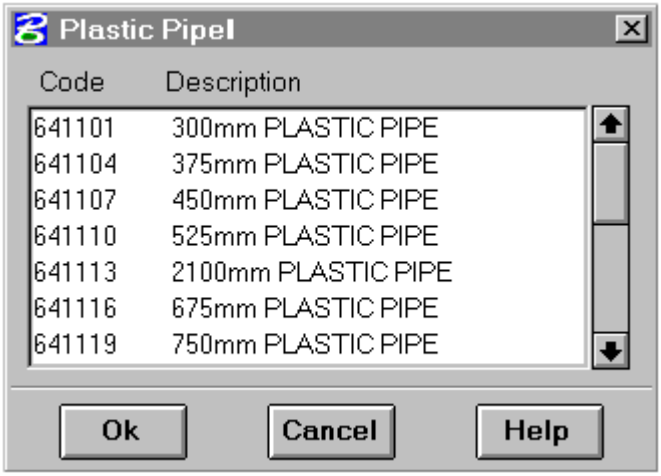


This command defines data associated with a drainage feature.

Drainage System:	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
Feature Type:	The type of feature selected below will be displayed in this field.
Unit Letter:	Enter a letter to identify the new item in the drainage system.
Incremental Length:	Enter the incremental (joint) length associated with the selected type of drainage feature (pipe). Example: If a certain type of pipe only comes in lengths of even units (i.e., 10, 12, 14, ..., etc.), the default incremental length is 2.
Feature Types...:	Activate this button to display the Feature Types dialog box.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

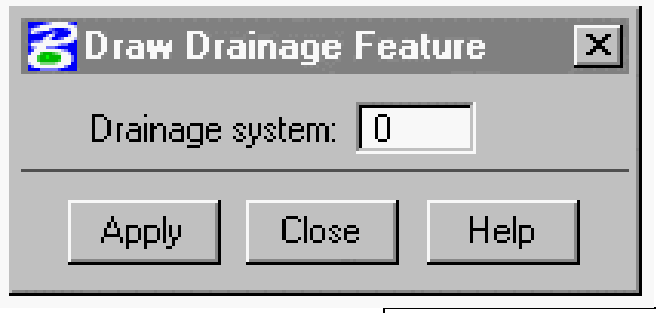


Select a Feature Type and confirm the selection with the OK button. This displays the Drainage Features Dialog box with all the available sizes of the selected featured type.



Locate the desired size using the scroll bar and select it. Confirm the selection with the OK button.

DRAW DRAINAGE FEATURE

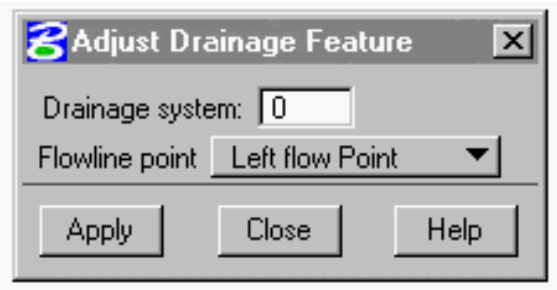


This command draws the drainage structure in both plan view and sectional views.

Drainage System:	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline. The selected feature is drawn on the screen relative to the previously displayed profiles.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

ADJUST DRAINAGE FEATURE

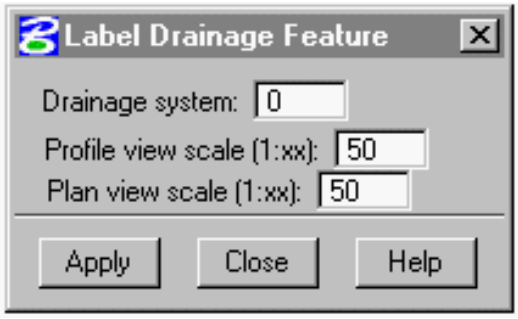
This command allows the user to adjust the drainage structure by re-defining either end or both ends of the drainage structure (in sectional view only). This command then redisplays the modified structure in both views.



Drainage System:	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
Left Flowline Point:	Select this option and digitize the left flowline point on the sectional view, if you wish to modify.
Right Flowline Point:	Select this option and digitize the right flowline point on the sectional view, if you wish to modify.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

LABEL DRAINAGE FEATURE

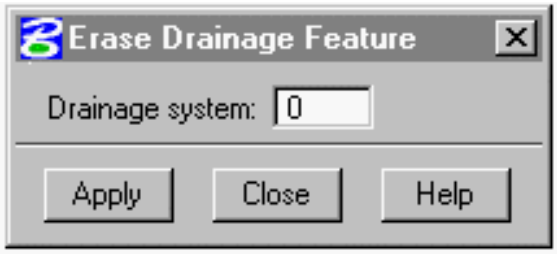
This command labels the plan and sectional views of the drainage structure. It can be initiated so long as the drainage feature has been drawn.



Drainage System:	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
Profile View Scale(1:xx):	Enter the scale for plotting the letters and symbols on the profile view. For example for Imperial, use 20 for 1"=20'. For Metric, use absolute scale - 200 for 1m=200m. Default is 50.
Plan View Scale (1:xx):	Enter the scale for plotting the letters and symbols on the plan view. For example for Imperial, use 50 for 1"=50'. For Metric, use absolute scale - 500 for 1m=500m. Default is 50.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

Note: Label text height is set to the current active text height and are drawn to the scales specified above. All labels and symbols are spaced and drawn according to this active character height.

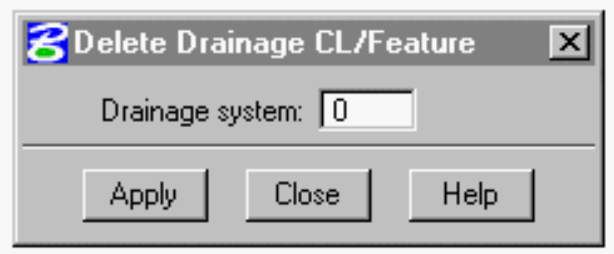
ERASE FEATURE DATA



This command erases the display of a drainage structure and its annotation (including symbols) from the plan and elevation views. The centerline display on plan view and the original ground and design profiles are not erased.

