



Geopak Project Manager

Design Manual
Chapter 21
Automation Tools
Instructions
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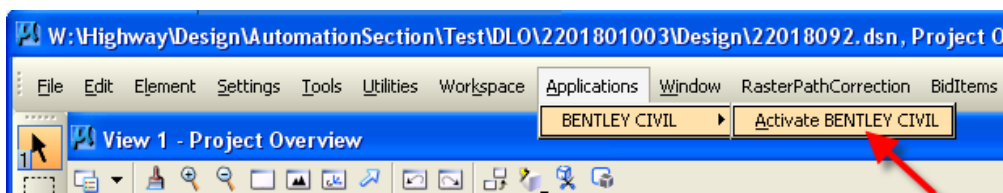
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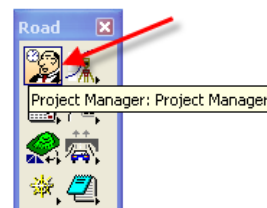
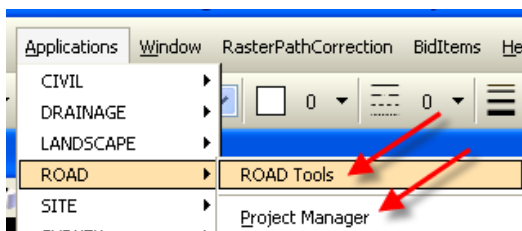
Start Geopak and Project Manager

Geopak is activated through the MicroStation menu as shown below:
Applications > Bentley Civil > Activate BENTLEY CIVIL



After Geopak is activated, the **Project Manager** dialog may be accessed through the Geopak Road Tools palette, or directly from the pull-down menu, as shown below. The **Road Tools** palette is shown below, right.

Applications > Road > ROAD Tools or Applications > Road > Project Manager



Geopak Project Manager Setup

The **Geopak Project Manager** is used to organize information associated with each specific design project. The following information is stored as part of a project:

- The values in the **Geopak User Preferences** dialog will reset to the values stored with the selected project. This eliminates the need to reset the **Geopak User Preferences** manually each time you switch to a new project.
- **Project Manager** is also used to store **Design file information** associated with a project. Working Alignments will be discussed later.
- **Coordinate Geometry information** is associated with centerlines, existing profiles, proposed profiles, cross sections, etc. for each specific alignment within a given project. This information can also be stored in **Project Manager**.
- The name of the existing and proposed **Digital Terrain Model**, (DTM,) files can be stored with **Project Manager**. DTM's will be discussed elsewhere.

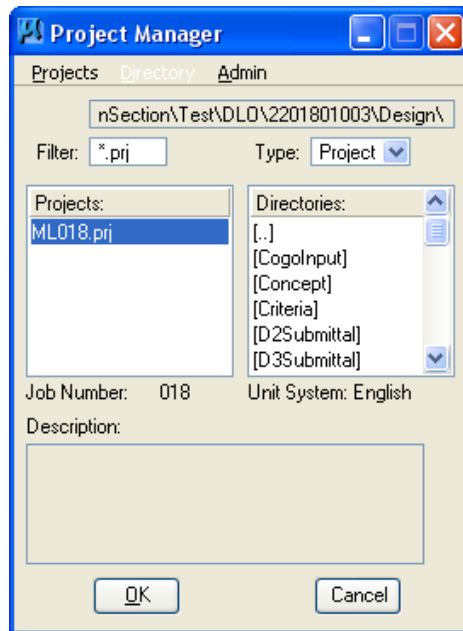
There are 2 steps to creating a project in **Geopak**::

1. Create the project
2. Create users for the project

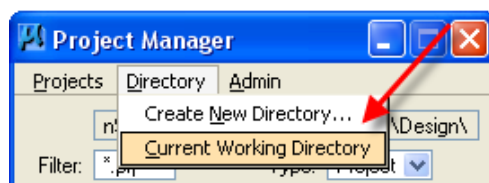
To create a new project

Access **Project Manager** as previously shown, and also shown below:

