Queensland Government
Department of Main Roads

# Traffic Sign Structures

## (TraSiS V3.0)

# User Manual

TRAFFIC & ROAD USE MANAGEMENT DIVISION
TRAFFIC ENGINEERING AND ROAD SAFETY BRANCH


# CONTENTS


# CHAPTER 1

# INTRODUCTION TO THE MANUAL


# Section 1.1
# About This User Manual

## 1.1.1 The Purpose of This Manual

**Audience**

This User Manual is intended for designers utilising the **TraSiS V.V3.0** software program for the design of roadside sign support structures.

**Scope**

The User Manual describes the process involved to:

- Create a new sign structure;
- Understand the sign storage feature;
- Print forms;
- Interpret warnings and errors; and
- License the program.

**Reader Skills**

The User Manual assumes that the reader has a basic knowledge of:

- Personal computers and their operation; and
- The sign design procedures as outlined in the *Design Guide for Roadside Signs.*

**Expected Outcome**

After studying this manual, the reader should be able to:

- Create a new sign structure;
- Understand the sign storage feature;
- Print forms;
- Interpret warnings and errors; and
- License the program.


## 1.1.2 How to Use This Manual

**Composition**

This manual is divided into eight chapters to group together related subject matter.

**Chapter 1**

Chapter 1, *Introduction To The Manual*, explains:

- The purpose of the manual;
- The typing conventions and acronyms used in the manual; and
- Where to obtain further information relating to traffic sign structures.

**Chapter 2**

Chapter 2, *Introduction to TraSiS*:

- Install TraSiS software;
- Open the program;
- View the Main Window; and
- Access the various menus.

**Chapter 3**

Chapter 3, *Design Procedure*, provides sufficient information to the user to:

- Create a new sign file;
- Complete the **Sign Details Entry Form**; and
- Complete the **Roadside Environment Entry Form.**

**Chapter 4**

Chapter 4, *Main Window*, explains:

- The layout of the Main Window;
- How to enter the sign design data on the appropriate forms; and
- How the **Message Box** is used for warnings and errors.

**Chapter 5**

Chapter 5, *Sign Storage* explains how to use the:

- Database storage system; and
- Job management feature.

**Chapter 6**

Chapter 6, *Clear Zone* explains:

The clear zone concept; and
How to complete the **Clear Zone Form**.

**Chapter 7**

Chapter 7, *Printing*, describes the three forms available and explains how to print the various forms.

*Continued on next page*


## 1.1.2 How to Use This Manual, (continued)

| | |
|---|---|
| **Chapter 8** | Chapter 8, *Warnings and Errors*, explains how warnings and errors are communicated to the user through the **Message Box.** |
| **Keyboard Shortcuts** | The *Keyboard Shortcuts* lists the available shortcut keys and their function. |
| **Licensing** | The *Licensing* explains how to license the software and how to transfer a licence. |
| **Glossary** | The *Glossary* contains an explanation of terms used throughout the manual. |
| **Index** | The comprehensive *Index* at the end of the manual is provided to assist in locating topics and their page numbers, with cross-references to other topics where applicable. |


## 1.1.3 Typographical Conventions Used in This Manual

**Typographical Conventions Table**

The following table explains the typing convention used in this manual:

| Convention | Meaning | Example |
|---|---|---|
| **Bold** | Names of menu names, items, buttons, utilities and text entry fields. | Select the **Open** command.<br>Click on the **Browse** button. |
| System data | System text displayed on your screen. This font is also used for file names and directories. | Do you wish to rebuild printers? (Y/N) |
| *Italics* | Cross-reference to other manuals, chapter and Appendices in the documentation. | Refer to the *Design Guide for Roadside Signs* for more information. |
| **entry data** | Commands that should be entered exactly as shown appear in this boldface type. | Enter the following:<br>**A:\setup** |
| ***dir newdir*** | Information that you must supply is in bold, lower-case italics. | Enter the command:<br>**Copy *olddir newdir*** |
| <Del> | Keys to be pressed are shown in the <and> brackets. | Press <F3> to call up the wizard. |
| **X** > **Y** > **Z** | Menu items to be selected in sequence (usually clicked on using the mouse) are separated by the symbol ">" | **View** > **System Status** > **Channels**. |
| <Ctrl>+<C> | Keys to be pressed simultaneously are shown with a + (plus) sign. | To close the window, press <Ctrl>+<C>. |

**Important Messages**

Important messages are highlighted in this manner


## 1.1.4 Acronyms Used in This Manual

**Acronyms List** The following acronyms are used in this manual:

| Acronym | Details |
|---|---|
| AADT | Annual Average Daily Traffic Flow |
| CHS | Circular Hollow Section |
| RHS | Rectangular Hollow Section |
| TraSiS | Traffic Sign Structures |


## 1.1.5 Related Documents

**Document List** The following lists all related documents:

| Document | Details |
|---|---|
| 1 | Standard Drawing Number 1363 – Traffic Sign Support |
| 2 | Standard Drawing Number 1364 – Connection Strap and Erection Details |
| 3 | Standard Drawing Number 1365 – Traffic Sign Support Breakaway Post Details (2 or more supports) |
| 4 | Standard Drawing Number 1366 –Traffic Sign Support Detail –Truss Type Breakaway |
| 5 | Standard Drawing Number 1367 –Traffic Sign Support Detail –Truss Type Breakaway Bracing Details |
| 6 | Standard Drawing Number 1368 –Single Traffic Sign Support |
| 7 | Standard Drawing Number 1450 –Traffic Sign Support Timber Posts |
| 8 | Standard Drawing Number 1451 –Timber Support Details |
| 9 | Main Roads Guidelines ES-126, Appendix 3 |
| 10 | Design Guide for Roadside Signs, Edition 1, Rev 0, February 2000 |

*End of Chapter 1*


# CHAPTER 2

# INTRODUCTION TO TraSiS

# Section 2.1
# About This User Manual

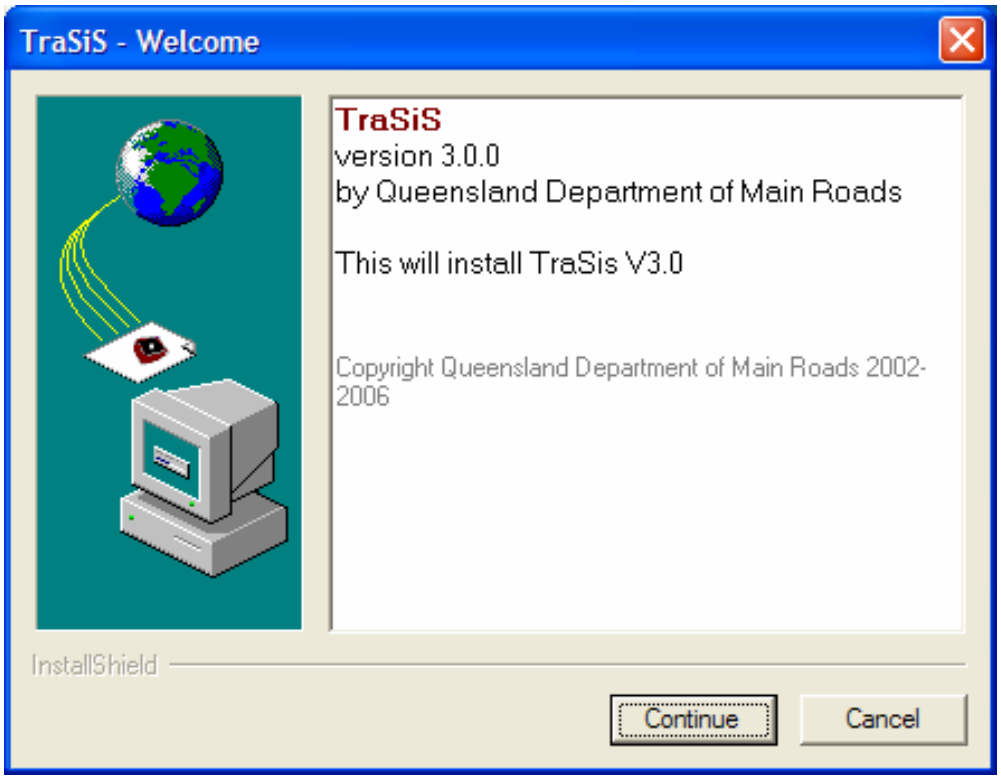
## 2.1.1 Introducing TraSiS

**What is TraSiS**

TraSiS v.V3.0 is a program developed by the Traffic Engineering & Road Safety Section of Main Roads, to assist in the design of roadside sign support structure. It is used in conjunction with the companion document *Design Guide for Roadside Signs*.

**Installing TraSiS**

Insert the CD ROM or download *"trasis.exe"* from Main Roads web site *www.mainroads.qld.gov.au* to an appropriate directory. From that directory/folder select the "trasis.exe" file. The **Welcome** screen will appear. Close all other applications and click **Continue** to proceed with the download.




Close all other applications then click the **Continue** button.

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## 2.1.1 Introducing TraSiS, (continued)

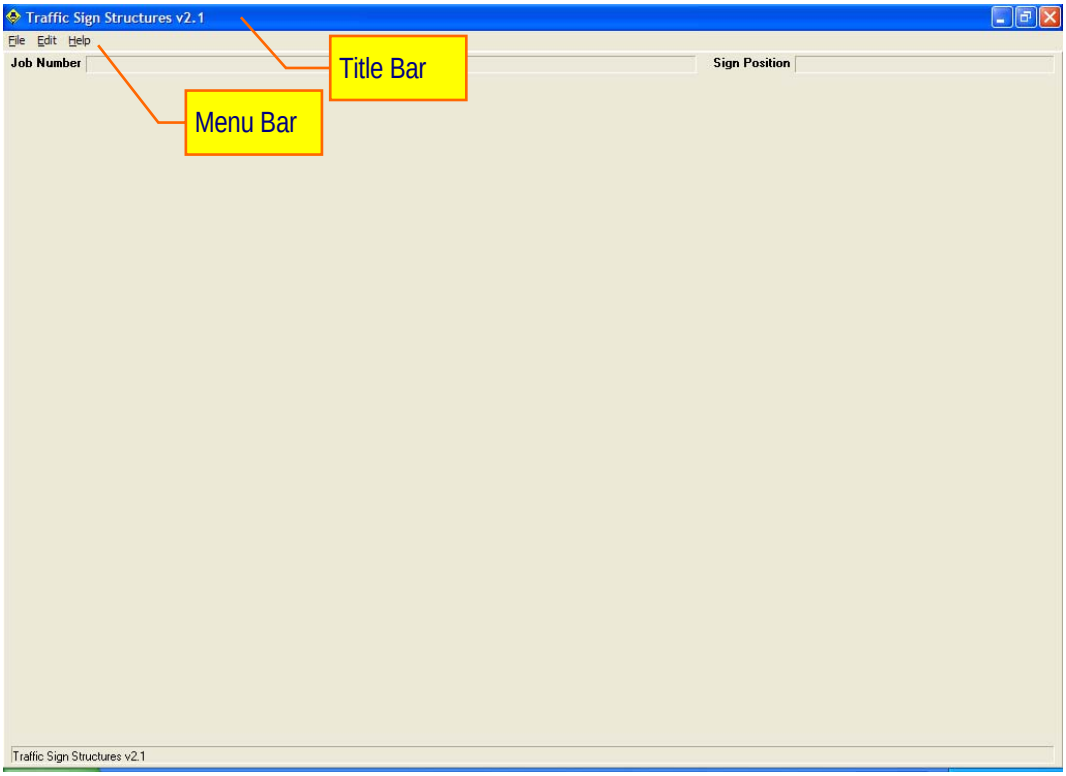
**Installing TraSiS (cont'd)**

When the downloading is complete you will see the following screens. The program will automatically download and create new default folder called **Main Roads** located on your hard drive. Select **Next** or an appropriate installation folder (Browse for folder). Then simply click **Finish** to complete the download.

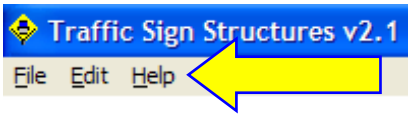
## 2.1.2 The Main Menu

**Main Menu Description**

Once the program is loaded, the Title Bar becomes active and the menus available




**Menu Bar**

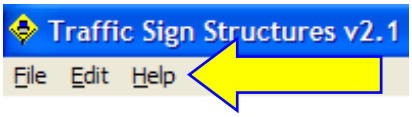



The Main Menu provides the user with access to the:

- **File** menu;
- **Edit** menu**;** and
- **Help** menu.

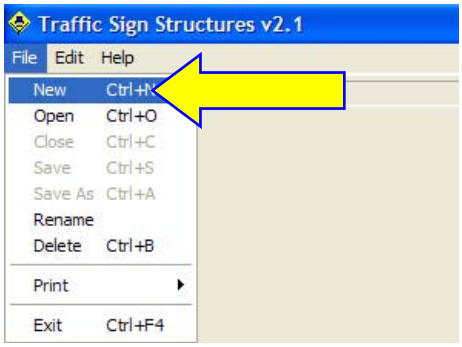
## 2.1.3 Menus

### Main Menu Description



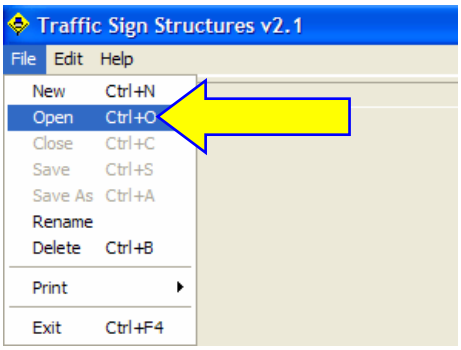

If a first time user, take some time to become familiar with these menus.

### File Menu



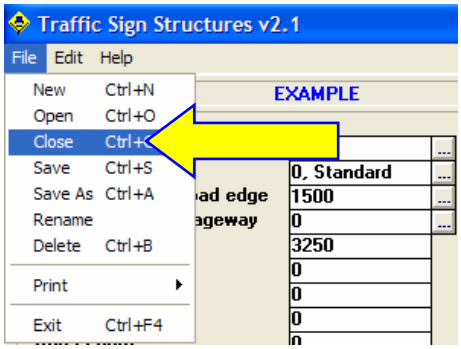

**New:**

Create a new sign.



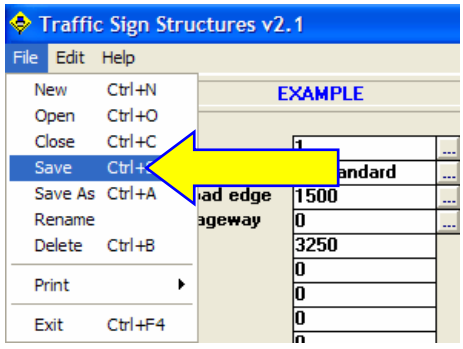

**Open:**

Open a previously created file.




**Close**

Close the current sign.




**Save**

Save the current sign.

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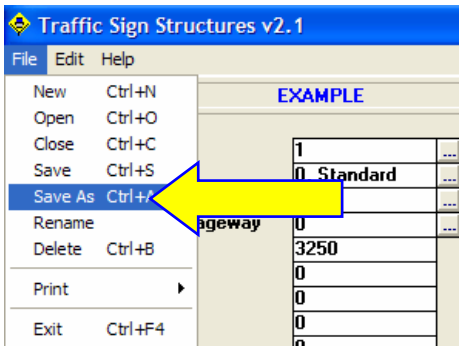
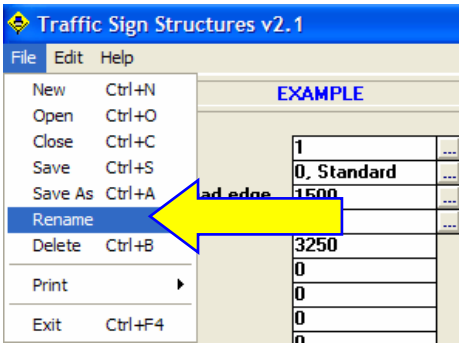
## 2.1.3 Menus, (continued)

**File Menu (cont'd)**



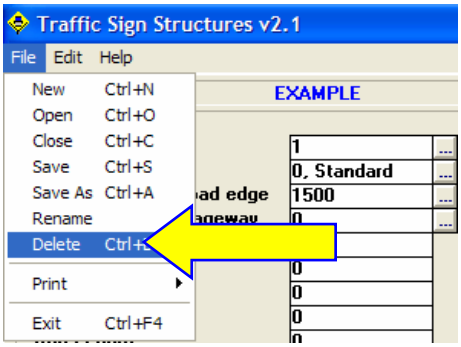

**Save As:**

Save the new sign in the current database.