Drainage System:	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

DELETE DRAINAGE CENTERLINE AND FEATURE



This command deletes all records associated with a drainage structure and erases all items in the corresponding plan and elevation view.

Drainage System:	The active drainage system is displayed in the text field. The user can change the active system by entering or selecting a different drainage structure centerline.
Apply	Execute the function. Do not remove the tool.
Close	Close the tool and do not execute the command.
Help	Pops up a Help Information dialog box concerning the given drainage command.

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ENTRANCE SHEET

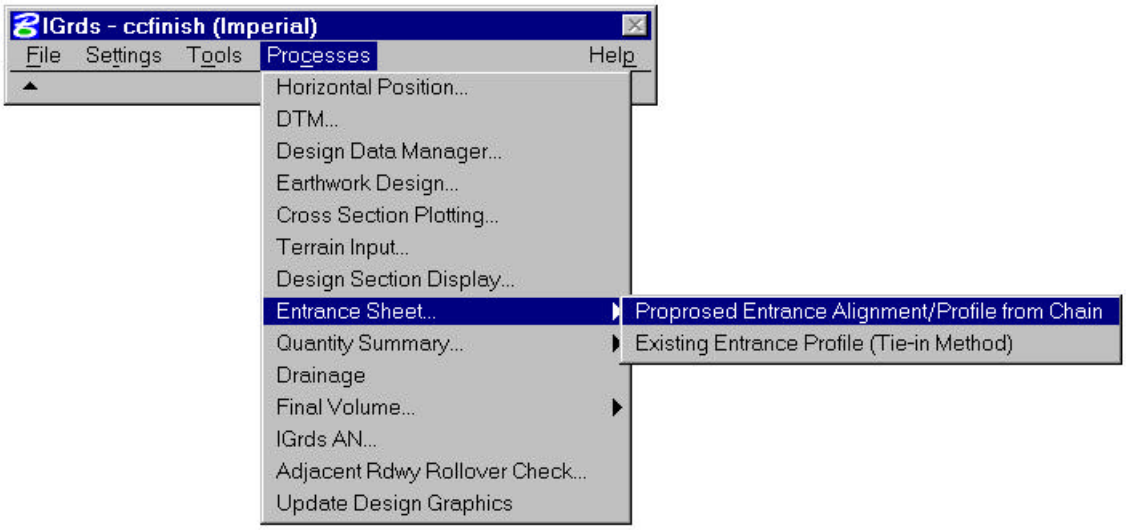
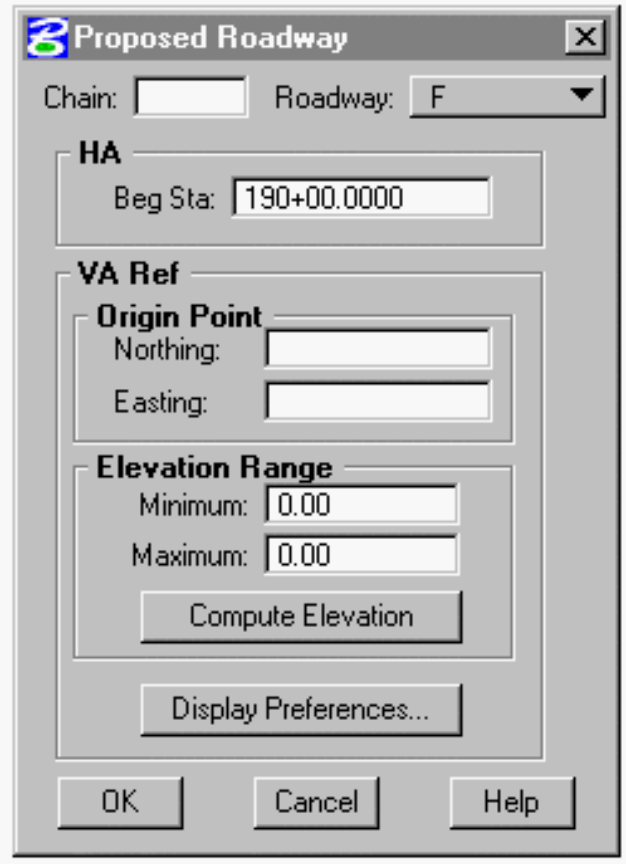


Figure 10-3
Entrance Sheet Process Menu

CONTENTS **ENTRANCE SHEETS**	**MANUAL** **PAGE**

PROPOSED ENTRANCE ALIGNMENT/PROFILE FROM CHAIN

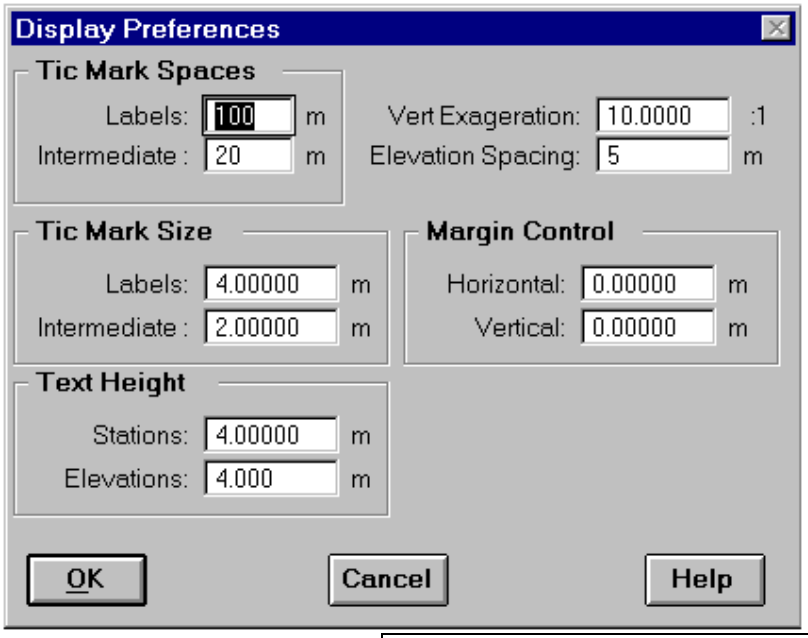


This process is used to request generation of proposed entrance roadway from a chain and display the created roadway's reference line with the proposed entrance's ground profile. The profile is generated from the active DTM surface.