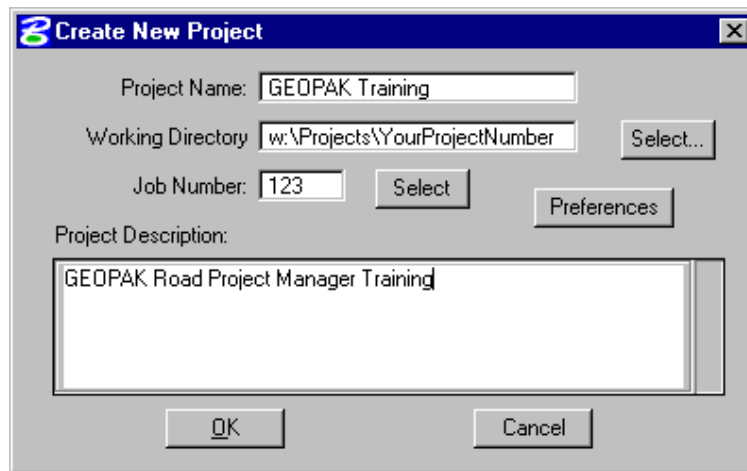
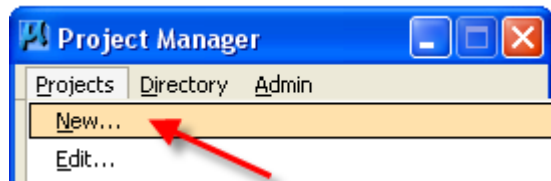
Applications > Road > Project Manager



Select the **Current Working Directory**, as shown below.



To access the **Create New Project** dialog, select *Projects > New* from the **Project Manager** pull-down menu, shown below.



In the **Create New Project** dialog, complete the following information:

Project Name – The name of the new project being creating. In the example above, the file “*GEOPAK Training.prj*” will be created in the directory that was specified in the **Project Manager** dialog.

Working Directory –

Leave the Working Directory field blank - If this field is left blank, Geopak will use the same directory as the location of the currently opened MicroStation design file to open or save all Geopak related files. Use this option if all Geopak related files are to be stored in the same directory as the MicroStation design files.

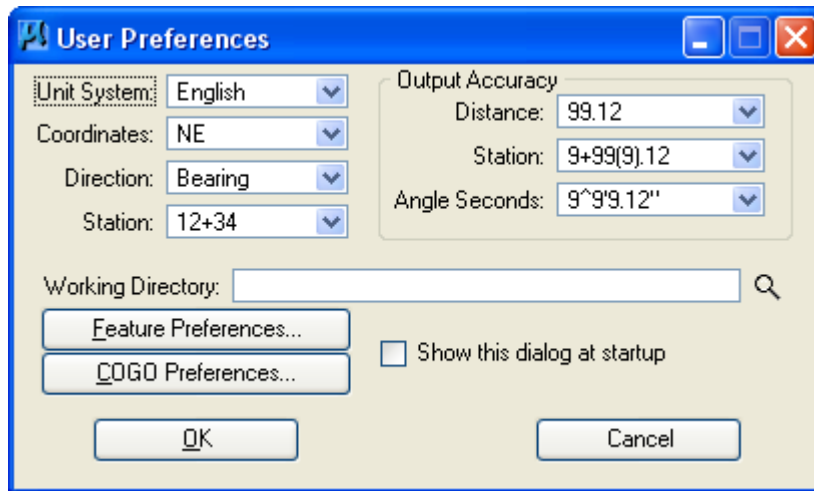
Specify a Working Directory - If a multiple directory structure is being used for the project, and the Geopak related files are to be stored in a different directory than the one that contains the MicroStation design file, the alternate directory can be specified by use of the **Working Directory** field.

Job Number – This is the 1 to 3 digit alpha/numeric designation to be used by Geopak to create a Coordinate Geometry (COGO) database for the project. In the example above, using the three characters 123, a Coordinate Geometry database named job123.gpk will be created in the directory that is specified as the **Working Directory**. The **Select** button is used to select a previously created GPK file for use by this project.

Project Description – The **Project Description** is optional.

Preferences – Select this button to access the **User Preferences** dialog shown below.

User Preferences



It is easy to set or change the number of decimal places for output files, station formatting, coordinate format, English or Metric units, etc. These parameters are not only utilized by coordinate geometry, but also by many of the other Geopak functions.

Once these preferences have been set, they are stored in a MicroStation resource file. Every time Geopak is started, the settings of this dialog box are retained from the last design session. If you are working on multiple projects with different units and different Working directories, The User Preferences will need to be manually adjusted each time you open Geopak. Each option on the **User Preferences** dialog is explained in the following sections:

Unit System (Metric, English)

Options are Metric and English. The **Unit** parameter affects every Geopak component.