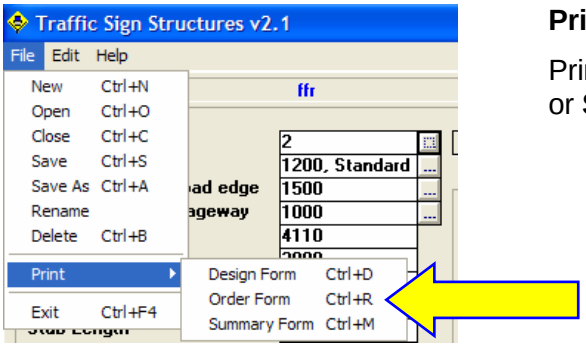

**Rename:**

Rename a sign, job section or an entire job, see 5.1.1.



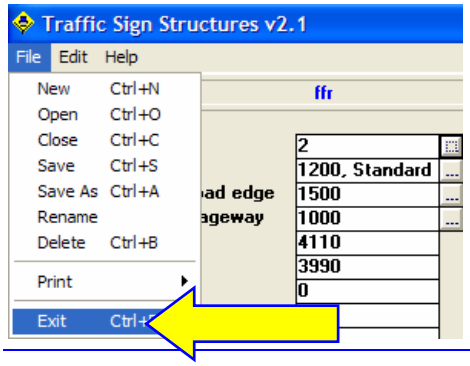

**Delete:**

Delete a previously saved file.




**Print:**

Print out a **Design Form**, **Order Form** or **Summary Form**.

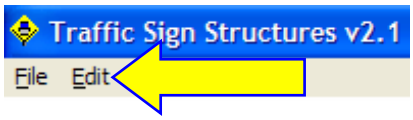



**Exit:**

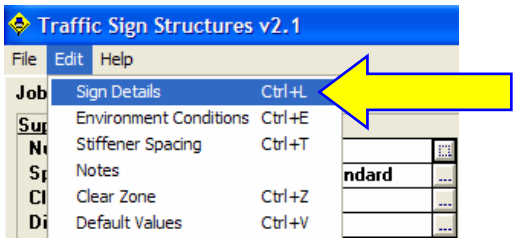
Exit the TraSiS program.

## 2.1.3 Menus, (continued)

### Edit Menu

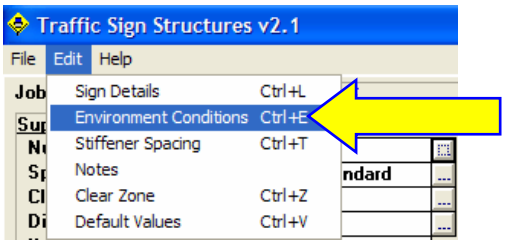



The following information is available from the **Edit** menu:



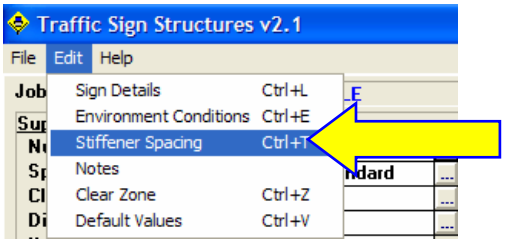

**Sign Details:**

Edit the current job description, sign faces and roadside slope, see 3.1.1.



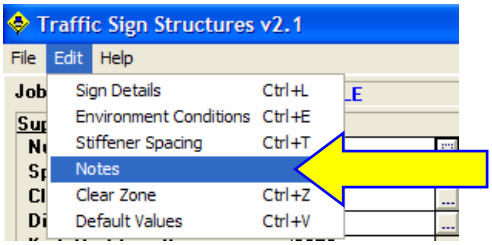

**Environmental Conditions:**

Specify wind region, foundation ground type and situation risk, see 3.1.2.



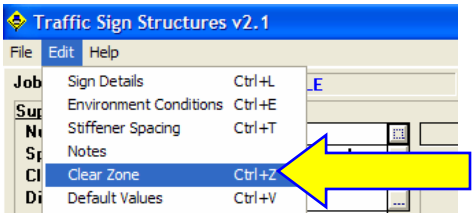

**Stiffener Spacing:**

Use DMR standard (ES – 126) or customised settings, see 4.2.3.



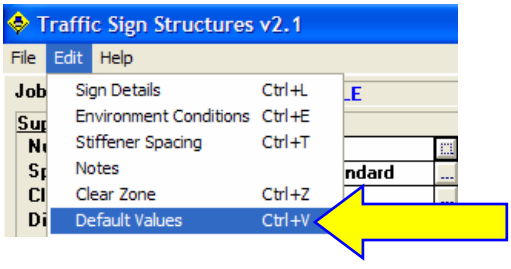

**Notes:**

Assigns general comments and notes. These notes are printed with the **Design Form,** see 7.1.1.




**Clear Zone:**

Calculates the appropriate clear zone distance for the road, see 7.1.1.




**Default Values**

Assigns default values to Sign Position and Clear Zone parameters, see 7.1.1.

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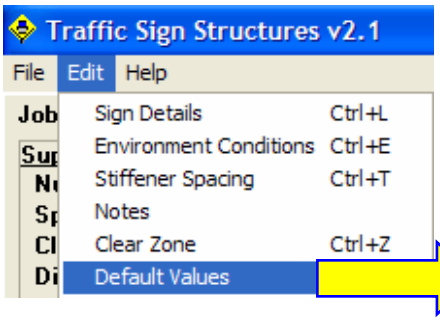
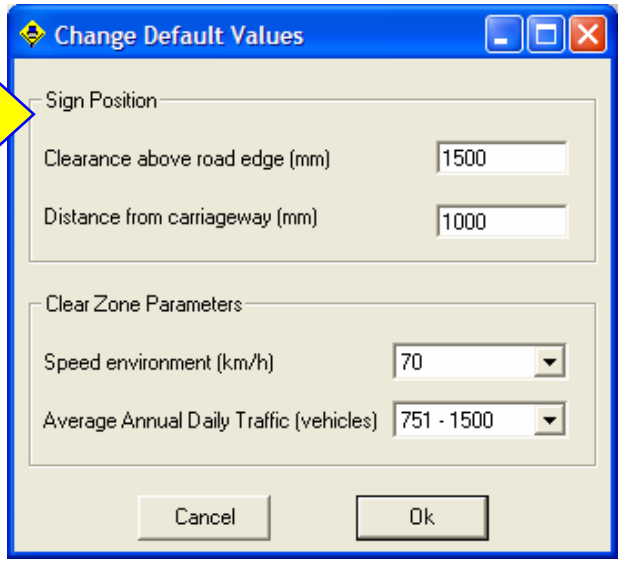
## 2.1.3 Menus, (continued)

**Edit Menu (cont'd)**



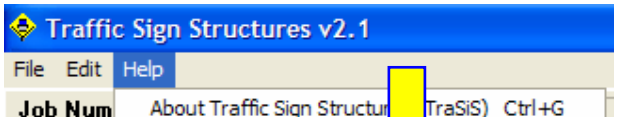

**Default Values:**

Assigns default values to sign position and clear zone parameters




**Help Menu**

The following information is available from the **Help Menu**





*End of Chapter 2*


# CHAPTER 3

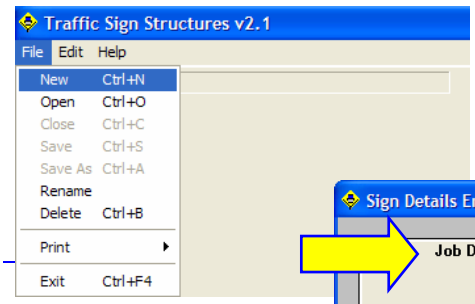
# DESIGN PROCEDURE

# Section 3.1
# Design Procedures

## 3.1.1 Sign Details Entry Form

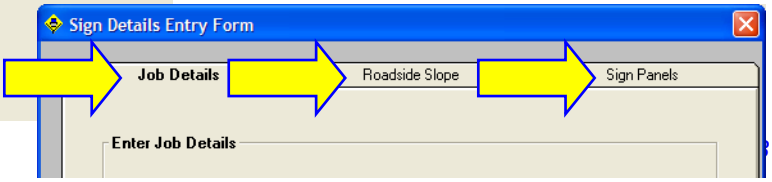
**To begin**

From the **File** menu or the Main Window select the **New** command. This launches the **Sign Details Entry Form**




Three tabs will be visible:

- **Job Details;**
- **Roadsides Slope;** and
- **Sign Panels.**



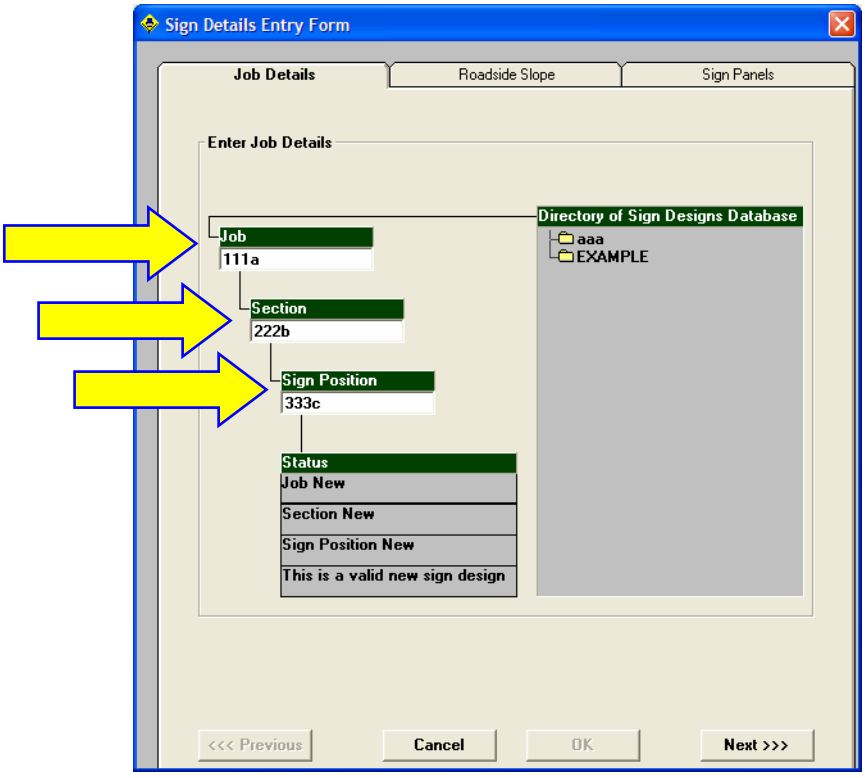

**Job Details**

All information boxes must be filled in before proceeding to the next tab.

Use the **Previous** and **Next** buttons to navigate between the three tabs.

TraSiS stores all signs in a database. Each sign is distinguished by job, section, and sign position (location), allowing for simple and effective organisation of sign storage.

A **Status** area indicates possible duplication of name allocations and validation of new design.

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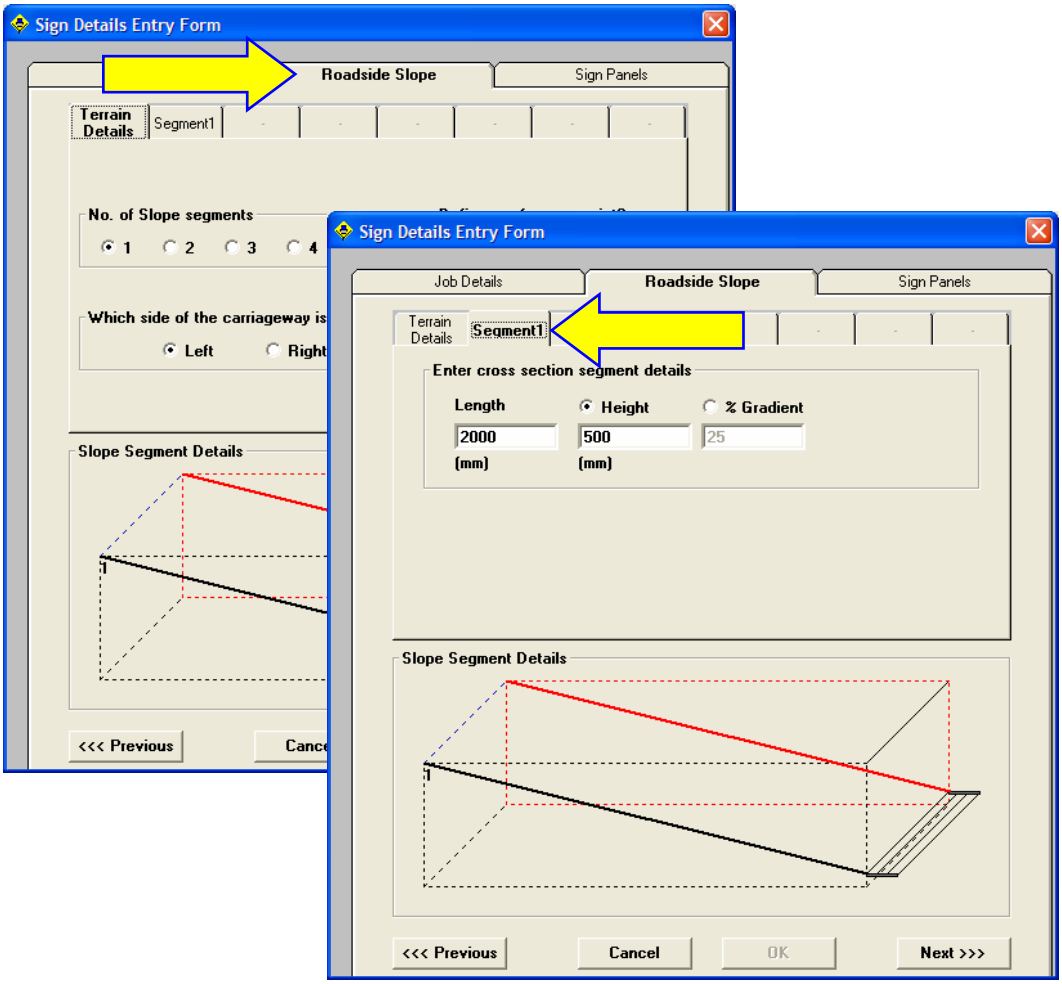
## 3.1.1 Sign Details Entry Form, (continued)

**Roadside Slope Details**

Define the roadside geometry.

Up to five slope segments of variable length and height can be used to model a particular roadside cross-section. In addition, the longitudinal details of the slope segments can be specified (this is useful when examining the feasibility of strut sport signs, for example where there are longitudinal differences in post location).