Chain	Graphically select the desired chain or MicroStation chain or enter its ID number.
Roadway	Select the desired roadway. The current active roadway is shown.
Beg. Station	Enter or select the station of beginning of the desired alignment.
Prompt **Select Point Near Beginning of HA**	Digitize a point near the end of the chain which is intended to be the beginning of the alignment.
Origin	Select Origin or Enter Coordinates.
Elevation Range	Enter minimum and maximum values. (Actual values from original ground line are displayed as default when computed. See below.)

Compute	Compute the range of elevations along the chain from the DTM surface. The values are filled in the elevation range. (See above.)
Display Preferences	Click to display an alternate dialog for setting Display Parameters.
OK	Click to execute the command.
Cancel	Click to exit the command with no action.
Help	Click to display Help.

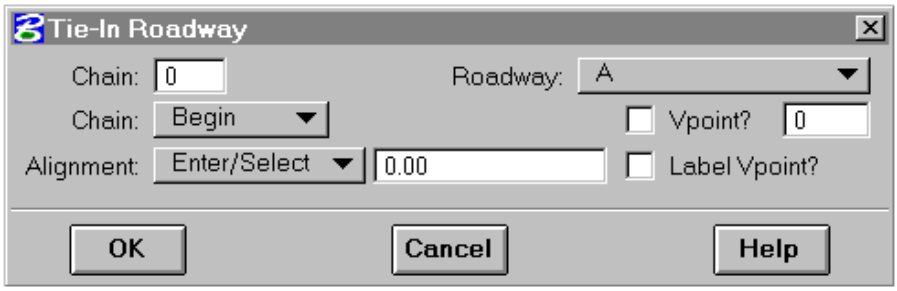
DISPLAY PREFERENCES



This dialog box is activated from the Create Reference Line command. It provides for defining or revising preferences for Reference Line graphic.

Tic Mark Spaces	
Labels	Enter or revise value.
Intermediate	Enter or revise value.
Tic Mark Size	
Labels	Enter or revise value.
Intermediate	Enter or revise value.
Vertical Exaggeration	Enter or revise value.
Elevation Spacing	Enter or revise value.
Text Height	
Stations	Enter or revise value.
Elevations	Enter or revise value.
OK	Click to use the values displayed in the Display Reference dialog box.
Cancel	Click to dismiss dialog box with no action.
Help	Click to display help for this display.

EXISTING ENTRANCE PROFILE (TIE-IN METHOD)



This process is used to request generation of existing entrance profile from a chain and tie the proposed entrance to the existing entrance. The existing profile is displayed on the active roadway's reference line and generated from the active DTM.

Chain	Graphically select the desired chain or MicroStation chain or enter its ID number.
Roadway	Select the desired roadway. The current active roadway is shown.
Chain	Select tie-in location on chain.
Station	Enter/select tie-in location on roadway.
VPoint?	Push if a VPoint is to be generated at the tie-in point. Enter desired VPoint number when VPoint number is used.
Label VPoint	Push to request that label be displayed with the Added VPoint symbol.
OK	Click to execute the command.
Cancel	Click to exit the command with no action.
Help	Click to display Help.

IGrds TOPOGRAPHIC LABELING APPLICATION

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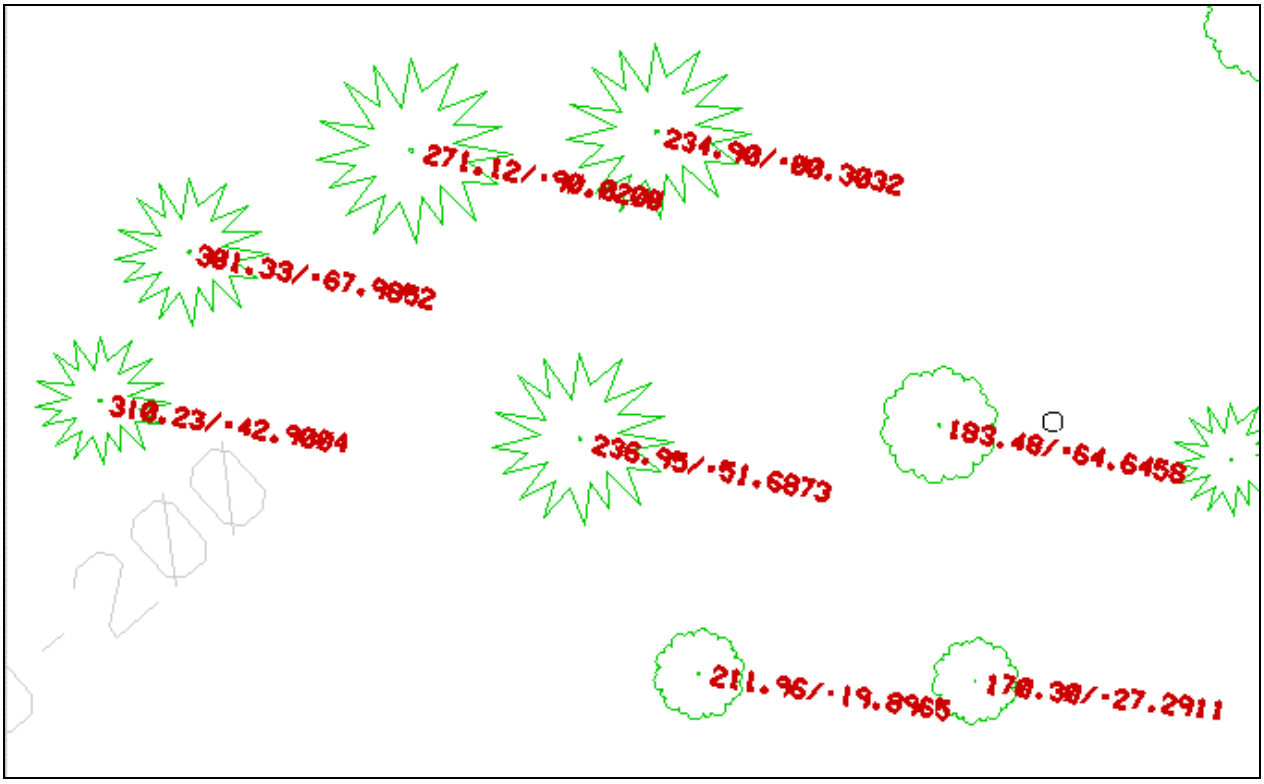
IGrds Topographic Labeling Application

The IGrds Topographic Labeling Application (TOPO) labels topographic features contained in a 2D or 3D .dgn file relative to an alignment (i.e. station and offset). The labels are places according to a user defined table. The labels are placed for point and/or linear features directly into the topographic .dgn file. A sample of labeling for tree cells is shown below.