Coordinates (NE, XY)

Sets either NE (Northing/Easting) or XY coordinate values in Coordinate Geometry and Labeling components.

Direction (Bearing, Azimuth)

Sets the direction format for such variables as line direction in Coordinate Geometry, Labeling and Components within the D&C Manager.

Station (1+234, 12+34, 1234)

Sets the format for station variables in Coordinate Geometry, Labeling, and components within the D&C Manager.

Output Accuracy

Distance (0 to 6 decimal places)

Sets the number of decimal places for most non-station and non-angle variables in the GEOPAK Coordinate Geometry, Labeling, and components within the Design and Computation Manager. Variables affected by the **Distance Decimal** parameter include point coordinates, curve parameters such as length and radius, inverse distance, elevations, etc.

Station (0 to 6 decimal places)

Sets the number of decimal places for station variables in Coordinate Geometry, Labeling and components within the Design and Computation Manger.

Angle Seconds (0 to 6 decimal places)

Sets the number of decimal places for angle variables in Coordinate Geometry, Labeling and components within the Design and Computation Manger. Variables affected by the **Angle Sec. Decimal** parameter include curve delta and degree, bearings and inverse angles.

Working Directory

Simply stated, the **Working Directory** is where Geopak will “look” for and store files. The working directory can be assigned in one of two ways:

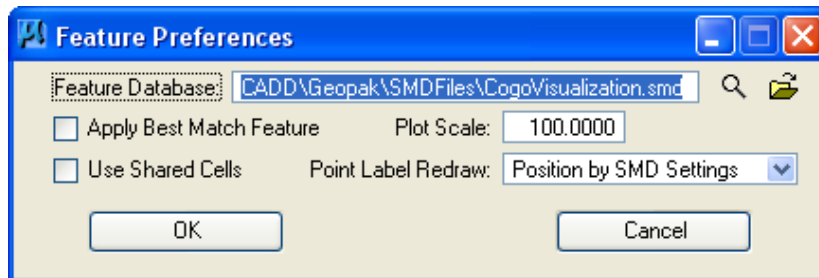
Leave the Working Directory field blank - If this field is left blank, Geopak will use the same directory as the location of the currently opened MicroStation design file to open or save all Geopak related files. Use this option if all Geopak related files are to be stored in the same directory as the MicroStation design files.

Specify a Working Directory - If a multiple directory structure is being used for the project, and the Geopak related files are to be stored in a different directory than the one that contains the MicroStation design file, the alternate directory can be specified by use of the **Working Directory** field.

The hour-glass “browse” button can be *clicked* to select the **Working Directory** .

Feature Preferences

The **Feature Preferences** option is used to assign the database that will be used for mapping survey data and visualizing COGO data. Selection of the **Feature Preferences** button activates the dialog shown below.

**Feature Database** (SMD File text field)

The symbology for the elements drawn from the survey data is determined by the feature code of that element. These feature codes are stored in a database, the Survey Manager Database (smd file) that can be assigned as desired.

When the survey data is being mapped, as each element is created, the feature of that element is searched for in the .smd file. If a match is found, then the symbology for that feature is used. If a match is not found and there is a feature named “default” in the .smd file, then the “default” feature symbology is used. If the feature is not found in the .smd file and no “default” feature is defined in the .smd file, the current Microstation symbology is used.

The hour-glass “**Select SMD file**” icon may be used to select the .smd file from a list. The Iowa DOT standard .smd file is located in the following directory

W:\Highway\Design\Caddinformation\Geopak\SMDFiles\IAFEA07.smd

Edit SMD (book icon)

When the **Apply Best Match Feature** check-box (☑) is checked, the best match from the feature survey preference database is utilized. This option allows placement of one feature in the database per item and locate derivatives, (variances), of that feature in the field. (Example: Assume that feature EP is for “Edge of Pavement”, but in the field there are three different EP’s that need to be located. The different EP chains can be located as EP1, EP2, and EP3. During the mapping process, these features are matched to the Edge of Pavement feature EP in the database. Therefore, multiple EP features do not have to be defined in the database.)

Plot Scale (text field)

Denotes the scale utilized for drawing graphics. The sizing of the element to be placed in the design file can be further controlled through the Survey Manager Database.