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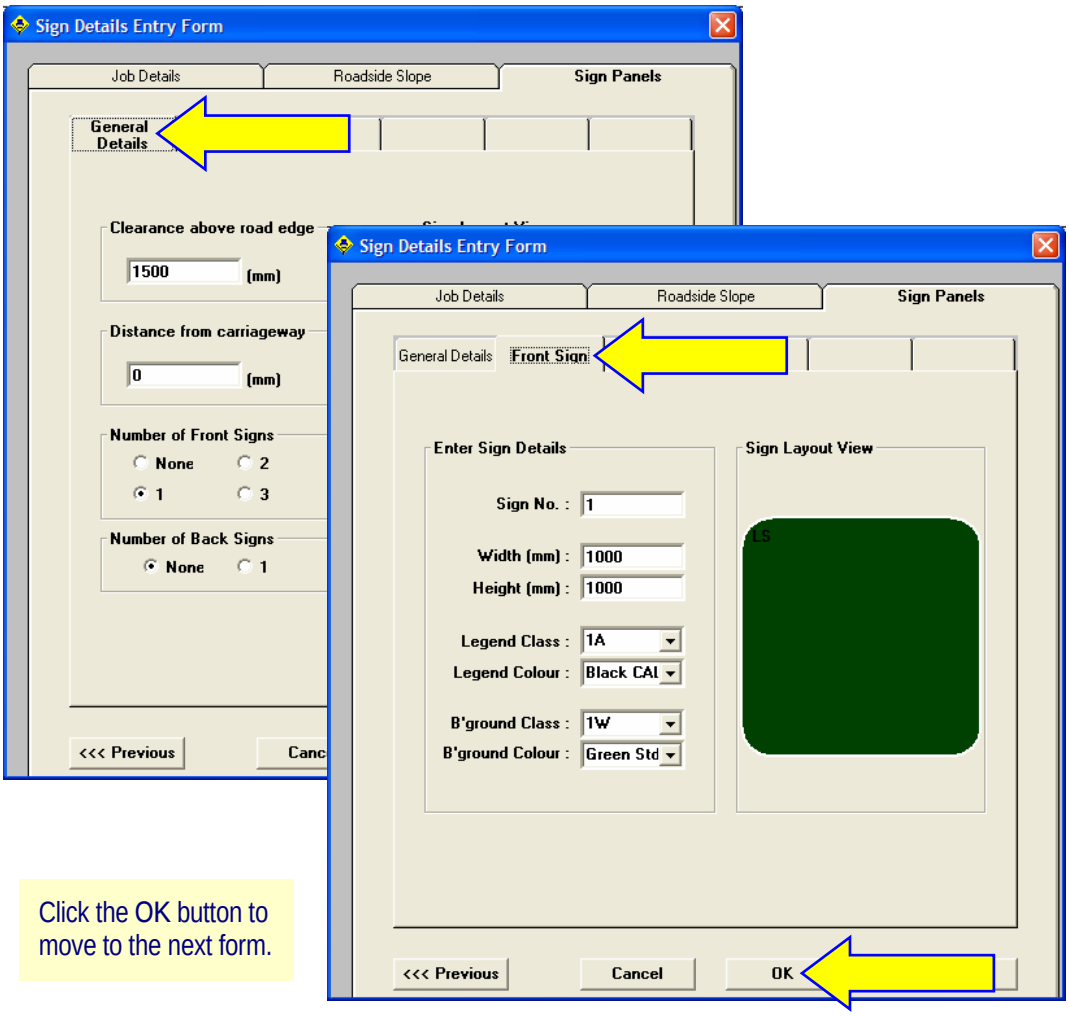
## 3.1.1 Sign Details Entry Form, (continued)

**Sign Panels**

Specify the details of the sign face.

A sign structure can support up to four separate panels (three facing the front and one facing the rear), each panel having individual dimensions, road clearance and colour. Refer to the *Design Guide for Roadside Signs 3.1* for information regarding sign face design.




Click the OK button to move to the next form.

Once all sign details forms are complete, the **OK** button becomes available. Clicking on it launched the next form, **Roadside Environment.**

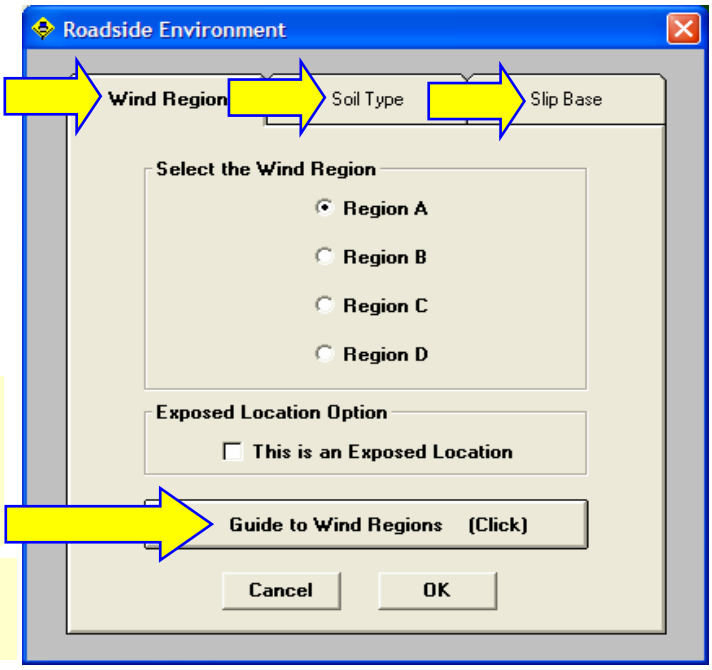
## 3.1.2 Roadside Environment Entry Form

**To Begin**

Once all **Sign Details** forms are complete and the **OK** button clicked, then the **Roadside Environment** form will appear.

Three tabs will be visible:

- **Wind Region;**
- **Soil Type;** and
- **Slip Base.**



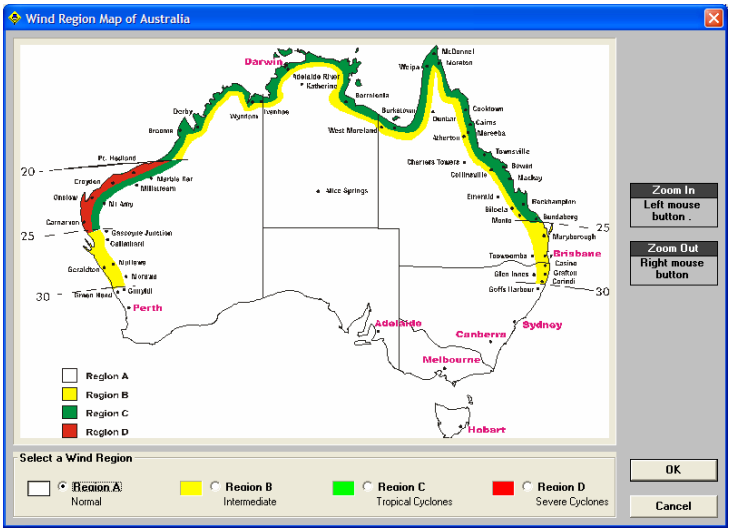

Click on the Guide to Wind Regions button for the map of Wind Regions

Click the OK button to move to the next form.

**Wind Region**

Select which geographic wind region the sign is to be built in.

The wind region scale is from A to D, A being for areas which generally experience normal wind conditions and D being for areas that are subject to severe cyclones.




The wind region map indicates the geographic regions associated with the scale.

Locations that are exposed to higher winds than what is usual for the locality (e.g. coastal highways) are accommodated for by selecting the **Exposed Location** check box. Refer to the *Design Guide for Roadside Signs, 2.9.*

*Continued on next page*

## 3.1.2 Roadside Environment Entry Form, (continued)

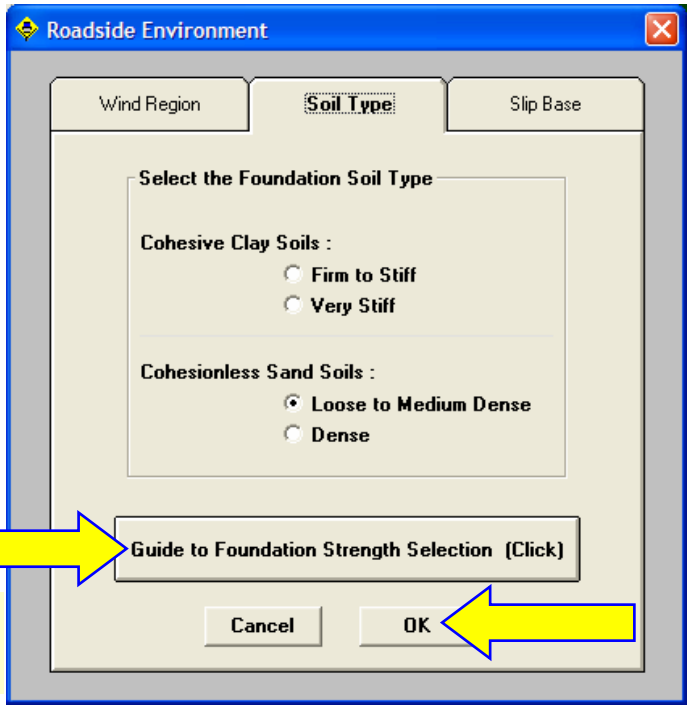
**Soil Type**

Select the soil type that most accurately describes the soil at the location:

1. Cohesive Clay Soils; or
2. Cohesionless Sand Soils.

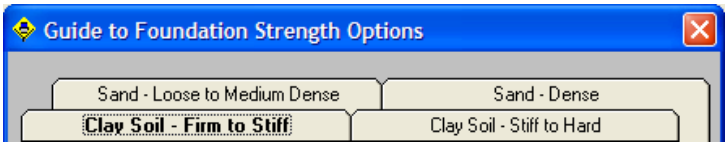
Reference can be made to **Guide to Foundation Strength Selection** by clicking on the button.

A description of each type (field and scientific identification) will assist in the selection of the appropriate soil type.




Click the OK button to move to the next form.

Four tabs will be visible as described bellow.




1. **Clay Soil – Firm to Stiff**;
2. **Clay Soil – Stiff to Hard**;
3. **Sand Loose to Medium Dense**; and;
4. **Sand – Dense**.

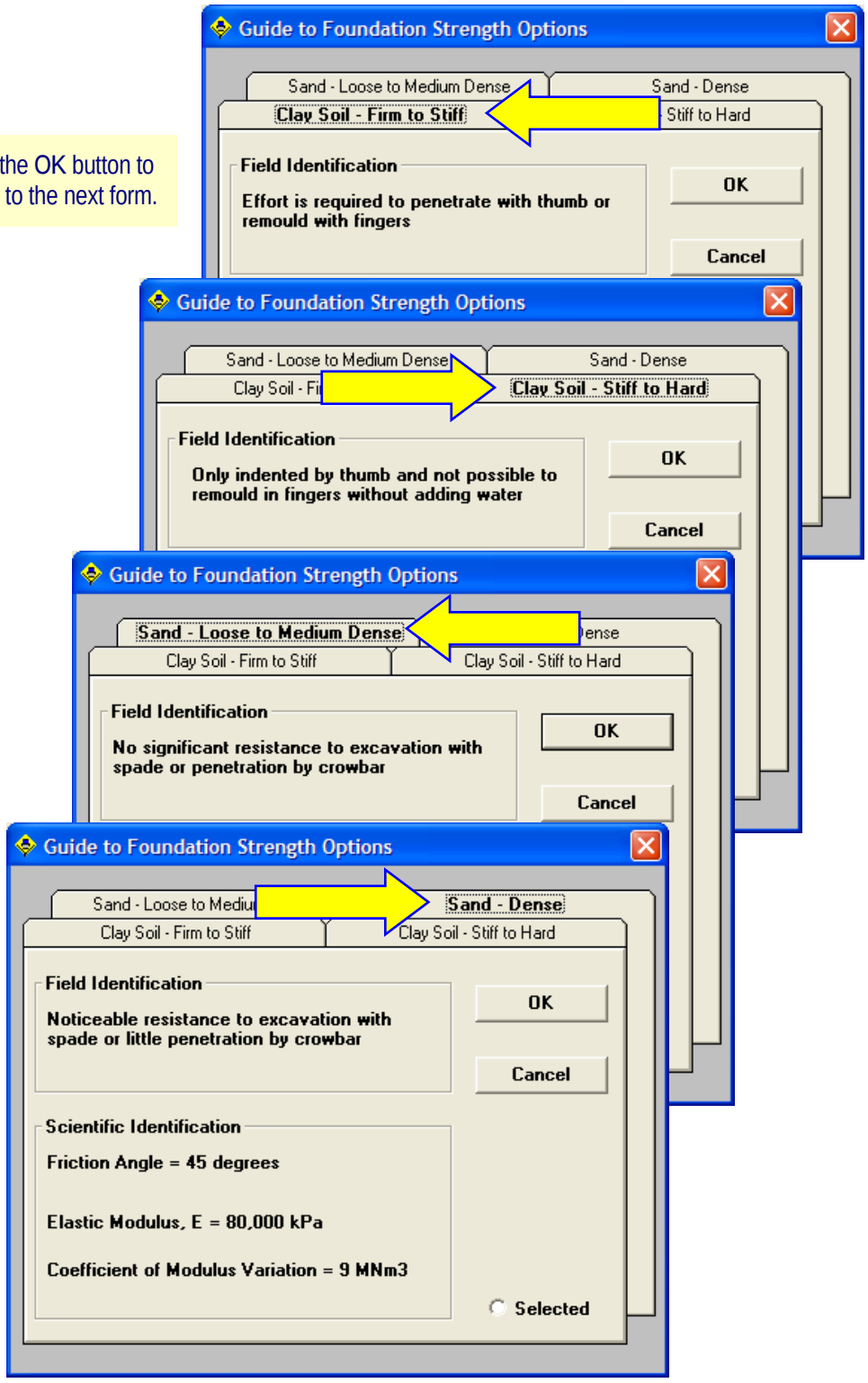
*Continued on next page*

## 3.1.2 Roadside Environment Entry Form, (continued)

**Soil Description**

Select the soil type that most accurately describes the soil at the location:

Click the OK button to move to the next form.

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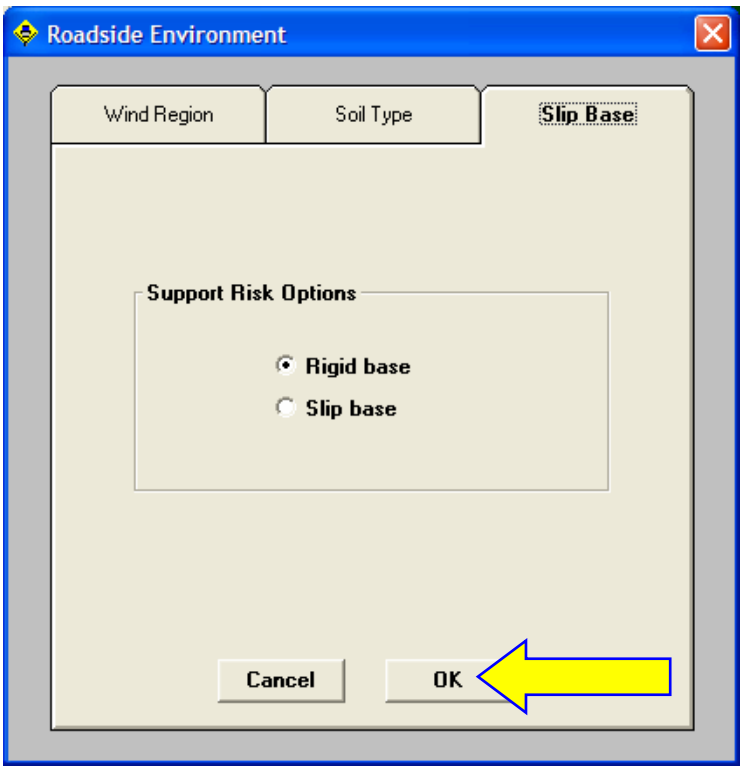
## 3.1.2 Roadside Environment Entry Form, (continued)

**Slip Base**

If the sign is to be erected in an area where there is a high risk of impact (ie within the clear zone distance), see 7.1, select **Slip Base**. Otherwise select **Rigid Base**.

Refer to the *Design Guide for Roadside Signs, 8.3.4* for further information.




Click the OK button to continue.