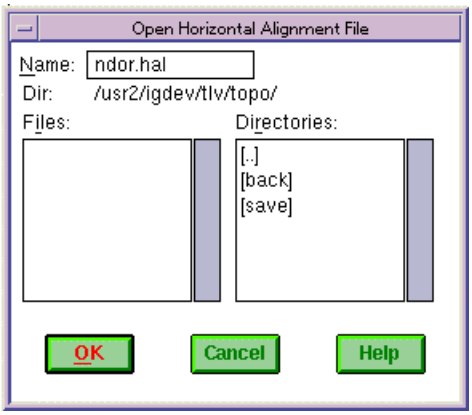


TOPO searches the topographic feature file for features on specific levels, and places labels on specific levels according to the feature type. The feature search level and text placement level are controlled by an external table named topo.dat. Topo.dat is located in the IGrds custom directory. A description of topo.dat follows the user instructions.

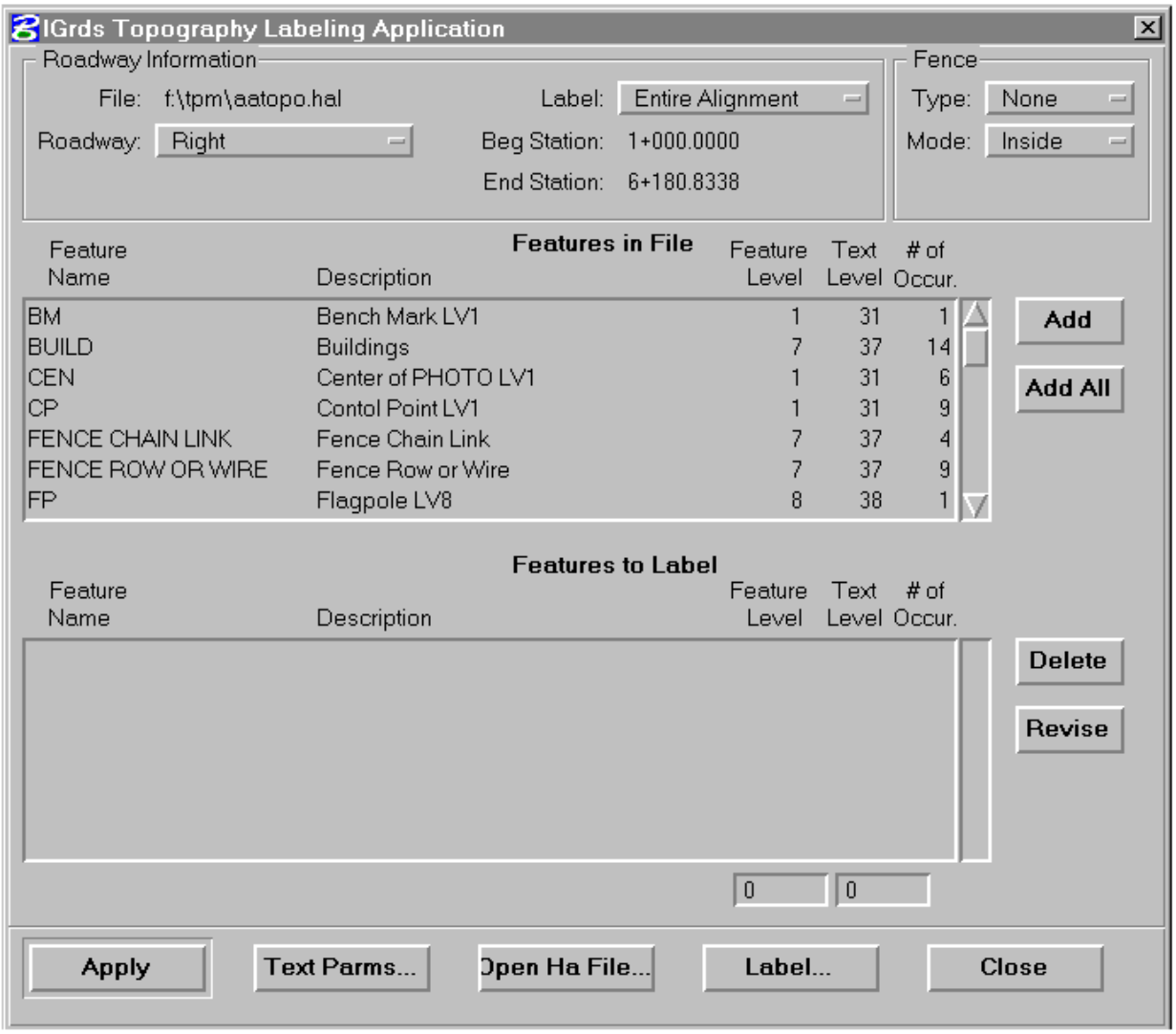
TOPO is a stand alone MDL application that utilizes IGrds alignment data for label referencing. When running TOPO, make sure IGrds is not attached to the same working files. To run TOPO, start the topo.ma MDL application located in the IGrds bin directory. The following information describes what to do once TOPO is started.

Open Horizontal Alignment Dialog

This dialog will allow you to open a Horizontal Alignment File. It is the very first dialog that is opened when the Topography Labeling Application is started, and it can be re-opened from the *Open HA File* push button from the **Topography Labeling Dialog**. A Horizontal File must be opened when the Topography Labeling Application is started.