Use Shared Cells (check-box)

If checked (☑), the feature symbols will be placed as **Shared Cells**

Point Label Redraw (option field)

Allows for two options: Position by SMD Settings, and Position Relative to Symbol

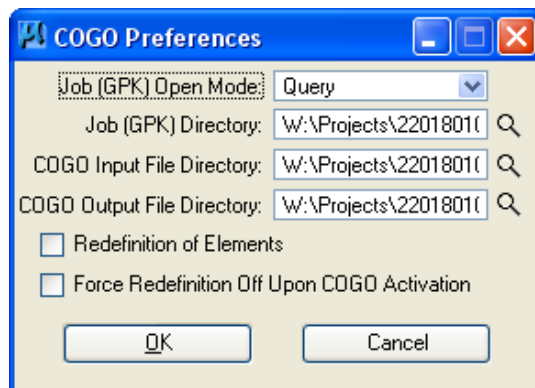
OK (button) - Accepts the dialog settings and closes the **Feature Preferences** dialog.

Cancel (button)

Closes the **Feature Preferences** dialog without accepting any changes to the settings.

COGO Preferences

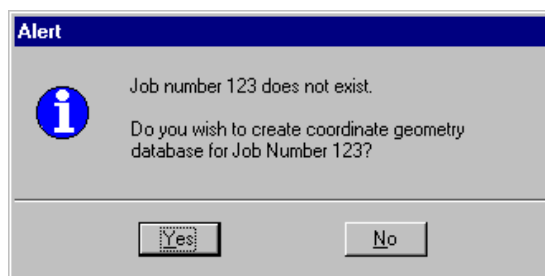
The COGO Preferences dialog is as shown below.



The **Job (GPK) Open Mode** has three options: Create, No Create, Query

Three **Directory** fields: **Job (GPK)**, **COGO Input File**, and **COGO Output File**

Geopak will automatically open the COGO database in the Working Directory. If none is found, an **Alert** message, shown below, will appear and the software will respond in one of three ways, dependant on the setting in the **Job (GPK) Open Mode** field.



Create

The software will create a new database automatically if the Job Open Mode is set to Create.

No Create

The software will not create a new database and the COGO dialog box will not be opened.

Query

The software will prompt the user whether to create a new COGO database as shown above. We recommend leaving this option set to Query.

Redefinition of elements (check-box)

The Redefine function will allow overwriting of COGO elements. *Checking* this check-box () will force the Redefine functions on when COGO is activated. **Note:** Redefine can be turned on/off directly from the COGO dialog after COGO has been activated.

Force Redefine off Upon COGO Activation (check-box)

If the Redefine function left ON the last time COGO was exited, *checking* this check-box () will force the Redefine function to be OFF. It is recommended to *check* () this option.

Show this dialog at startup (Check-box)

Checking () this check-box will force the **User Preferences** to display at start-up.

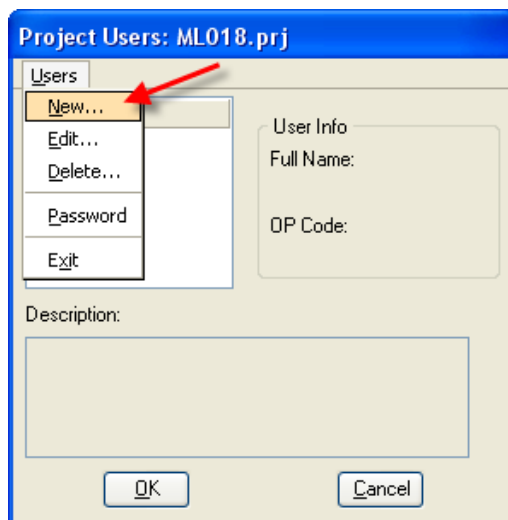
OK and **Cancel** buttons perform normally.

After **User Preferences** have been selected, *click* the **OK** button, then select **OK** from the **Create New Project** dialog to create the project. A file, with the name supplied, will be created in the specified directory. This file stores the name of the project, the job number and the optional project description.