*End of Chapter 3*


# CHAPTER 4

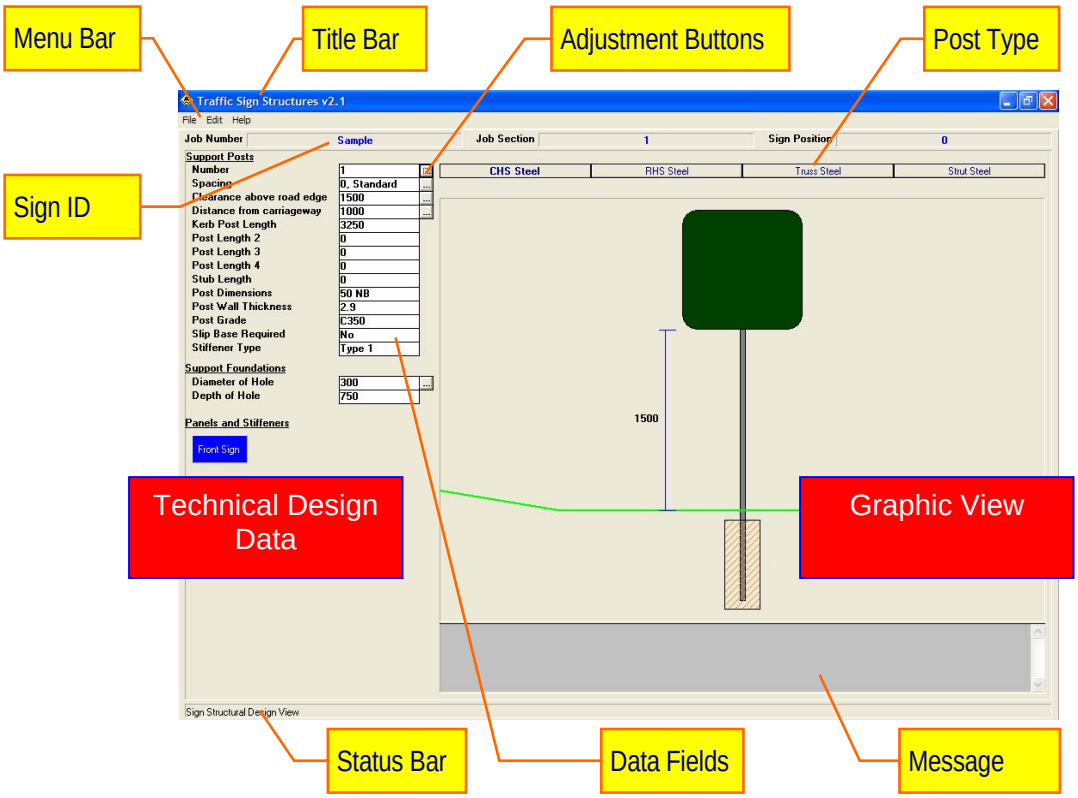
# MAIN WINDOW

# Section 4.1
# Understanding The Window

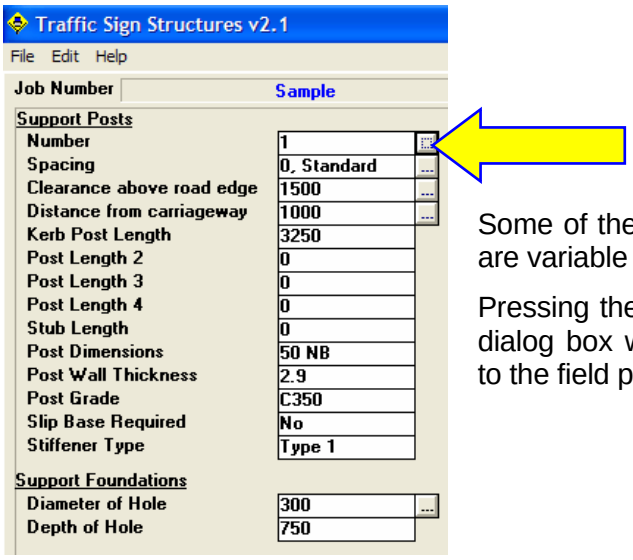
## 4.1.1 Introducing Main Window

**What is Displayed**

The Main window gives a clear display of the most important elements of the sign. The left half of the screen displays technical design data, while the right half displays a graphic view of the sign in relation to the ground and road.




**Data Field Adjustment**




Some of the data fields on the left-hand side are variable within a certain range.

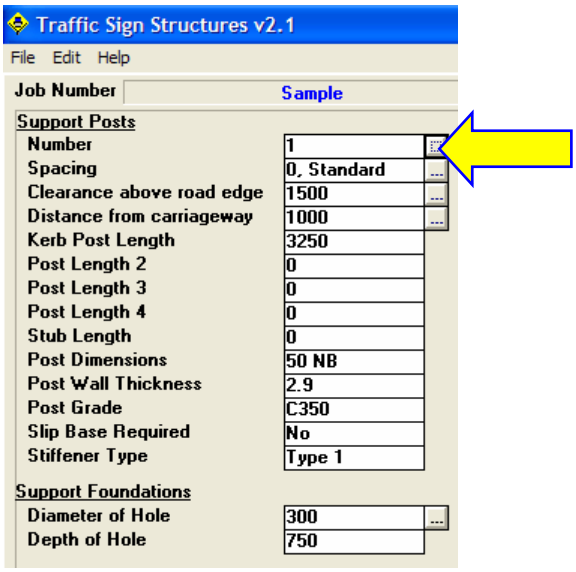
Pressing the square button launches a small dialog box where adjustments can be made to the field parameter.

# Section 4.2
# Technical Design Data

## 4.2.1 Support Details

**Number**

Details the number of support posts.

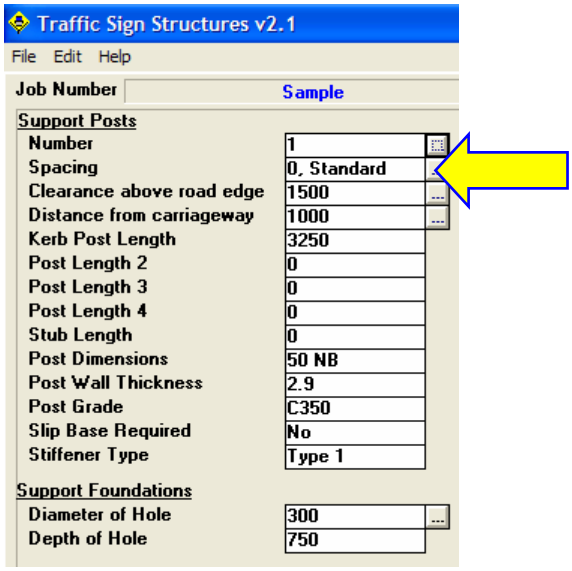



Instructions will appear on the **Status Bar.**

Clicking the square button will launch the dialog box. The number of posts may be varied within a certain range by clicking the increase or decrease triangles


**Spacing**

Details the spacing between the support posts.



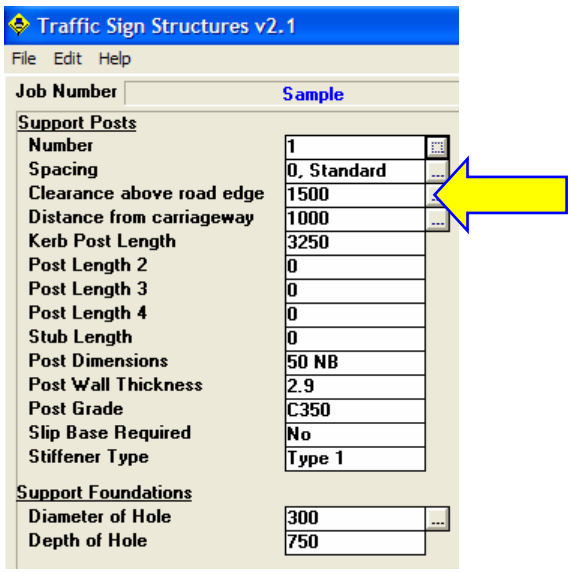

Clicking the square button will launch the dialog box. The spacing between posts may be varied within a certain range by clicking the increase or decrease triangles. Clicking on the **Standard** button will select the standard spacing.


*Continued on next page*

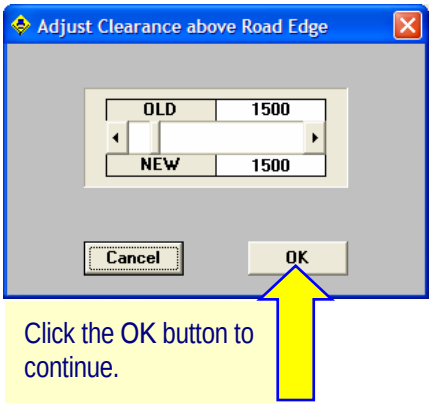
## 4.2.1 Support Details, (continued)

### Clearance Above Road Edge

Details the height of the sign from the road surface to the bottom of the sign.

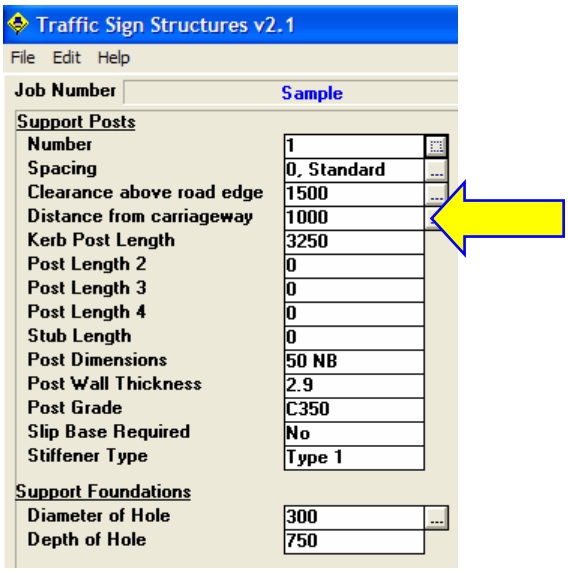



Clicking the square button will launch the dialog box. The height of the sign may be varied within a certain range by clicking the increase or decrease triangles.

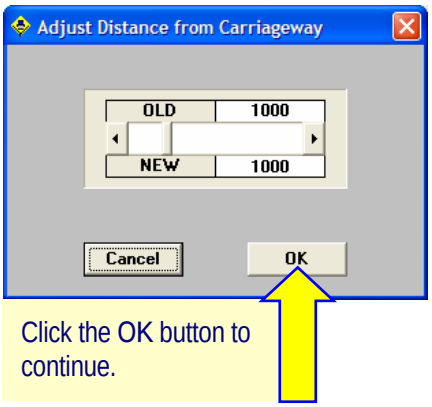



### Distance From Carriageway

Details the lateral clearance between the part of the sign nearest to the road and the edge of the kerb, or pavement.



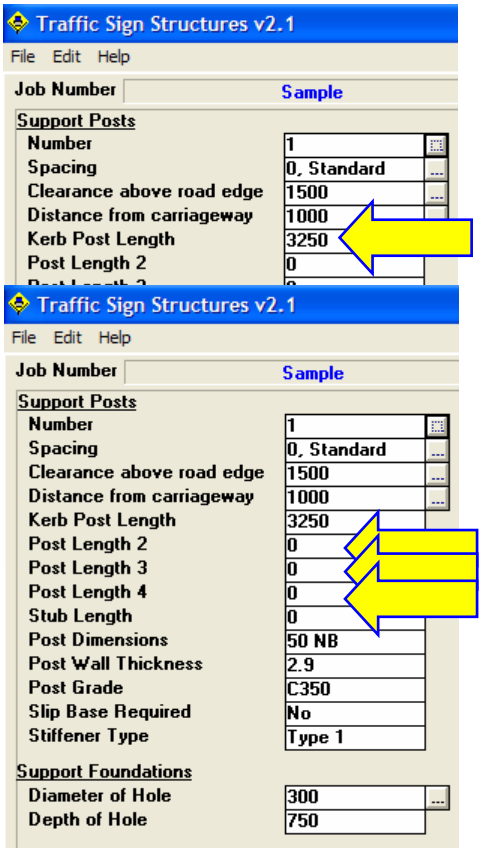

Clicking the square button will launch the dialog box. The distance of the sign may be varied within a certain range by clicking the increase or decrease triangles.




*Continued on next page*

## 4.2.1 Support Details, (continued)

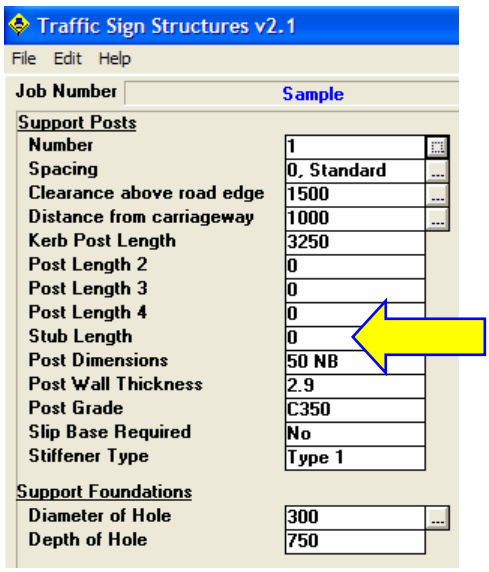
### Post Lengths




The length of the post nearest the kerb (not including section underneath slip base or screw footing).

The length of the second, third and fourth nearest post to the kerb (not including section underneath slip base or screw footing).

### Stub Length

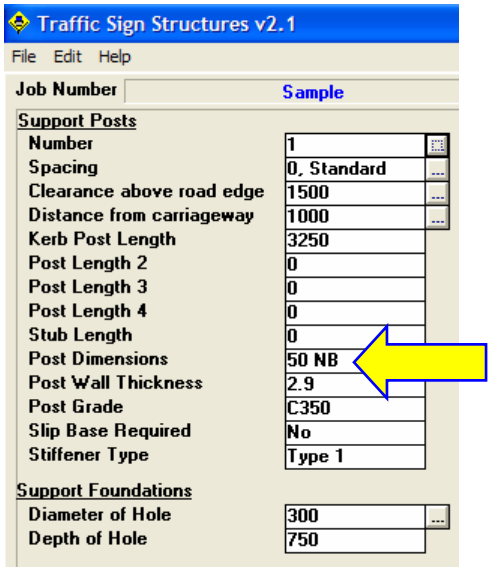



The length of the post stub that sits inside the screw (if a screw footing is used), or that remains below the slip mechanism (if a slip is used).

*Continued on next page*

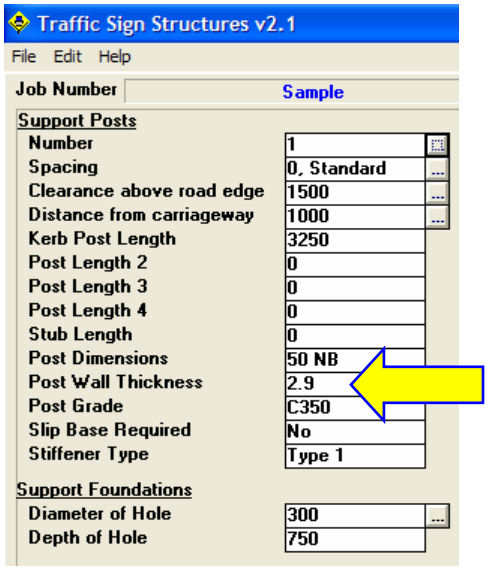
## 4.2.1 Support Details, (continued)

### Post Dimensions




For CHS, truss and strut posts, the measurement is the external diameter of the posts. For RHS the measurement is the rectangular cross-section of the post. For truss supports, the additional measurement is the distance between the two vertical posts.

### Post Wall Thickness

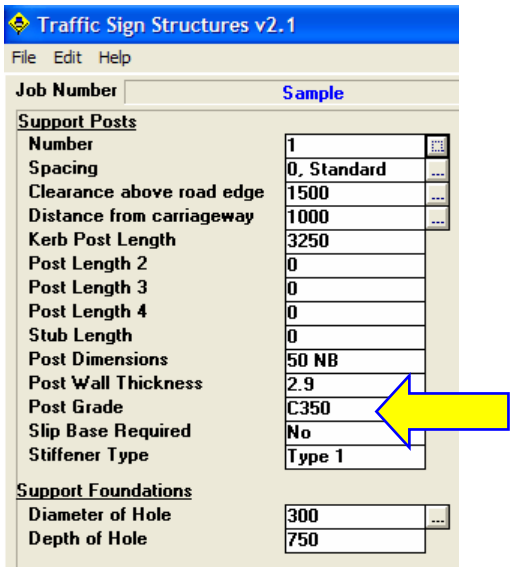



The thickness of the wall material.