Topography Labeling Dialog



File
File specifies the horizontal alignment file that was opened in the **Open HA Dialog**. It can be changed by selecting the *Open HA File* push button located at the bottom of the dialog.

Roadway
Select the roadway that should be used in the station and offset calculations. The current roadway is displayed.

Label
The label option is either Entire Alignment or Station to Station. If Entire Alignment is selected, all features that appear in the *Features to Label* list box will be labeled. If Station to Station is selected only those features that fall within the station range will be labeled.

Begin Station/End Station
If Entire Alignment is selected, these fields are grayed out and the beginning and ending station of the active alignment are displayed. If Station to Station is selected, then enter or pick the beginning and ending station that will cover the station range to be labeled.

Fence
Optionally, a fence can be defined to restrict labeling to a user defined area. Fences can be rectangular or polygonal shapes. The options available for fences are shown below.

> **Type:**
> Select *None* if no fence is to be used. In this case the entire design file will be analyzed for topo labeling.
>
> Select *Block* if a rectangular fence block is desired. After selecting this option, the fence can be defined in the plan view where labeling is desired.
>
> Select *Shape* if a polygonal fence shape is desired. After selecting this option, the fence can be defined in the plan view where labeling is desired.
>
> **Mode:**
> Select *Inside* if objects that fall entirely within the fence are to be labeled.
> Select *Overlap* if objects that fall entirely inside the fence or overlap the fence are to be labeled.
>
> **Close Fence:**
> This button appears only if polygonal fences are being defined. Press this button to close the fence.

Features in File
The *Features in File* list displays all the valid features that are found in the current design file. It gives the MicroStation Feature Name, a description, the level of the feature, and the level of the corresponding label. It also give the number of times each feature was found in the design file. The valid features are listed in the topo.dat file. To make disjoint multiple selections, click with the mouse while holding the Ctrl key. To make contiguous multiples selections click with the mouse while holding the shift key.

Features to Label
The *Features to Label* list displays all the features that will be labeled when the apply button is pushed. This list is manipulated by using the add, add all, delete and revise pushbuttons. To make disjoint multiple selections, click with the mouse while holding the Ctrl key. To make contiguous multiples selections click with the mouse while holding the shift key.

Add
Push the *Add* button to add the items that are selected in the *Features in File* List to the *Features to Label* list.

Add All
Push the *Add All* to add all the features in *Features in File* list to *the Features to Label* list.

Delete
Push the *Delete* button to delete the items that are selected in the *Features to Label* list.

Revise
Push the *Revise* button to revise the item that is selected in the *Features to Label* list. Only the text and the feature level can be changed. The feature level will only look for features at that level, and the label will be placed at the text level.

Apply
Push the *Apply* button to label all the features that are listed in the *Features to Label* list, that fall within the station range specified. All calculations will be based off the roadway that is specified in the roadway option button.

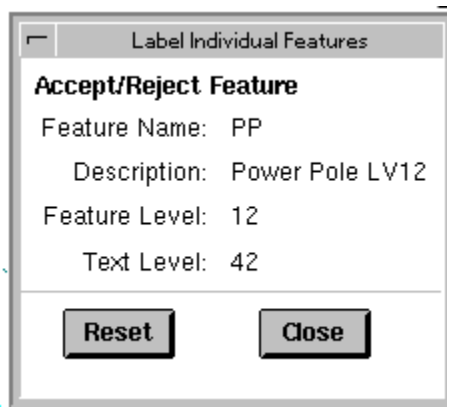
Text Params...
Push the *Text Params...* button to open the **Text Parameters Dialog**. This dialog will allow you to change the options for the labels that are being put in the design file.

Open HA File...
Push the *Open HA File...* button to open a different Horizontal Alignment File.

Label...
Push the *Label...* button to open the dialog that allows labeling of individual items in the design file.

Close
Push the *Close* button to shut down the Topography Labeling Application.

Label Individual Features Dialog



When this dialog is opened, individual features in the design file can be labeled. When the dialog is first opened, the *Select Feature* prompt is displayed. Once you select a feature, if it is a valid feature, it will be hilited, and the *Accept/Reject Feature* prompt will be displayed. If the data button is used to accept the feature, the feature will be labeled using the current text attributes. If the reject button is pressed, the feature will not be labeled and *Select Feature* prompt will be redisplayed. All calculations will be based off the current roadway.

Prompt
Either Select Feature or Accept/Reject Feature will be displayed.

Feature Name
The *Feature Name* field displays the MicroStation name of the selected feature.

Description
The *Description* field displays the description from the topo.dat file.

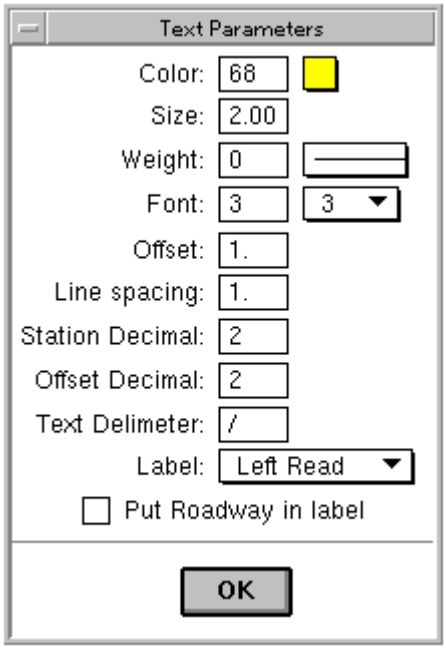
Feature Level
The *Feature Level* field displays the level where the feature is located.

Text Level
The *Text Level* field displays the level where the label will be placed.

Reset
Push the *Reset* button to restart the selection of features and to clear the dialog.

Close
Push the *Close* button to close the **Label Individual Features** dialog.

Text Parameters Dialog



The **Text Parameters Dialog** specifies the attributes of the labels that will be placed in the design file.

Color
Enter or select the color of the label.

Size
Enter the size of the text in the label.

Weight
Enter or select the weight of the label.

Font
Enter or select the font of the label.