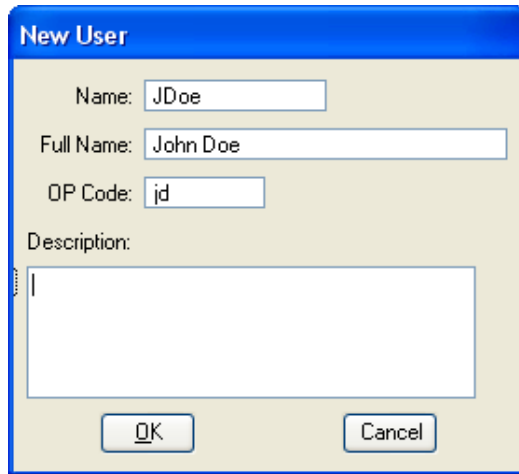
After the project has been created, the name appears in the **Project Manager** dialog. Select the project and *click* **OK** to open the project.

Creating Project Users

A **Project User** must be selected to continue. If none exist, one must be created by selecting *Users > New*, as shown below.



Geopak allows multiple users to simultaneously access the Coordinate Geometry database (.gpk file). In order to keep track of COGO input and Output files, each person accessing the .gpk file is assigned a user name and operator code.

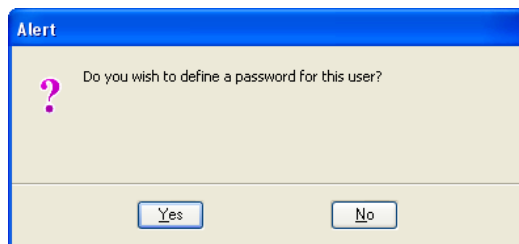


The 'New User' dialog box has a blue title bar. It contains four input fields: 'Name' with 'JDoe', 'Full Name' with 'John Doe', 'OP Code' with 'jd', and a 'Description' text area. At the bottom are 'OK' and 'Cancel' buttons.

Key in the **Name**, **Full Name** and **OP Code** (*Operator Code initials*) for the new user. The **Description** is optional.

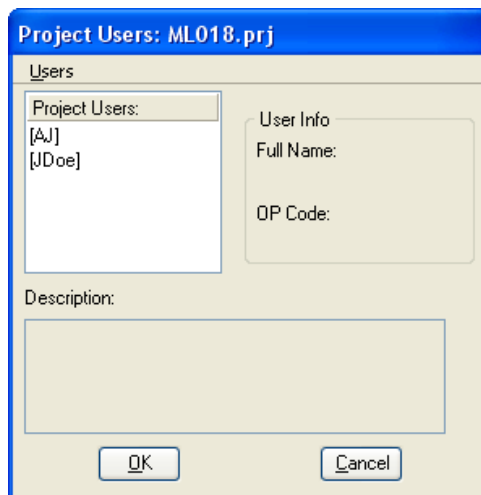
Select **OK** to create the new user.

You will be prompted to define a password to protect the user name. Select **Yes** or **No**.



The 'Alert' dialog box has a blue title bar and a question mark icon. The text asks 'Do you wish to define a password for this user?'. At the bottom are 'Yes' and 'No' buttons.

The new user is created, and the name is added to the *Project User* dialog box as shown below.