*Continued on next page*

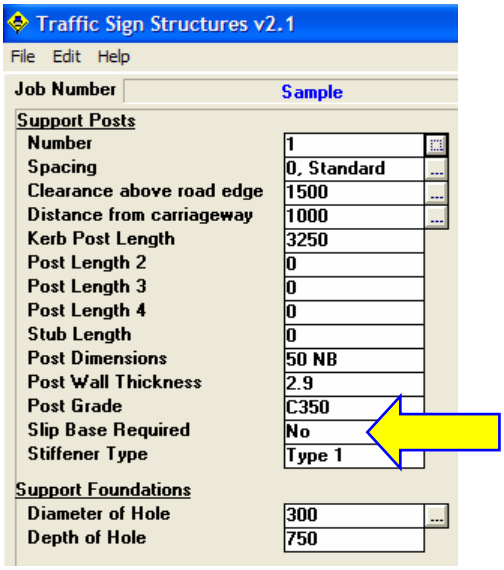
## 4.2.1 Support Details, (continued)

### Post Grade




The grade of steel used for the post.

### Slip Base Required

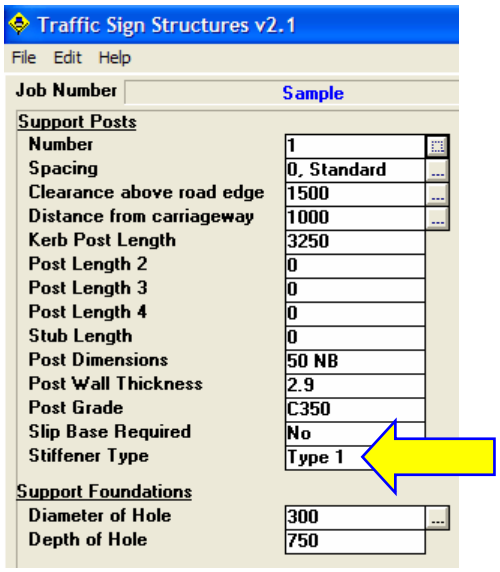



Indicates previous selection (selected in 3.1.2).

*Continued on next page*

## 4.2.1 Support Details, (continued)

**Stiffener Type**

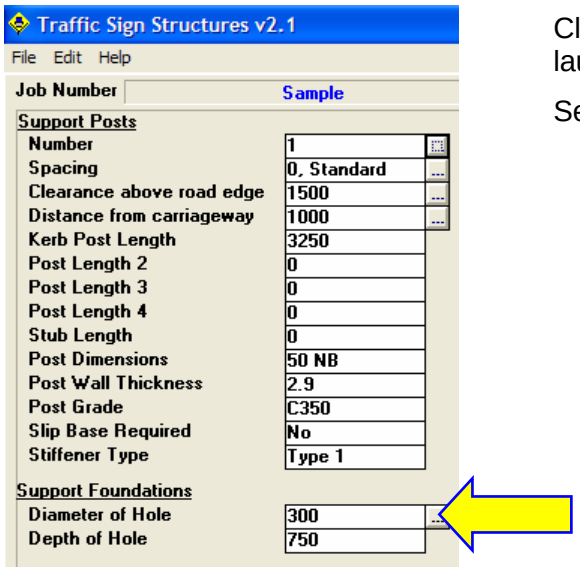



Shows one of two types of stiffener, designated as Type 1 and Type 2. Refer to *Standard Drawing ES – 126.*

## 4.2.2 Footing Details

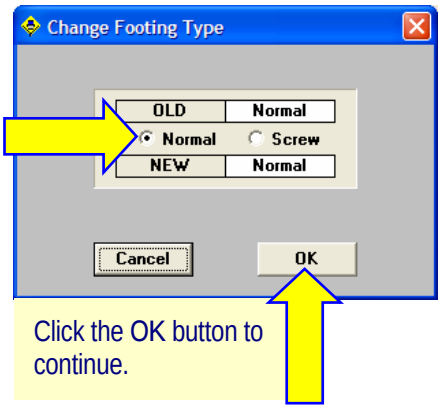
**Diameter of Hole/Screw**

Shows the diameter of the hole for normal *concrete* footings/diameter of screw.

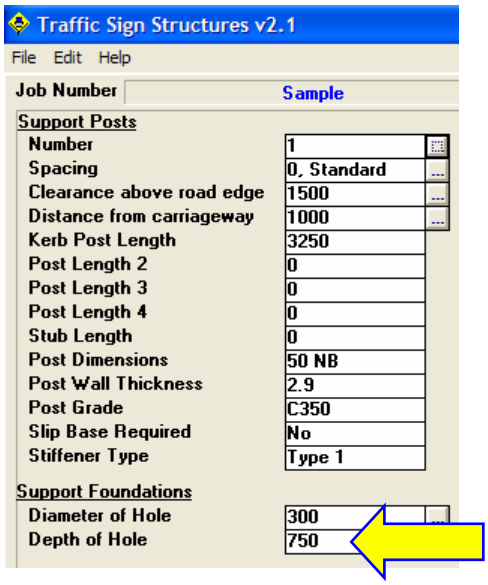



Clicking on the square button will launch the dialogue box.

Select either **Normal** or **Screw** footing



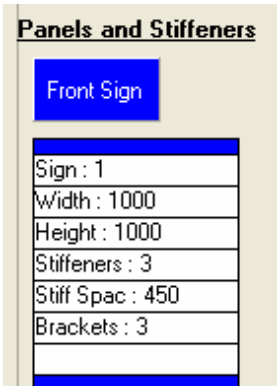

**Depth of Hole/Length of Screw**




Shows the depth of hole from the surface to the end of the post, not including the depth of concrete underneath the post/length of screw.

## 4.2.3 Sign And Stiffener Details

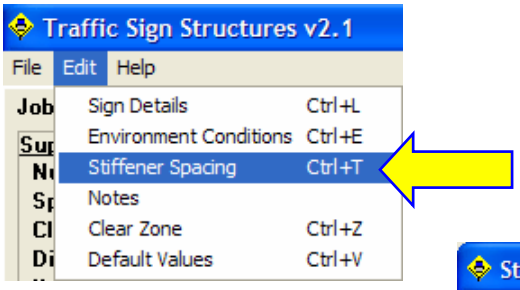
### Sign and Stiffener Details




Moving the cursor over each sign box displays a small window that shows information relevant to each sign face.

To adjust the method by which the required number of stiffeners is calculated, select **Stiffener Spacing** options from the **Edit** menu

### Stiffener Spacing Options



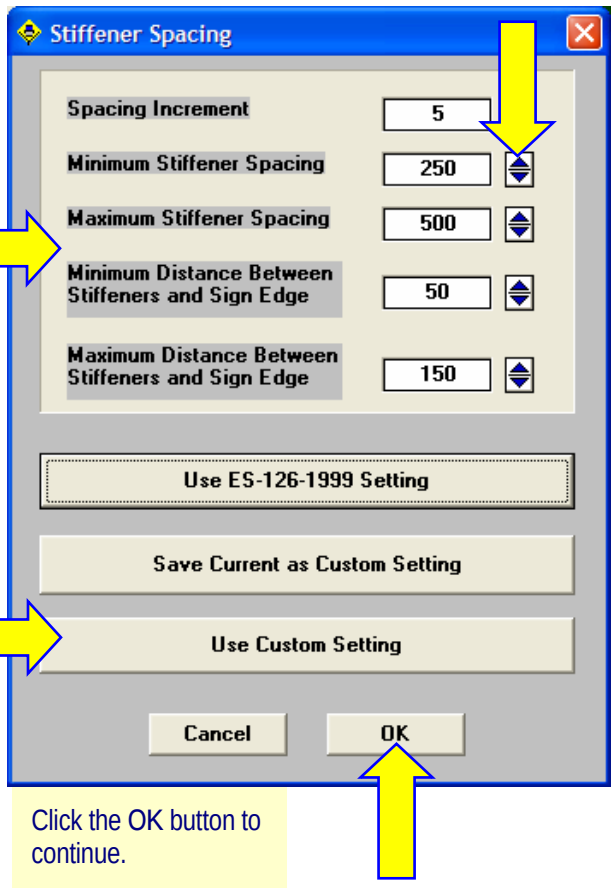

Selecting **Stiffener Spacing** options from the **Edit** menu will launch the **Stiffener Spacing** dialog box.

Spacings and distances may be varied within a certain range by clicking the triangles.

**TraSiS** automatically calculates the most efficient stiffener configuration base on the settings in this form.

TraSiS contains the correct settings to conform to the *Main Roads Guidelines ES – 126*. Additionally, provision is made for users to specify custom settings by adjusting the values above and selecting the last button of the three:

**Use Custom Settings.**




Click the OK button to continue.

## 4.2.4 Post Type Selection

**Selection Guide**

Refer to the *Design Guide for Roadside Signs, 8.3.2* for instructions on the selection of appropriate post sections.

It is not always possible to construct a sign using a particular post type

**CHS Steel**

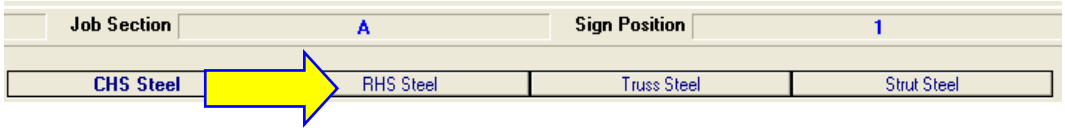
Specifies that the post(s) be made of circular hollow section.

Refer to *Standard Drawing 1363.*


**RHS Steel**

Specifies that the post(s) be made of rectangular hollow section.

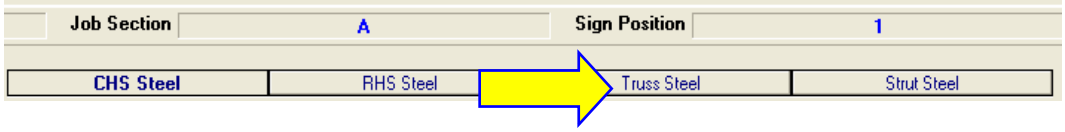
Refer to *Standard Drawing 1363.*




**Truss Steel**

Each truss post comprises two vertical CHS posts connected by smaller CHS members that form a web, zigzagging down the length of the posts.

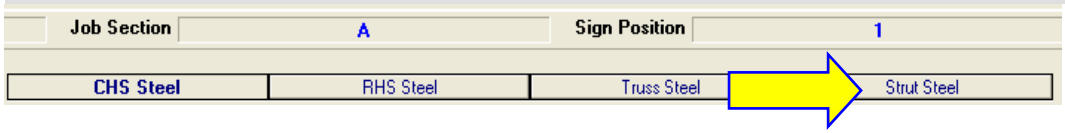
Refer to *Standard Drawings 1366* and *1367.*



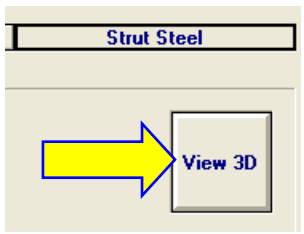

**Strut Steel**

Each strut is formed from two CHS posts, one vertical and the other at an angle to the ground.

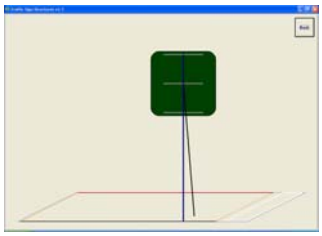
Strutted steel signs are not yet approved for use in Queensland




**Selection Guide**




Use the **View 3D** button to see the strut structure in relation to the ground.

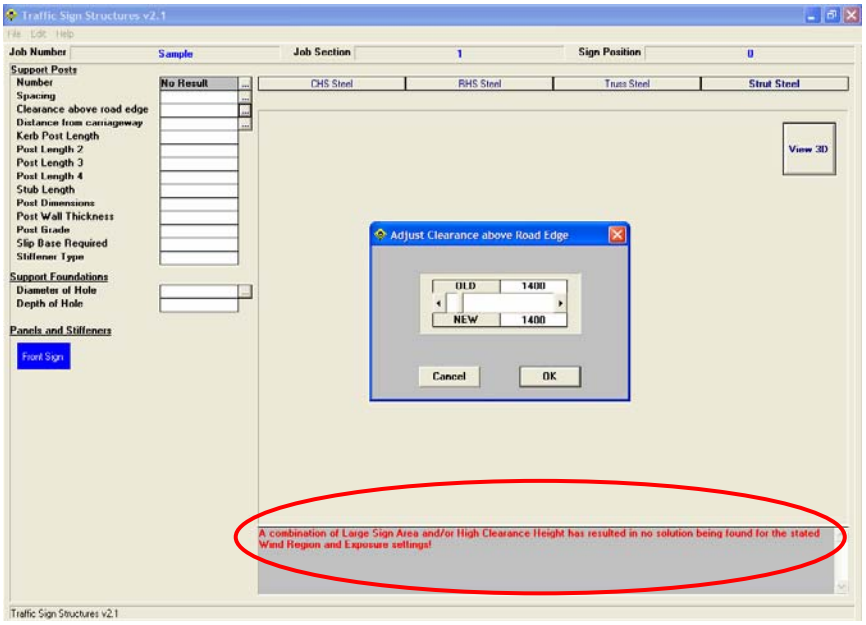


## 4.2.5 Message Box

**Warnings and/or Errors**

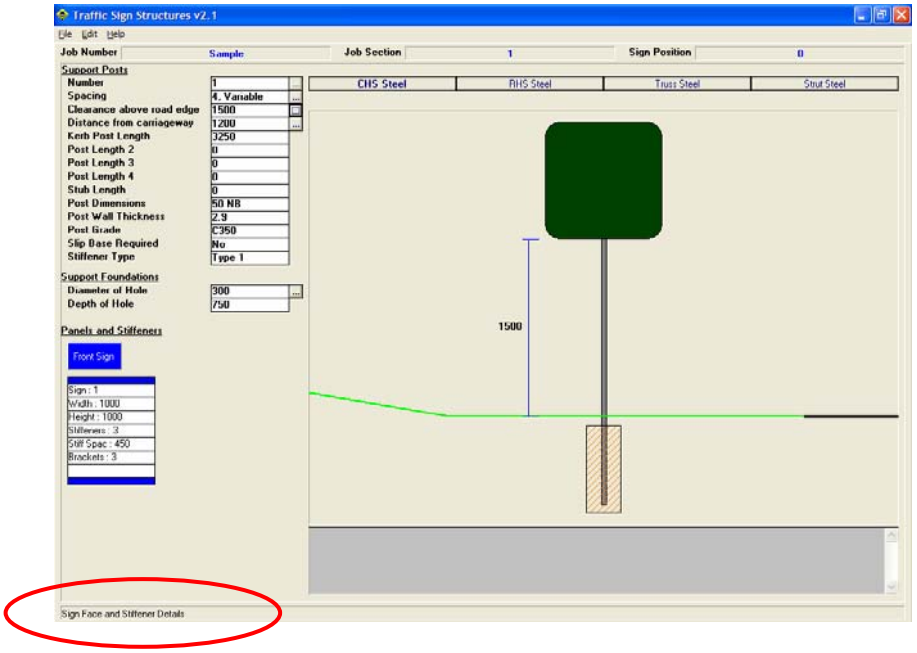
The **Message Box** displays any warning or errors regarding the structural design. Most warnings are to inform that various aspects of the sign do not meet standard guidelines. Others indicate that no standard sign structure is possible for the specified conditions.