Offset
Enter the distance from the point in the feature to be labeled to the label.

Line Spacing
Specify the distance between different lines in the label. This is used between the station/offset line and the roadway line, and between the station and offset lines if the delimiter is specified to be a newline character (\n).

Station Decimal
Enter the number of decimals to be displayed in the station label.

Offset Decimal
Enter the number of decimals to be displayed in the offset label.

Text Delimiter
Enter the character to be used to divide the station and offset fields of the label.

Label
The label is either Left Read or Right Read.

Put Roadway in Label
Select the *Put Roadway in Label* option if the roadway in which the station and offset calculations are based should be part of the label.

OK
Push the *OK* button when finished modifying the attributes for the label.

Topo.dat File

The topo.dat file is the file that specifies the features that are valid features to be labeled in the design file. If a feature found in the design file matches one that is listed in the topo.dat file, it will be added to the *Features in File* list. If the feature is not listed in the file it will be ignored. The file has four fields: Feature Name, Feature Level, Text Level, and Description. The fields in the file must be in this order and separated by commas.

Layout of Topo.dat File

The topo.dat file describes features that the Topographic Labeling Application (TOPO) will search for in a .dgn file. Only features contained in this file on the specified level will be labeled by TOPO. When a match of a feature in topo.dat with a feature with the same graphic attribute data occurs, the feature will be selected for labeling.

Topo.dat is a simple ASCII, comma delimited file. Lines beginning with a # are comments. The order of data is as follows:

1. Feature name: This is the name of the cell representing the feature.

2, Feature level: This is the level the feature is to be found on.