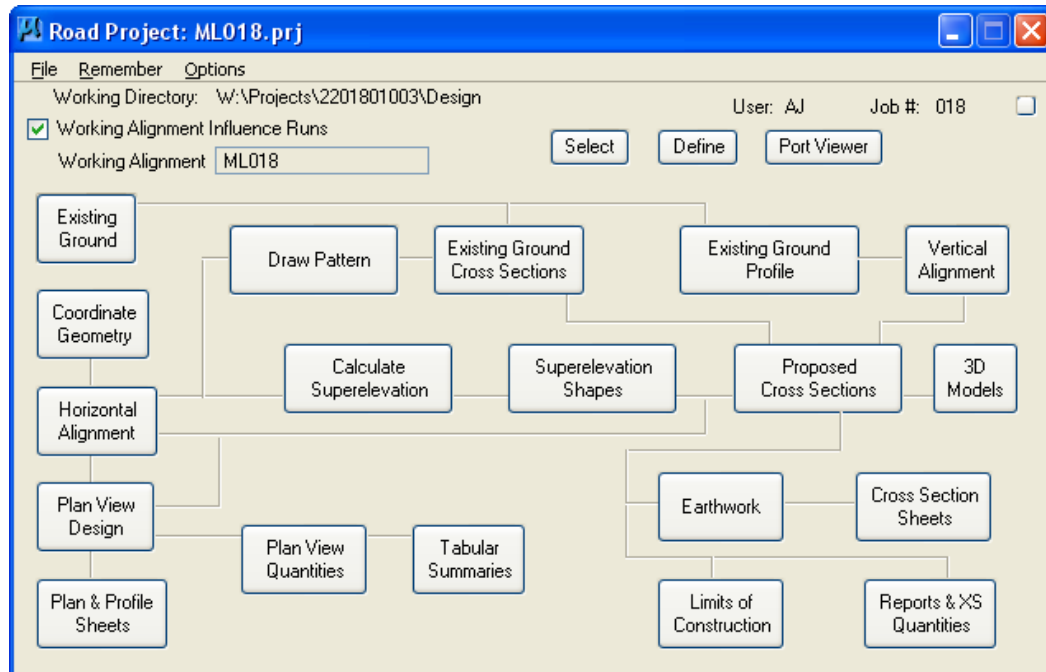


The 'Project Users: ML018.prj' dialog box has a blue title bar. It features a 'Users' list with 'Project Users:' and entries '[A,J]' and '[JDoe]'. To the right is 'User Info' with 'Full Name:' and 'OP Code:' labels. A 'Description' text area is at the bottom. 'OK' and 'Cancel' buttons are at the very bottom.

Select a user name, and pick **OK** to open the Geopak Road Project dialog, shown below.

Geopak Road Project dialog

Each item on the **Road Project** dialog represents a specific Geopak function. Many of the topics will be explained in separate instruction files.



File

The **File** menu has two options: **Close** and **Exit**.

Remember

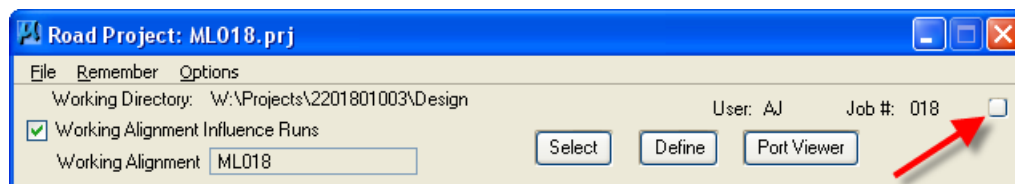
The toggle options on the **Remember** menu include **Project** and **User**, (or none), and instructs Geopak to automatically open to either the last Project or the last User, when the Project Manager is opened. Experimentation will provide you with the best option for your personal situation.

Options

The **Options** menu provides one toggle option – the **Auto Sink** function, **on** or **off**. With **Auto Sink** turned on, selecting any of the **Road Project** dialog options will automatically sink the **Road Project** dialog behind the MicroStation window. After the selected dialog box function is closed, the **Road Project** dialog will automatically “pop” back to the top. Experimentation will provide you with the best option for your situation.

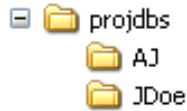
Minimize

The **Minimize** toggle, (shown by the arrow below), alters the size of the **Road Project** dialog. The minimized size is shown below.



Geopak Project Directory Structure

After a new **Project** and **User** have been created, a new “**projdbs**” sub-folder is created in the Working Directory. This directory is used to store **Project Manager** information for each user. If multiple users are created for a project, a sub directory for each user is created under the **projdbs** directory, as shown below.



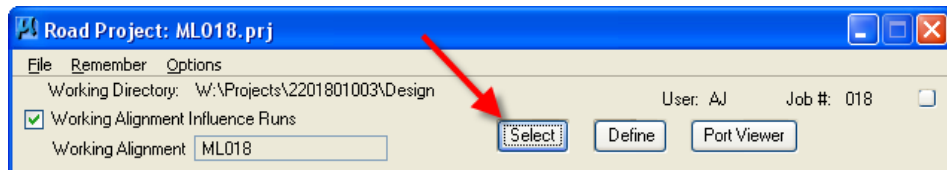
The Working Alignment

There are two steps to setting up a working alignment, including:

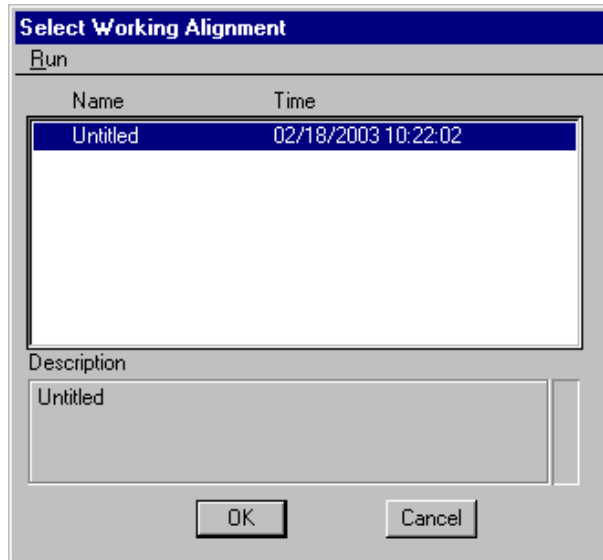
1. Create an Alignment “Run”
2. Define the conditions for the “Run”

Select (button)

The **Select** button, shown below, is used to choose an existing working alignment or create a new one.



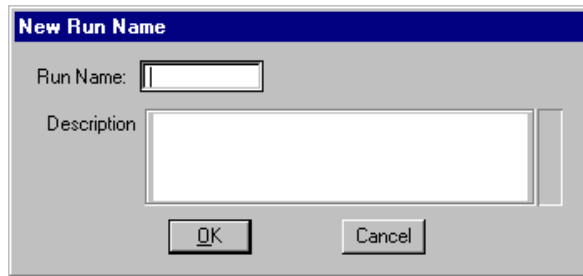
Click the **Select** button to access the **Select Working Alignment** dialog, shown below.



By default there is always a Working Alignment named “Untitled”.

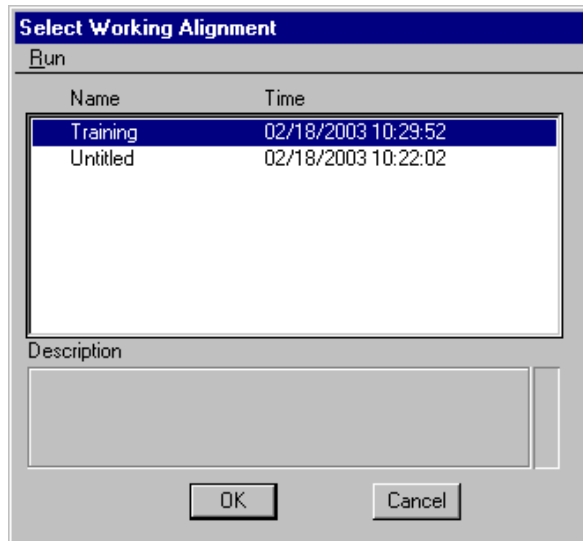
To create a new **Working Alignment**, select *Run > New* from the **Select Working Alignment** dialog menu, as shown at the right. The **New Run Name** dialog will display, as shown below.





Each **Working Alignment** is stored as a “Run” by Geopak. Enter a **Run Name** for the new **Working Alignment**. The **Description** is optional. Select the **OK** button to create a new **Working Alignment**.

After a new **Working Alignment** has been created, the name is added to previous alignment names and displayed in the **Select Working Alignment** Dialog, as shown below.

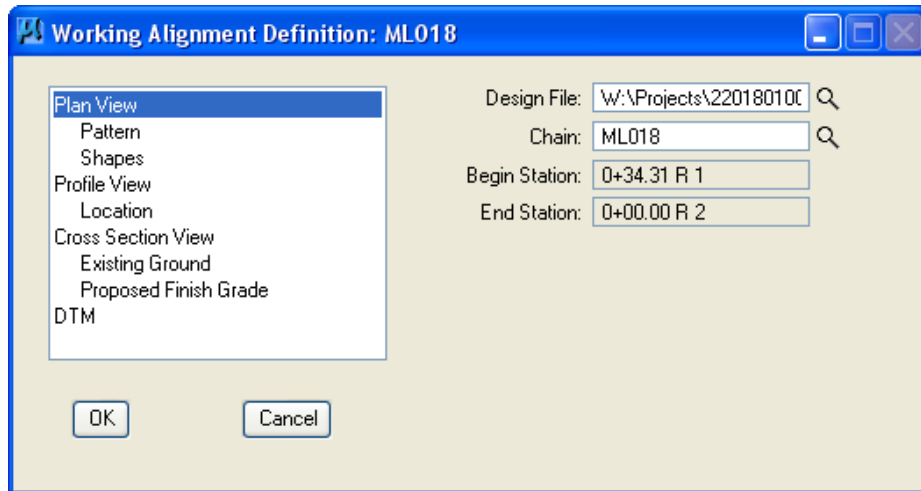


Select the design **Working Alignment** and *click* the **OK** button. The **Road Project** dialog box is updated to reflect the currently selected Working Alignment as shown below, (yellow arrow).