A list of errors may be found in Chapter 8 *Warnings and Errors*




**Status Bar**

Indicates the current operating status of program and provides status information




*End of Chapter 4*


# CHAPTER 5

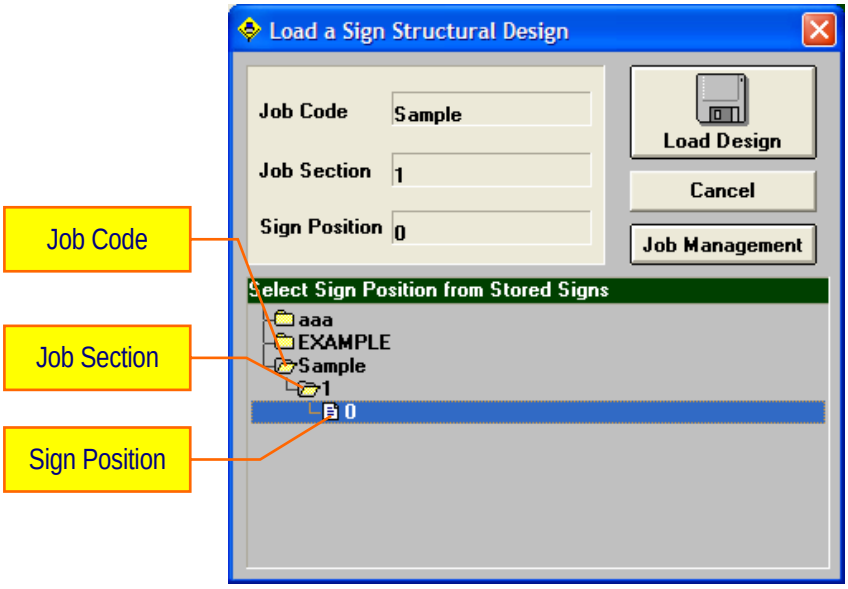
# SIGN STORAGE

# Section 5.1
# Sign Storage

## 5.1.1 Storage Department

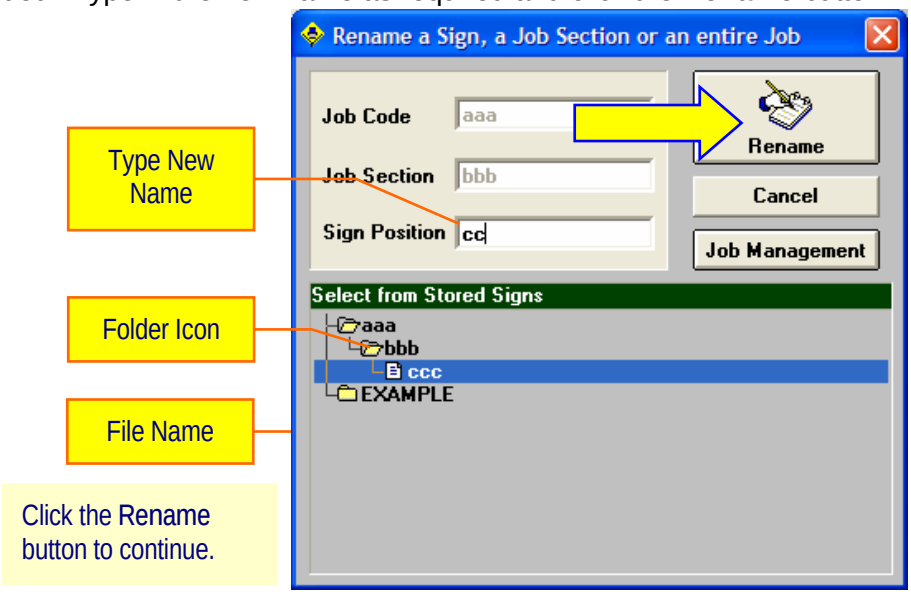
**Database**

TraSiS stores all of its signs in a database format organised by job, section and location.




**Renaming**

To rename a Sign, Job Section or an entire Job, firstly click on the required folder icon in the stored signs area then click on to the name of the file, which will now become bolded. Type in the new name as required and click the **Rename** button.

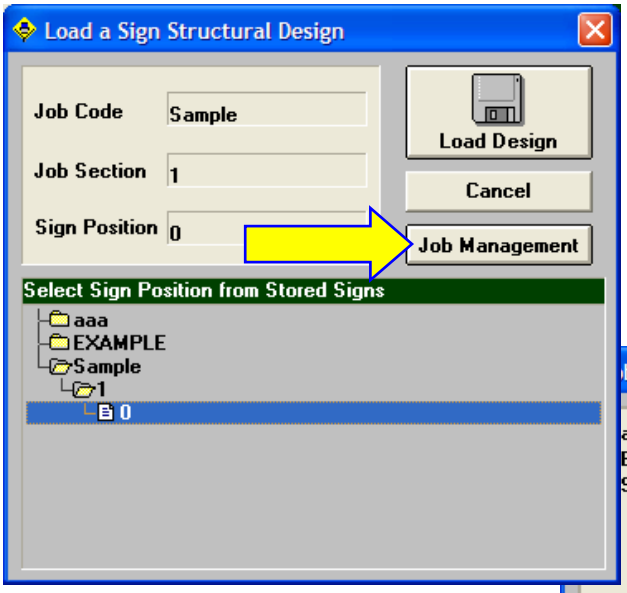



*Continued on next page*

## 5.1.1 Storage Department, (continued)

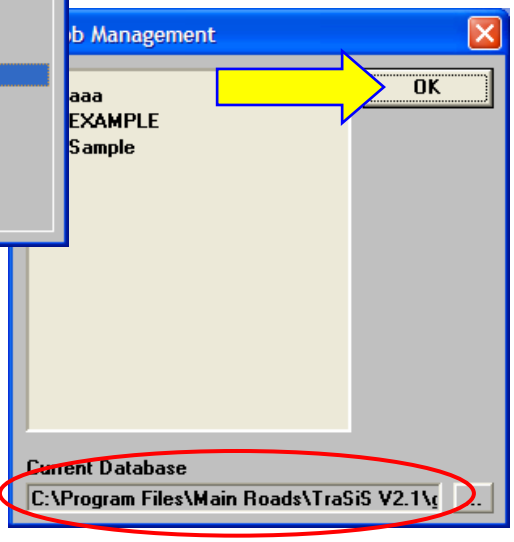
### Job Management

The job management feature selects which jobs appear in the storage department windows, preventing the window from becoming crowded with older jobs.




Clicking the **Job Management** button will launch a dialog box from where the job codes can be enabled (displayed in the **Load a Sign Structural Design** box) or disabled (hidden).

Once modified, clicking the **OK** button will close the dialog box.




The **Job Management** dialog box shows the particular database location and permits relocation of files.

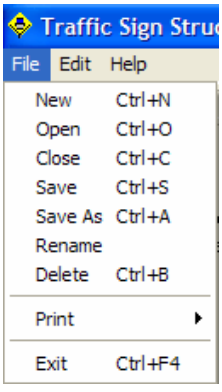
The database that stores the signs can be found as a **gsddb.mdb** file, residing in the **TraSiS** directory.

Extra databases can be developed, by copying, renaming and then editing the original database to suit.

These databases may then be retained or transferred to other locations by copying the relevant database **gsddb.mdb** file. Selection of a particular database can then be made from the relevant .**mdb** files in the **TraSiS** directory.

### Storage Commands

The sign storage commands are accessible from the **File** menu, as discussed in 2.1.3.




*End of Chapter 5*


# CHAPTER 6

# CLEAR ZONE

# Section 6.1
# Understanding Clear Zone

## 6.1.1 Clear Zone Concept

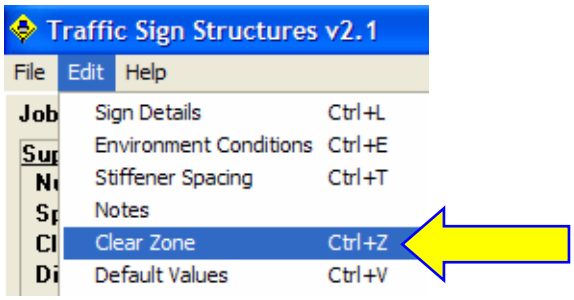
**Purpose**

The purpose of the clear zone is to minimise the risk for errant motorists by establishing a minimum distance beside the road that ought to be clear of obstructions.

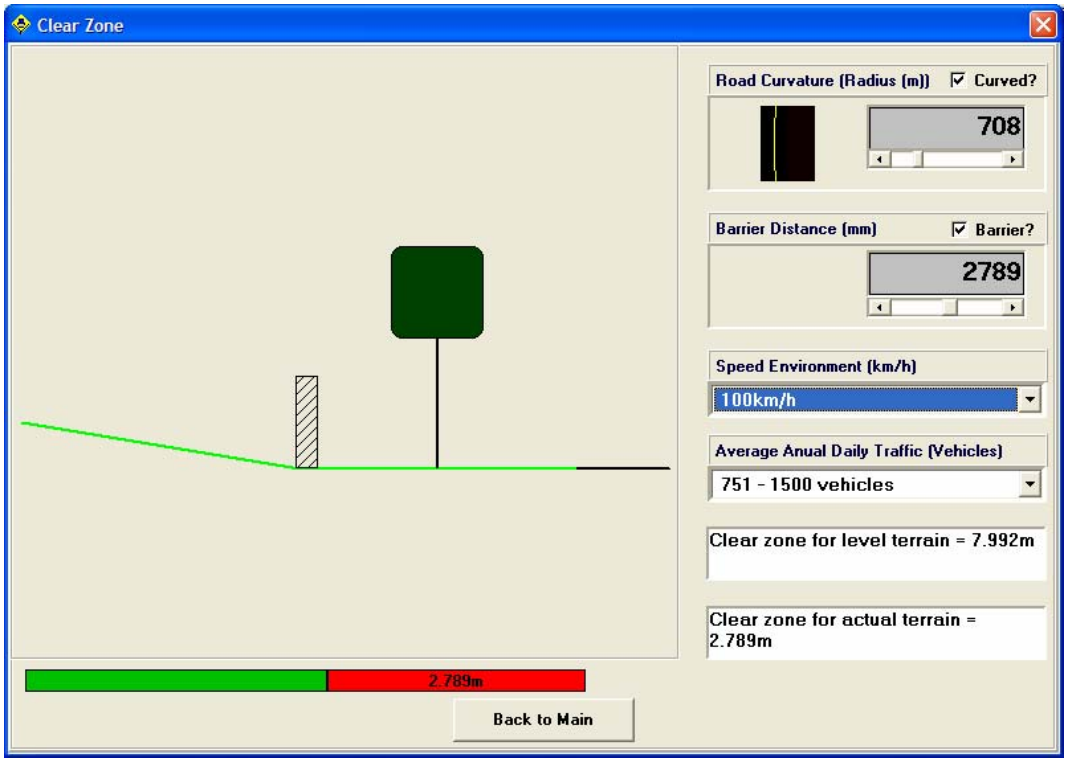
TraSiS automatically calculates the appropriate clear zone distance for a roadside cross-section while taking into account parameters such as speed environment, road curvature and AADT.

The clear zone distance is not a precise measurement; rather it is an indicative guide to assist in the application of engineering judgement to a particular situation.

Refer to *Design Guide for Roadside Signs, 4.1.*




The clear zone module is launched from the **Edit** menu

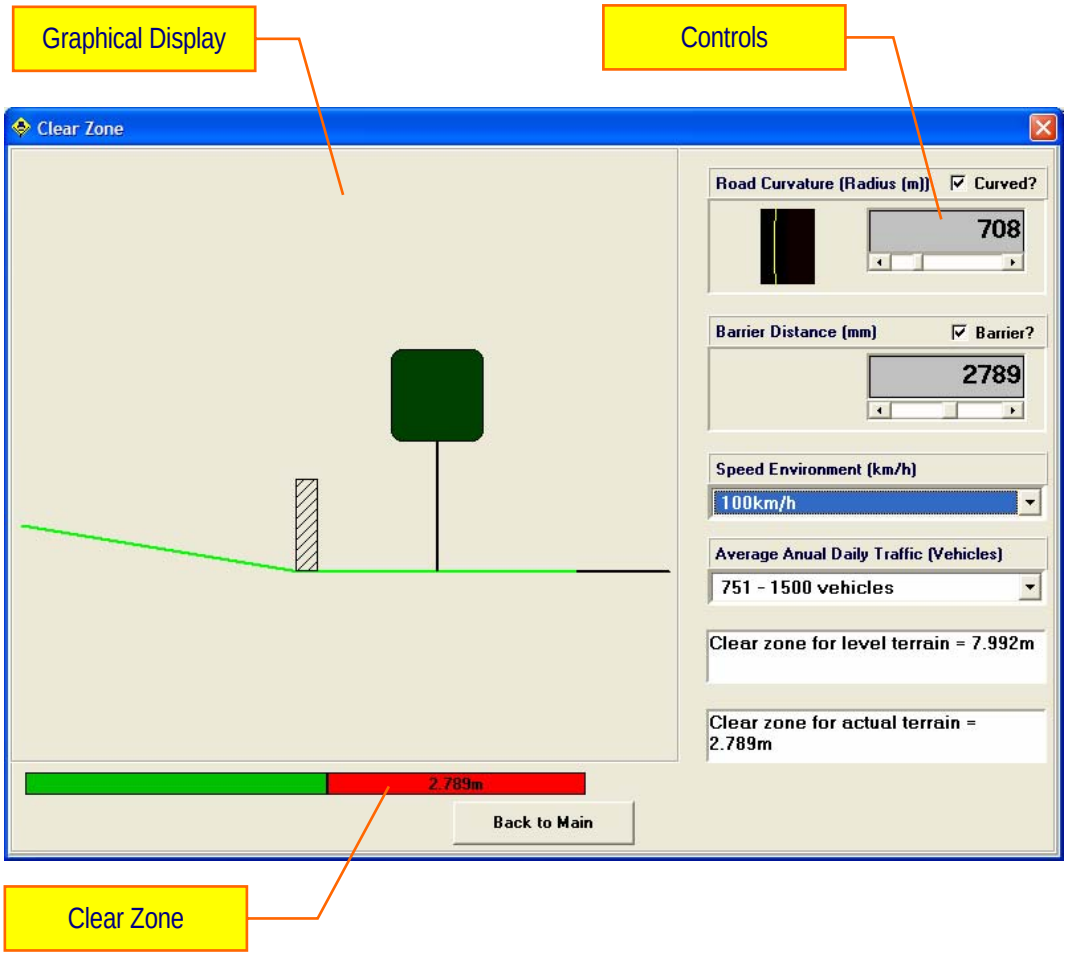


# Section 6.2
# Clear Zone Window

## 6.2.1 Display

**What is Seen**

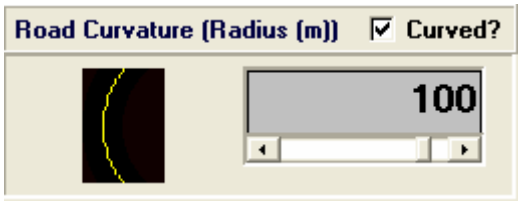
The window is divided into two main section; a graphical display of the roadside on the left and a column on the right that contains controls for the clear zone parameters and other data displays.



## 6.2.2 Parameters

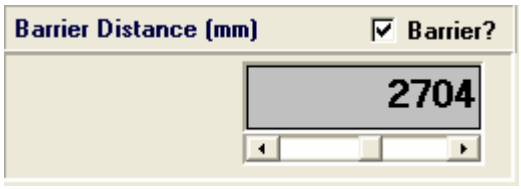
**Road Curvature**

Use the check box to indicate whether the road is on a curve or not, and if so adjust the curve radius using the scroll bar. Road curvature with radius greater than 900m is considered to be comparatively straight, while a minimum radius of curvature exists for each speed environment.




**Barrier Distance**

Specifies if a barrier is employed on the roadside, and if so the distance from the roadside to the barrier that can be adjusted using the scroll bar.




**Speed Environment**

Either the 85th percentile speed of all traffic on the road; or if this is unavailable then the posted speed limit.


**AADT**

Traffic volume in units of vehicles per day.

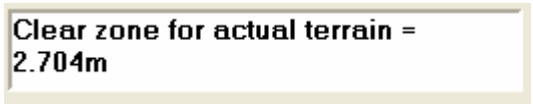
## 6.2.3 Clear Zone Distance

**Level Terrain**

The calculated clear zone distance for a level slope using the given parameters.