3. Text level: This is the level TOPO will place the labeling text for the feature.

4. Description: This is the description of the feature.

The following is a sample of an actual topo.dat file:

```
#Feature/Cell name  Feature   Text      Description
                    Level     Level
CENTER OF DRIVE, 17, 47, Center of drive
CITY LIMITS, 28, 28, City Limits
CONTROL ACCESS NEW, 55, 55, Control Access New
CONTROL ACCESS PREV, 42, 42, Control Access Previous
CROP LINE, 7 37, Crop Line
DIKE , 7, 37, Dike
DRAINAGE, 63, 63, Drainage
ELECTRICAL EXISTING, 28, 28, Electrical Existing
EXHIBIT01, 28, 28, Exhibit 01
EXHIBIT02, 28, 28, Exhibit 02
EXHIBIT03, 28, 28, Exhibit 03
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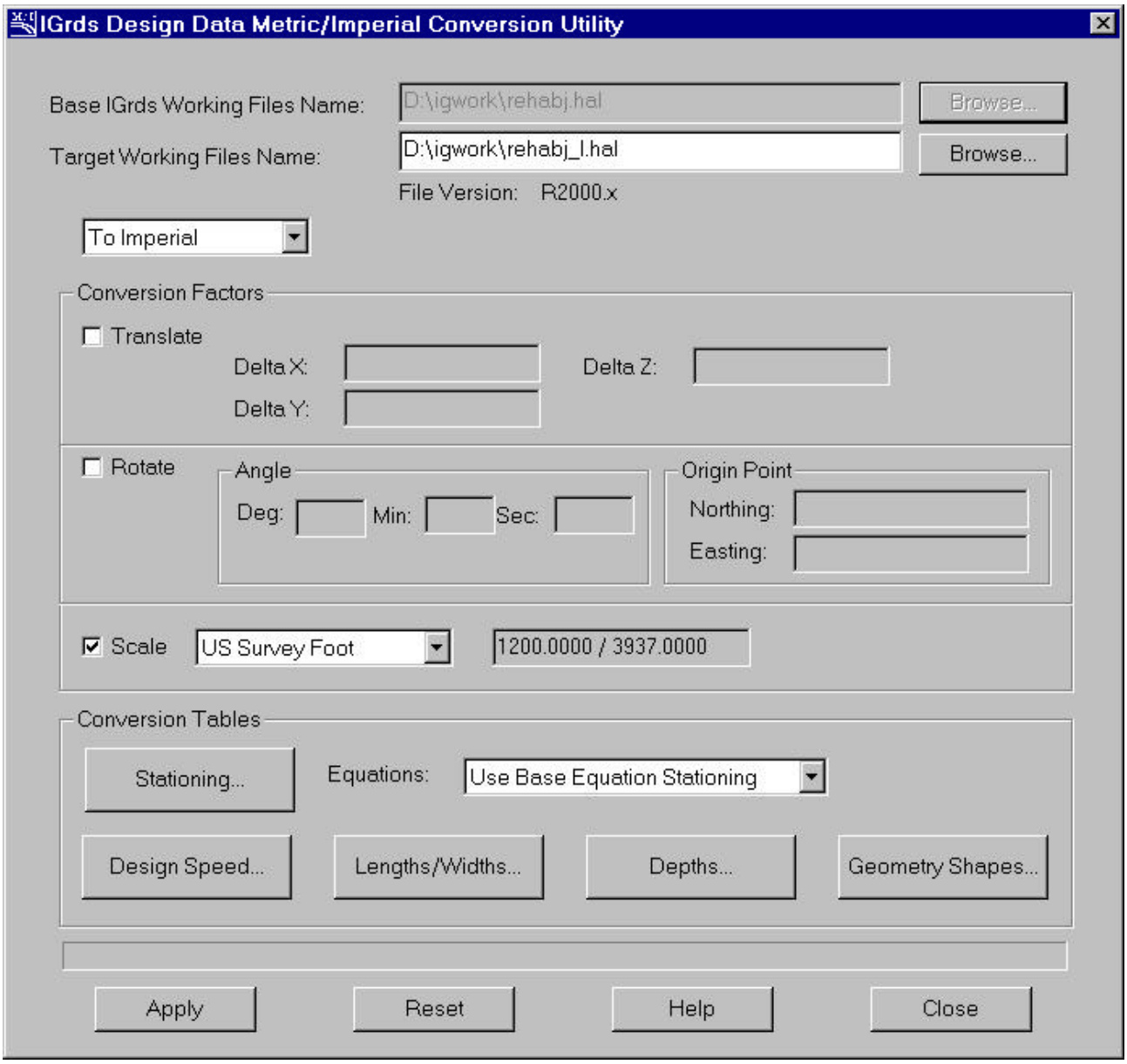
IGrds DESIGN DATA METRIC/IMPERIAL CONVERSION UTILITY

The purpose of this conversion utility is to convert the design data within IGrds working files from metric units to imperial units and vice versa. The conversion utility is a standalone Windows utility (much like the current AN procedure), rather than an MDL application within MicroStation. The process is launched from an icon within the IGrds group. The following paragraphs describe this conversion utility in more detail. See the Systems Manual for a description of the configuration table and the Concepts Manual, Appendix L for a general description of the conversion process.

CONTENTS	MANUAL PAGE

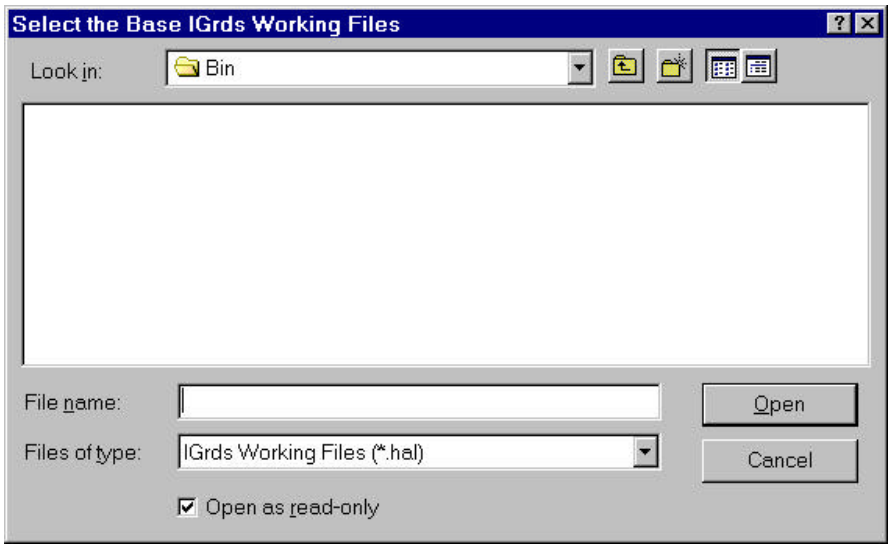
User Interface



As mentioned above, the conversion utility is a Windows application. The look and feel of the interface is very similar to other IGrds dialog boxes, especially the current AN process dialog box.

Base IGrds Working Files Name

The user can enter the working file name from scratch or search for existing files using the Browse button as shown here.



Target Working Files Name

The process detects whether the selected working files are metric or imperial and presents a proposed name for the converted files by appending an "i" or "m" to the name as appropriate. Again, the user can select a different name, directory, etc. by manually editing the field or by using the Browse button.

"To" Factor

This drop down box is set depending on the base file type. For example, if the base file is metric, then the box will be set to imperial (default) or same units. Generally, the "same units" option is only selected if the data needs to be translated or rotated only.

File Version

The file version (e.g., R99.x, R2000.x) is displayed. Note that R99 files are not automatically converted to R2000.x files as part of the metric/imperial conversion process.

Convert to Thousand Meter Stationing

This toggle is only displayed for imperial files being converted to metric units. If the user desires thousand meter stationing, this toggle is checked.

Convert to Thousandths Decimal Precision

This toggle is only displayed for imperial files being converted to metric units. If the user desires thousandths precision, then this toggle is checked.

Conversion Factors

Translate Toggle – This toggle is checked if the conversion requires a coordinate translation. If so, then the users enters the translation values in the Delta X, Delta Y, and Delta Z text boxes.

Rotate Toggle – This toggle is checked if the conversion requires a coordinate rotation. If so, then the user enters the rotation angle (positive is clockwise) and origin point for the rotation.

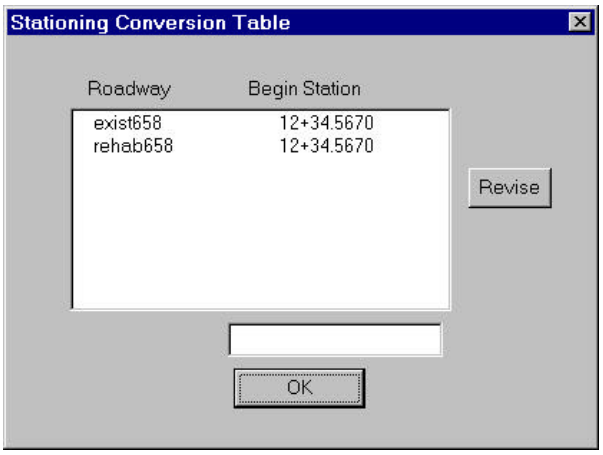
Scale Toggle – This toggle is checked if the conversion requires coordinate scaling. If so, then the user selects the scale factor and the processing order as discussed below.

- The scale factor drop down box contains three options: US Survey Foot, International Foot, and Custom. If the users selects custom, then he must enter his own scale factor (1.0 is the default for custom). Otherwise the actual conversion factors are shown in the middle text box.