Define (button)

The **Define** button, (shown above, red arrow), is used to define information about the working alignment. Select the **Define** button to access the **Working Alignment Definition** dialog box as shown below.



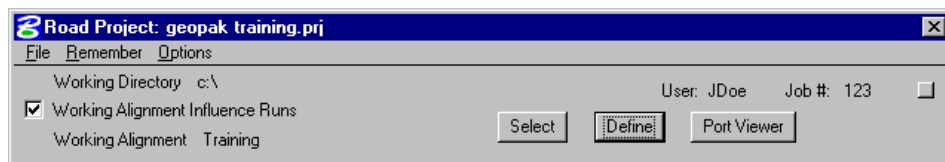
Each item on the left side of the **Working Alignment Definition** dialog represents a different piece of information that can be defined for the alignment. As you work through a Geopak project, and as new information is developed, you will continue to update the **Working Alignment Definition** information.

The purpose of the **Working Alignment Definition** is to save specific project alignment information in one place. These settings are shared with other Geopak dialog boxes. Example: The first item in the list is **Plan View**, which is used to store the name of the **Design File** that contains the proposed graphics for the project, and the name of the **Chain** in the Coordinate Geometry database that is used for the centerline of the road.

When accessing the various functions of the **Road Project** dialog box, the settings and parameters of the current **Working Alignment** run are available to all other features:

- IF the parameters have been specified in the **Working Alignment**, and
- IF the **Working Alignment Influence Runs** toggle is active, as shown below.

This eliminates the need to repetitively key in the same data in every dialog box.



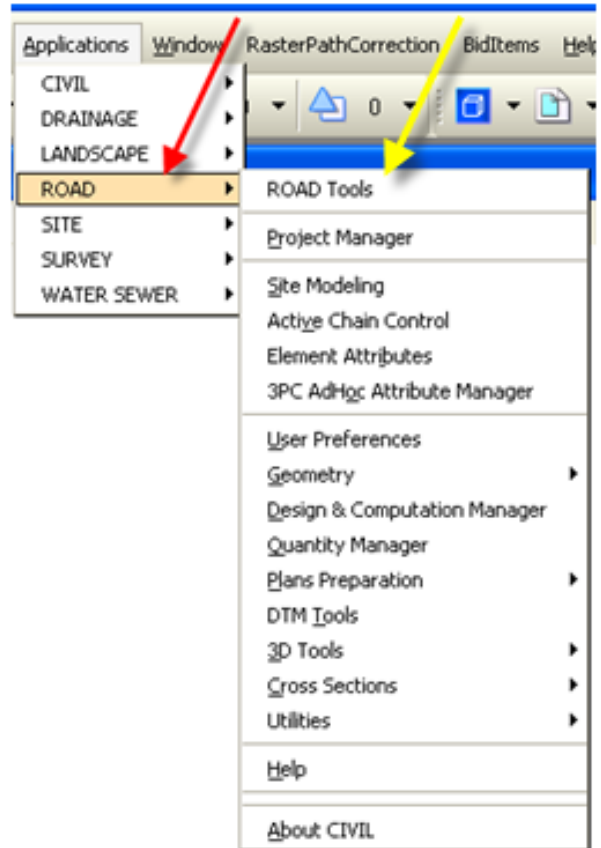
Note: For complete instructions, refer to Geopak Help: (from within MicroStation, after Geopak has been activated)

*Applications >
 Road >
 Help >
 Project Manager >*

Accessing the Individual Geopak Functions

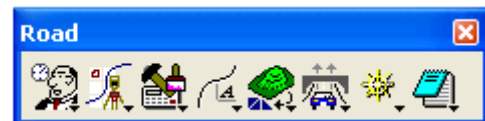
Geopak pull-down menus

Each individual function of Geopak can be accessed from the pull down menus, through *Applications > Road*, as shown at the right, (red arrow).



Geopak Road Tools palette

Alternately, the **Road** tool palette, (shown at right), can be used to access all the individual Geopak functions. Access the **Road** tool palette from the pull-down menu, as shown above, (yellow arrow).



A complete summary of all tools is available through Geopak Help, as shown on a previous page.