**Actual Terrain**

As above, but considering the slope details as specified for the sign location (3.1.10. Currently no algorithm exists to calculate clear zone distance for sections with both cut and fill slopes, therefore in this circumstance TraSiS returns a message indicating that the slope section is too complicated to analyse.




*End of Chapter 6*


# CHAPTER 7

# PRINTING

# Section 7.1
# Printing Forms

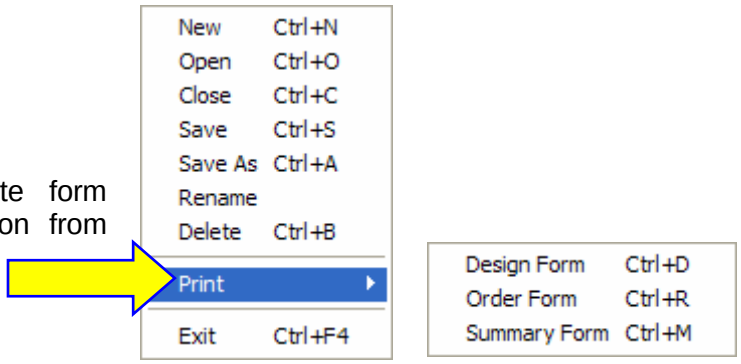
## 7.1.1 Accessing the Print Commands

**Forms Available**

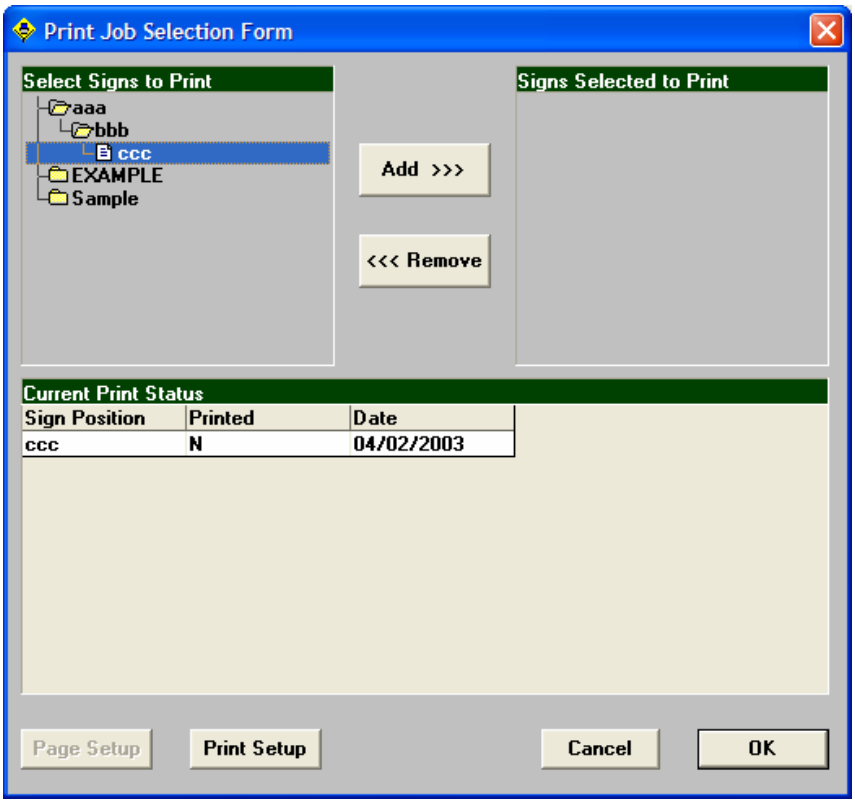
TraSiS includes three different print forms:

1. **Design Form**;
2. **Order Form**; and
3. **Summary Form**.

Select the appropriate form using the **Print** option from the **File** menu.




Clicking on one of the three options available will launch **the Print Job Selection Form** shown below. This procedure is common for printing any of the three forms, however, the procedure varies slightly form this point forward, as illustrated in the following.

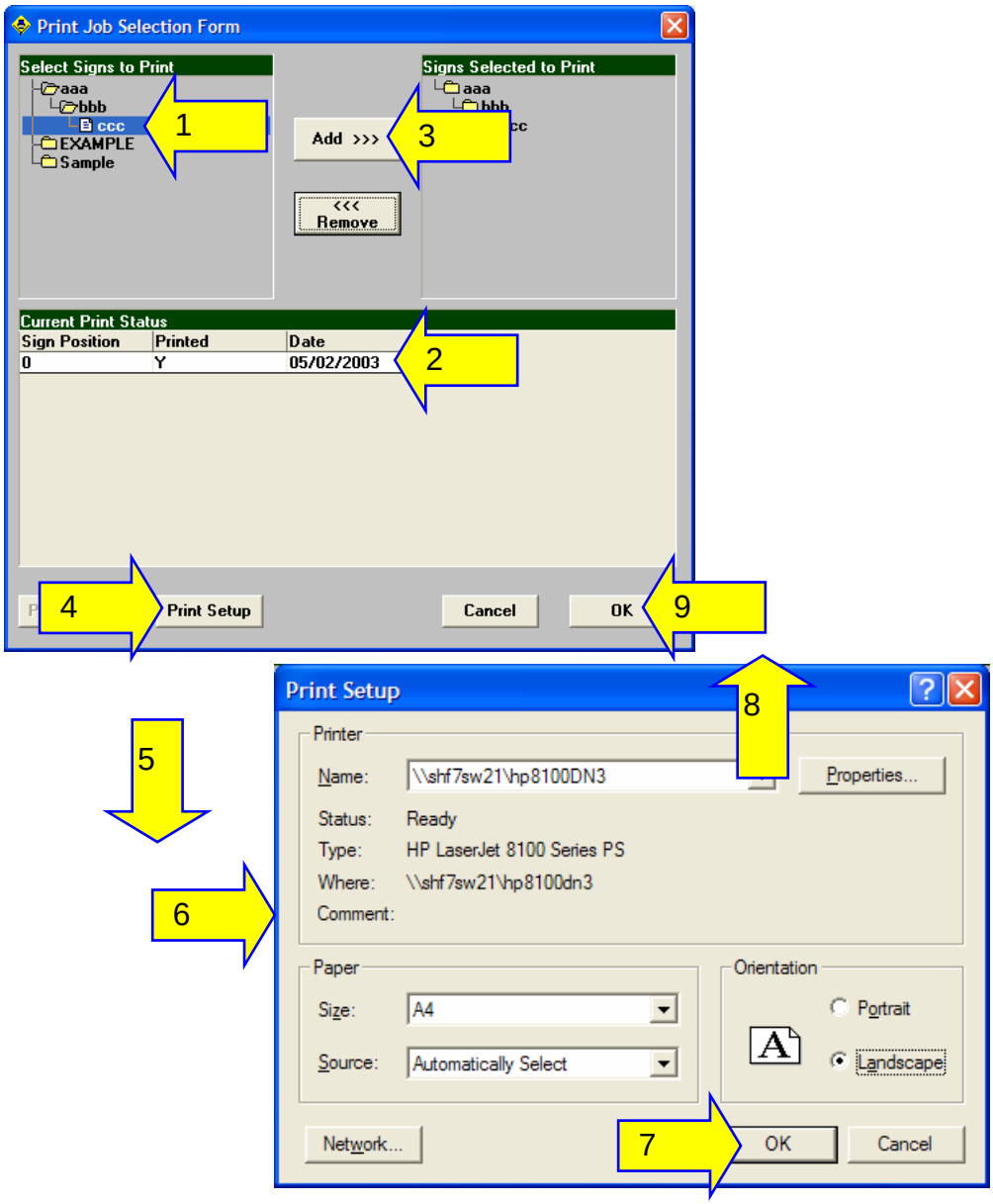


## 7.1.2 How to Print Design and Summary Forms

**Print Selection**

On the **Print Selection Job Form** to select the sign for printing, follow the steps:

1. Click the appropriate **Job Code Section** and **Position**;
2. Information on the **Current Print Status** will appear;
3. Click the **Add** button to locate the sign in the **Signs Selected To Print** box;
4. Click the **Print Setup** button to set the printer requirements;
5. This will then launch the **Print Setup** menu box;
6. Select printer settings;
7. Click **OK** to close the **Print Setup** box;
8. Return to the **Print Job Selection Form**; and
9. Select **OK** to print.




*Continued on next page*

## 7.1.2 How to Print Design and Summary Forms, (continued)

**Design Form** The following is a sample **Design Form**.

14/02/2003 **Traffic Sign Structures - Design Form** Page 1

| Job : EXAMPLE | Section : C | Sign Pos : 1 |
|---|---|---|

### Location Details

| | |
|---|---|
| Wind Region | Region A |
| Exposed Terrain | No |
| Risk Category | Low Impact Risk |
| Foundation Soil | Loose to Medium Dense Sand |
| Side of Road | Left |
| Distance from carriageway | 0 |
| Road Height | 4000 |

### Slope Details

| Segment | Length | Height |
|---|---|---|
| 1 | 3000 | 0 |
| 2 | 1500 | 300 |
| 3 | 2300 | -300 |

### Sign Face Details

| Detail | Front Lower | Front Middle | Front Upper | Back Sign |
|---|---|---|---|---|
| Sign Code | 4 | 5 | 6 | 7 |
| Sign Width | 2000 | 2000 | 2000 | 2000 |
| Sign Depth | 1200 | 800 | 700 | 2400 |
| Legend Class | 1 | 2 | Various | Various |
| Legend Colour | White | White | Various | Various |
| Background Class | 2A | 1W | Various | Various |
| Background Colour | Green Std | Emerald | Various | Various |
| Sign Separation | 0 | 0 | 0 | 200 |

### Sign Stiffener Details

| Detail | Front Lower | Front Middle | Front Upper | Back Sign |
|---|---|---|---|---|
| Stiffener Type | 1 | 1 | 1 | 1 |
| Number of Stiffeners | 3 | 2 | 2 | 6 |
| Stiffener Spacing | 500 | 500 | 500 | 460 |
| Number of Brackets | 6 | 4 | 4 | 12 |

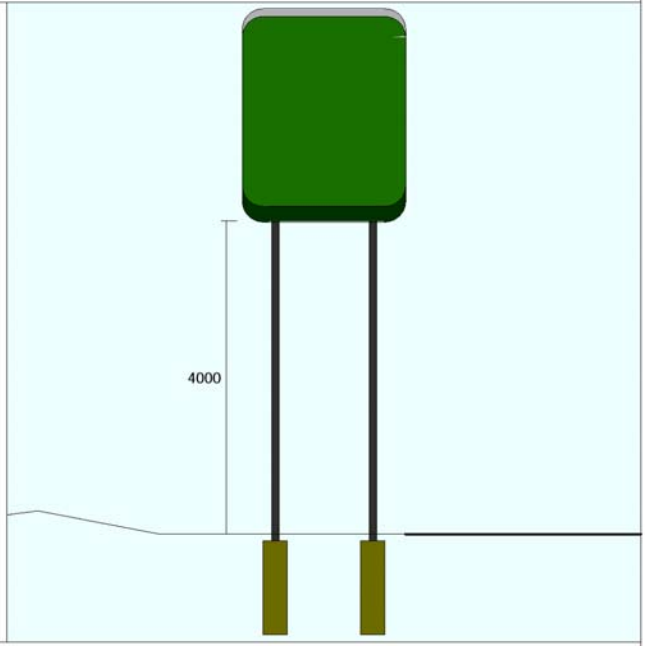
### CHS Steel Design Details

**Support Details**

| | |
|---|---|
| Number | 2 |
| Spacing | 1200, Standard |
| Kerb Post Length | 7900 |
| Post 2 Length | 7900 |
| Post 3 Length | 0 |
| Post 4 Length | 0 |
| Stub Length | 0 |
| Post Dimensions | 90 NB |
| Post Wall Thickness | 3.2 |
| Post Grade | C350 |
| Slip Base Required | No |

**Footing Details**

| | |
|---|---|
| Diameter of Hole | 300 |
| Depth of Hole | 1200 |




### Warnings, Errors and Suggestions

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*Continued on next page*

## 7.1.2 How to Print Design and Summary Forms, (continued)

**Design Form** (cont'd)

This **Notes** page is printed along with the **Design Form**.

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|---|---|---|
| Job : EXAMPLE | Section : C | Sign Pos : 1 |

These notes are printed as part of the design form printout

| TraSiS | Version 2.1 |
|---|---|

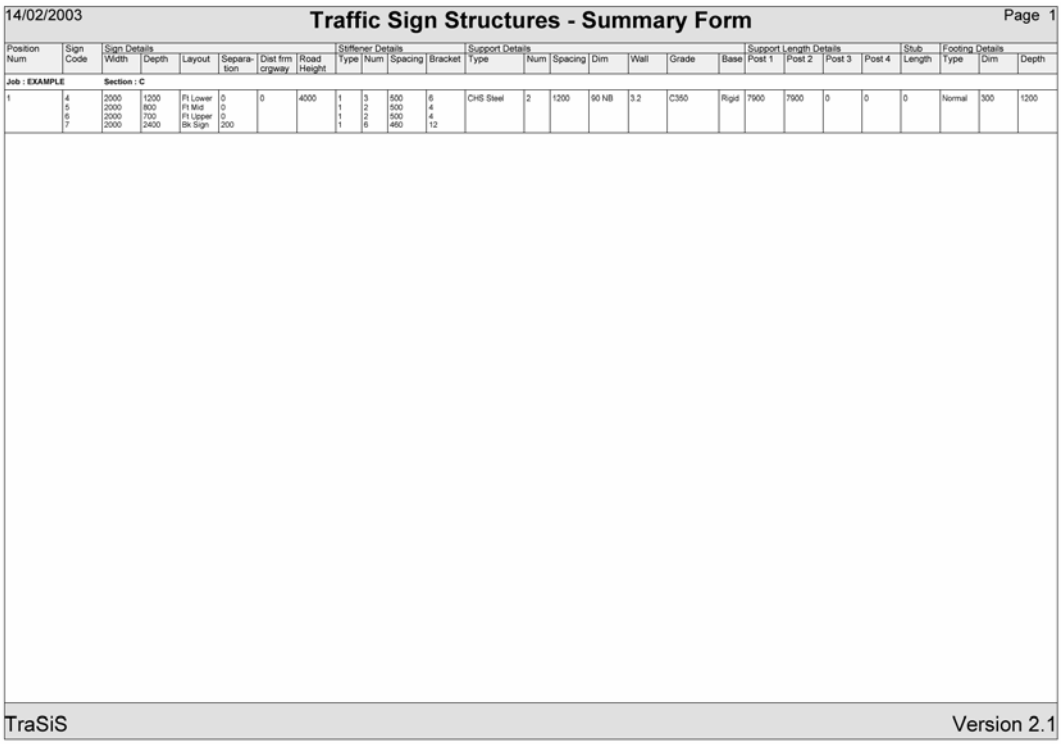
## 7.1.2 How to Print Design and Summary Forms, (continued)

**Summary Form**

The **Summary Form** contains structural data for each sign in a condensed form under the headings:

- Position Number;
- Sign Code;
- Sign Details;
- Stiffener Details;
- Support Details;
- Support Length Details;
- Stub; and
- Footing Details.