- If the data is to be translated and/or rotated as well as scaled, then an additional drop down box is displayed that shows the order of processing. For example, if the conversion requires all three, then the drop down box displays "Trans>Rot>Scale" or optionally "Scale>Rot>Trans". The user can select the processing order by toggling between the two states.

Conversion Tables

Stationing – Clicking the Stationing… button displays the Stationing Conversion Table dialog, shown here:



The beginning station for each roadway in the base file is shown in the list box. To revise the values highlight the line, edit the station, and click the Revise button. Clicking the OK button set the revised values for the conversion.

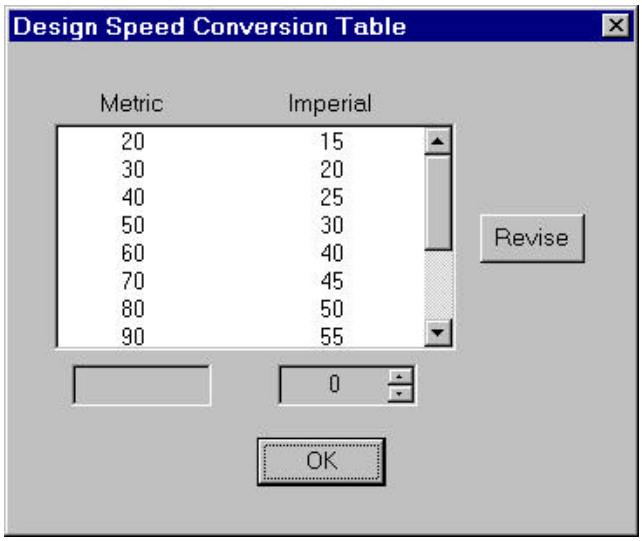
Equations – There are three options for equations as discussed below:

- Use Base Stationing implies that the "ahead" station values from the base file will be used in the converted files.

- Convert Equation Stations implies that the "ahead" station values will be converted using the scale factor for use in the converted files.

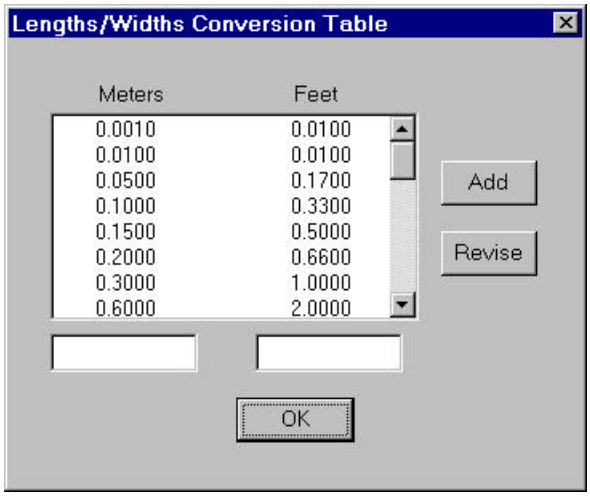
- Ignore Equations implies that any equations in the base file will be ignored in the converted file.

Design Speed – Clicking the Design Speed… button displays the Design Speed Conversion Table dialog, shown here:



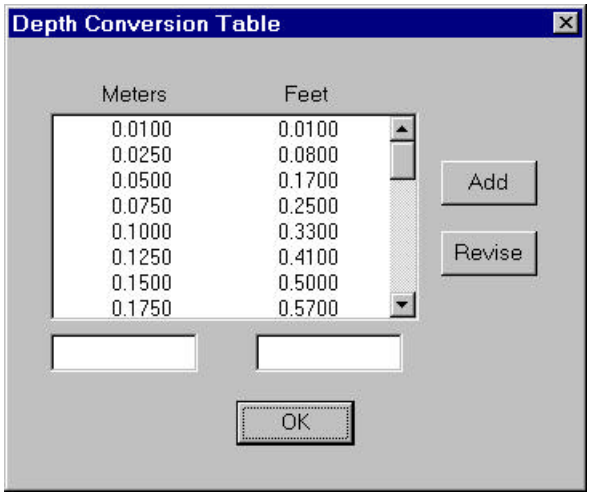
The default values displayed in the list box are read from the metric/imperial configuration table. To reuse a value highlight the line, edit the design speed and click the Revise button. As shown in the dialog only the "target" design speeds can be edited, and then only using the "spin button" thereby eliminating improper design speeds. Clicking the OK button sets the revised values for the conversion.

Lengths/Widths – Clicking the Lengths/Widths… button displays the Lengths/Widths Conversion Table dialog, shown here:



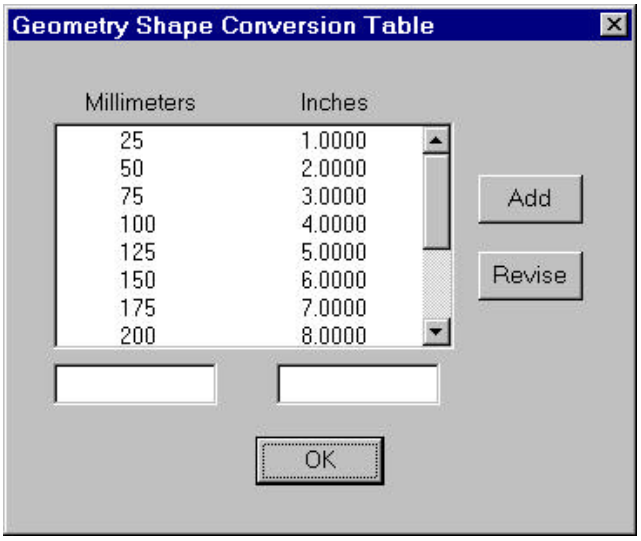
The default values displayed in the list box are read from the metric/imperial configuration table. To add a value, enter values in both text fields and click the Add button. To revise a line, highlight it, edit the appropriate values and click the Revise button. Clicking the OK button sets the added and/or revised values for the conversion.

Depths – Clicking the Depths… button displays the Depth Conversion Table dialog, shown here:



The default values displayed in the list box are read from the metric/imperial configuration table. To add a value, enter values in both text fields and click the Add button. To revise a line, highlight it, edit the appropriate values, and click the Revise button. clicking the OK button sets the added and/or revised values for the conversion.

Geometry Shapes – Clicking the Geometry Shapes… button displays the Geometry Shape Conversion Table, shown here. This dialog is used to edit the "thicknesses" not the length or width conversion values.



The default values displayed in the list box are read from the metric/imperial configuration table. To add a value, enter values in both text fields and click the Add button. To revise a line, highlight it, edit the appropriate values, and click the Revise button. Clicking the OK button sets the added and/or revised values for the conversion.

Apply Button

The actual conversion process is launched by clicking the Apply button. The base files will be converted to the target files using the default and/or modified values.

Reset Button

The Reset button is used to restore the dialog to its original state. It is used most often to clear the fields so that another set of files can be converted.

Help Button

Clicking the Help button launches the Metric/Imperial Conversion Process Help facility.

Close Button

Clicking the Close button closes the dialog box with no action.

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