The form fits the details of up to forty signs per page, arranged according to Job



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| Position Num | Sign Code | Sign Details | | | | | | Stiffener Details | | | | Support Details | | | | | | | Support Length Details | | | | Stub | Footing Details | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Width | Depth | Layout | Separation | Dist frm crgway | Road Height | Type | Num | Spacing | Bracket | Type | Num | Spacing | Dim | Wall | Grade | Base | Post 1 | Post 2 | Post 3 | Post 4 | Length | Type | Dim | Depth |
| Job : EXAMPLE | | Section : C | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 4<br>5<br>6<br>7 | 2000<br>2000<br>2000<br>2000 | 1200<br>800<br>700<br>2400 | Ft Lower<br>Ft Mid<br>Ft Upper<br>Bk Sign | 0<br>0<br>0<br>200 | 0 | 4000 | 1<br>1<br>1<br>1 | 3<br>2<br>2<br>6 | 500<br>500<br>500<br>460 | 6<br>4<br>4<br>12 | CHS Steel | 2 | 1200 | 90 NB | 3.2 | C350 | Rigid | 7900 | 7900 | 0 | 0 | 0 | Normal | 300 | 1200 |

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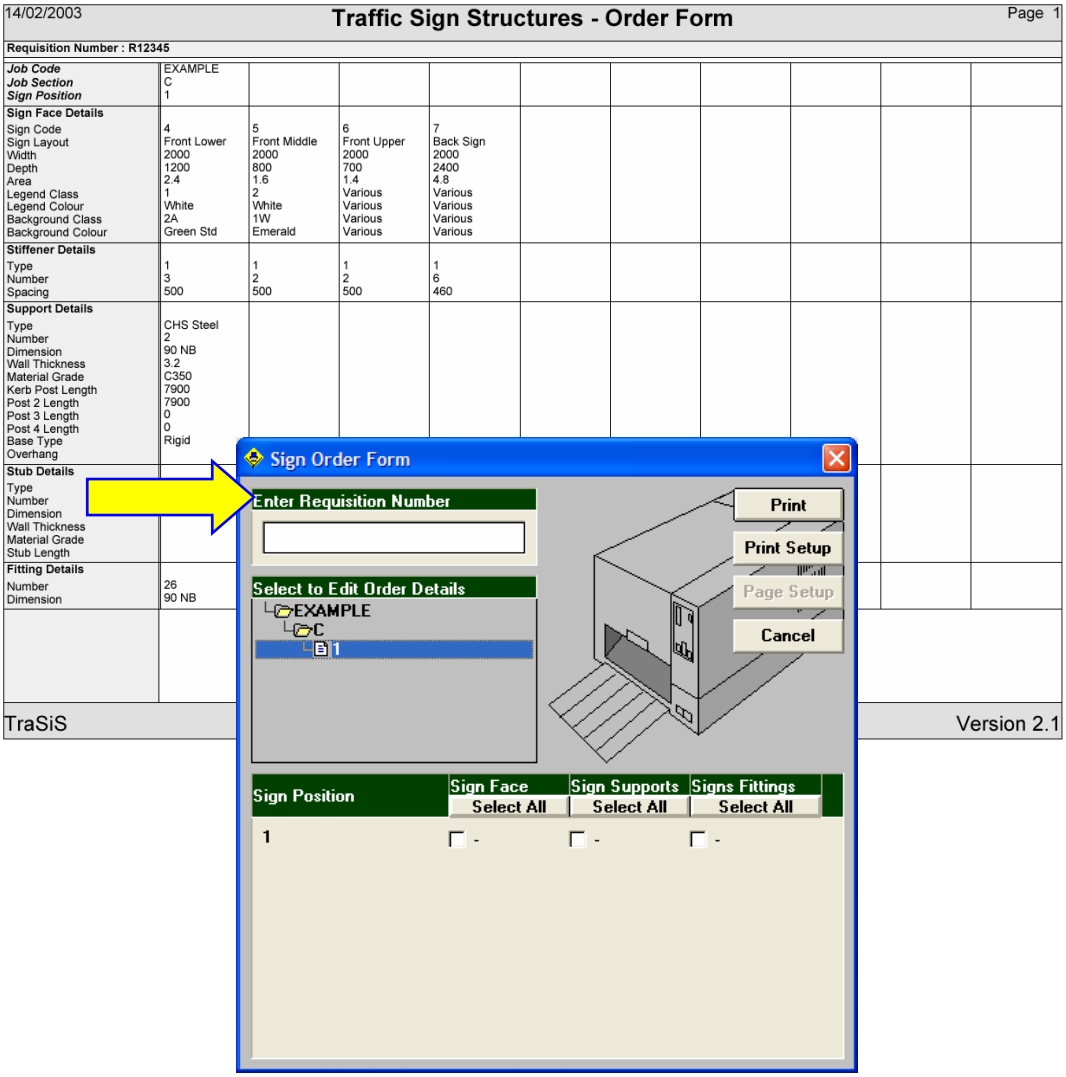
## 7.1.3 How to Print Order Forms

**Order Form**

The **Order Form** contains all data necessary to order the correct structural members:

- Requisition Number (see note below);
- Job Code, Job Section and Sign Position;
- Sign Face Details;
- Stiffener Details;
- Support Details;
- Stub Details; and Fitting Details.

Note: The form fits details of up to ten signs per page.



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**Requisition Number : R12345**

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Job Code*** | EXAMPLE | | | | | | | | | |
| ***Job Section*** | C | | | | | | | | | |
| ***Sign Position*** | 1 | | | | | | | | | |
| **Sign Face Details** | | | | | | | | | | |
| Sign Code | 4 | 5 | 6 | 7 | | | | | | |
| Sign Layout | Front Lower | Front Middle | Front Upper | Back Sign | | | | | | |
| Width | 2000 | 2000 | 2000 | 2000 | | | | | | |
| Depth | 1200 | 800 | 700 | 2400 | | | | | | |
| Area | 2.4 | 1.6 | 1.4 | 4.8 | | | | | | |
| Legend Class | 1 | 2 | Various | Various | | | | | | |
| Legend Colour | White | White | Various | Various | | | | | | |
| Background Class | 2A | 1W | Various | Various | | | | | | |
| Background Colour | Green Std | Emerald | Various | Various | | | | | | |
| **Stiffener Details** | | | | | | | | | | |
| Type | 1 | 1 | 1 | 1 | | | | | | |
| Number | 3 | 2 | 2 | 6 | | | | | | |
| Spacing | 500 | 500 | 500 | 460 | | | | | | |
| **Support Details** | | | | | | | | | | |
| Type | CHS Steel | | | | | | | | | |
| Number | 2 | | | | | | | | | |
| Dimension | 90 NB | | | | | | | | | |
| Wall Thickness | 3.2 | | | | | | | | | |
| Material Grade | C350 | | | | | | | | | |
| Kerb Post Length | 7900 | | | | | | | | | |
| Post 2 Length | 7900 | | | | | | | | | |
| Post 3 Length | 0 | | | | | | | | | |
| Post 4 Length | 0 | | | | | | | | | |
| Base Type | Rigid | | | | | | | | | |
| Overhang | | | | | | | | | | |
| **Stub Details** | | | | | | | | | | |
| Type | | | | | | | | | | |
| Number | | | | | | | | | | |
| Dimension | | | | | | | | | | |
| Wall Thickness | | | | | | | | | | |
| Material Grade | | | | | | | | | | |
| Stub Length | | | | | | | | | | |
| **Fitting Details** | | | | | | | | | | |
| Number | 26 | | | | | | | | | |
| Dimension | 90 NB | | | | | | | | | |



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The print process includes a prompt for the requisition number that appears at the top of the page.

*End of Chapter 7*


# CHAPTER 8

# WARNINGS AND ERRORS


# Section 8.1
# Understanding the Window

## 8.1.1 Introducing Main Window

**Warnings and Errors**

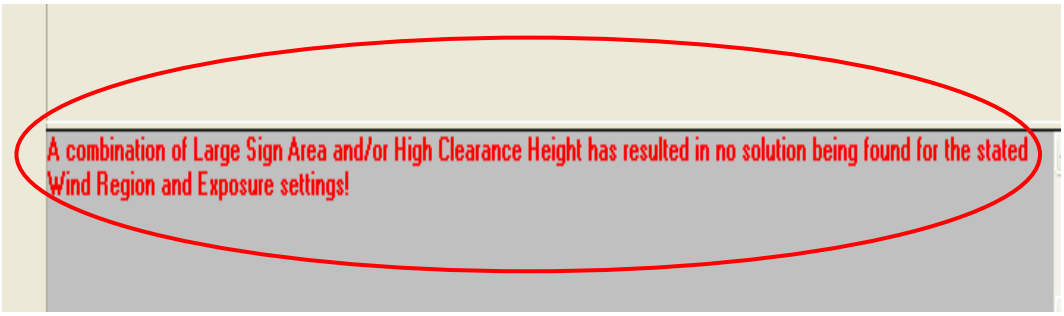
TraSiS communicates warnings or errors through the **Message Box.** Below are some commonly displayed warnings and errors.

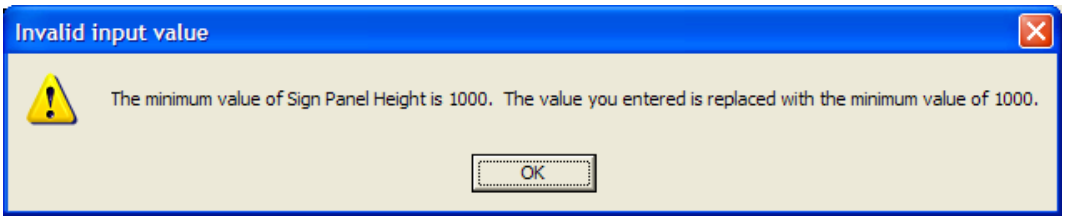
| Warning or Error | Probable Cause |
|---|---|
| Insufficient Terrain Information has been defined | Total horizontal length of the roadside slope is less than the width of the sign face |
| A combination of Large Sign Area and/or High Clearance Height has resulted in no solution being found for the stated Wind Region and Exposure settings | This error generally occurs on signs with large areas and heights, especially with strut signs - not always literal |
| Only 1 Front Sign is allowed for Truss Designs! | The user attempting to view a truss structure for two or more sign faces |
| Only Normal Concrete Footings are allowed for Truss Designs! | The user attempting to use screw footings on a truss support |
| Post 2 Clearance is "x" and needs to be at least 1500 | The minimum post clearance is required for the safety and courtesy of pedestrian traffic. Post Clearance is calculated by subtracting 175 mm from the road height |
| Post 1 Clearance is "x" and needs to be at least 2100 | As above, however greater clearance is required for slip-base signs |
| Post 2 Clearance is "x" and needs to be less than 10000. | The maximum post clearance for CHS and RHS posts is 10 m |
| Post Spacing must be greater than 1500 mm for Slip Base Supports – signs less than 1700 mm that require two posts may be excluded | Post spacing is critical for only slip-base signs. Note that for some situations it may not be possible to find a suitable design that can be built inside a clear zone |
| Post Spacing is too wide for the Smallest Signs Width | For a sign panel, the minimum overhang beyond the supports is 100 mm |
| Post 2 Clearance is "x" and needs to be less than 3250 | The maximum post clearance for truss posts is 3250 mm |
| Design Eccentricity too Large (Difference between Tallest and Shortest Posts) | In a strut support sign, the difference in length of any two posts cannot be more than 500 mm |
| Cross section data too complicated to analyse | When the roadside cross section has both cut and fill slopes, this message appears in the clear zone window |
| Sign Panel Height > Twice the Clearance height. A Slip Base Design is not possible for this situation! | For slip-base designs, the clearance height must be more than half the sign panel height |
| Sign is too wide to be handled by this program! | Sign width must be less than, or equal to 9600 mm. |

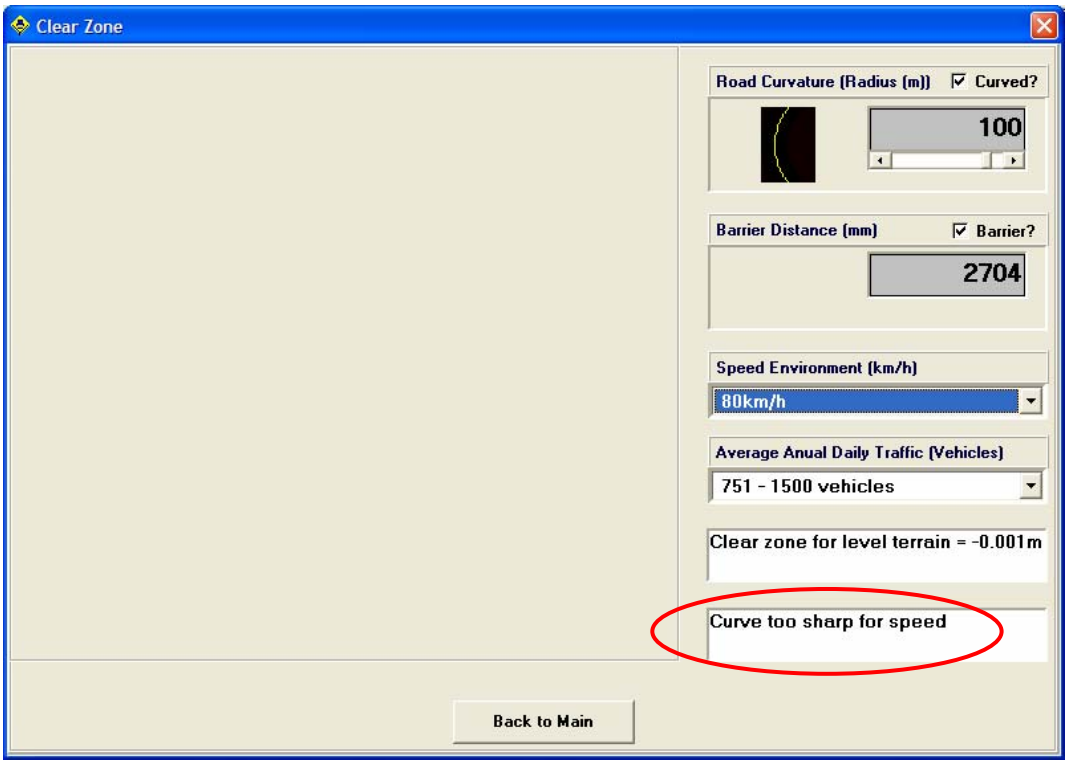
## 8.1.1 Introducing Main Window, (continued)

**Examples of Warnings**

The following illustrates typical examples of warnings.




*End of Warnings and Errors*


# KEYBOARD SHORTCUTS


# SHORTCUT KEYS

**Shortcut Functions**

Shortcut keys for commands are described in the table below:

| To | Press |
|---|---|
| Open a new file | <Ctrl>+<N> |
| Open an existing file | <Ctrl>+<O> |
| Close the current file | <Ctrl>+<C> |
| Save the current file | <Ctrl>+<S> |
| Save the current file as | <Ctrl>+<A> |
| Delete the current file | <Ctrl>+<B> |
| Exit TraSiS | <Ctrl>+<F4> |
| Print Design Form | <Ctrl>+<D> |
| Print Order Form | <Ctrl>+<R> |
| Print Summary Form | <Ctrl>+<M> |
| Edit Sign Details | <Ctrl>+<L> |
| Edit Environmental Conditions | <Ctrl>+<E> |
| Edit Stiffener Spacing | <Ctrl>+<T> |
| Edit Clear Zone | <Ctrl>+<Z> |
| Default Values | <Ctrl>+<V> |
| Obtain Help | <Ctrl>+<G> |

*End of Keyboard Shortcuts*


# GLOSSARY


# GLOSSARY

**Application** A computer program..

**Click** The act of shortly pressing the left mouse button. In Windows, this is the standard way of selecting an object. For example, to select something, the pointer is moved over the object and then clicked.

**Clipboard** A temporary storage space used to move text (or images) from one application to another, using the **Copy**, **Cut,** and **Paste** commands. For example, the clipboard can be used to copy text from a word processor document and insert (paste) it into Station's handover notes.

**Double-click** The act of momentarily pressing the left mouse button two times. In Windows, this is the standard way of selecting an object and performing an action. For example, to display the details about a particular alphanumeric, the pointer is moved over the alphanumeric and then double-clicked - this displays a window that shows the object's details.

**Drag** A standard technique of moving or resizing an object. For example, to drag an object to a new location, the following procedure is followed:

Move the pointer over the object to drag.

Click and hold down the mouse button.

Move the pointer to the new location and release the mouse button.

**Status Line** The line below the display, which shows various types of status information.

*End of Glossary*


# INDEX


# NDEX




## T



## W



*End of Index*