

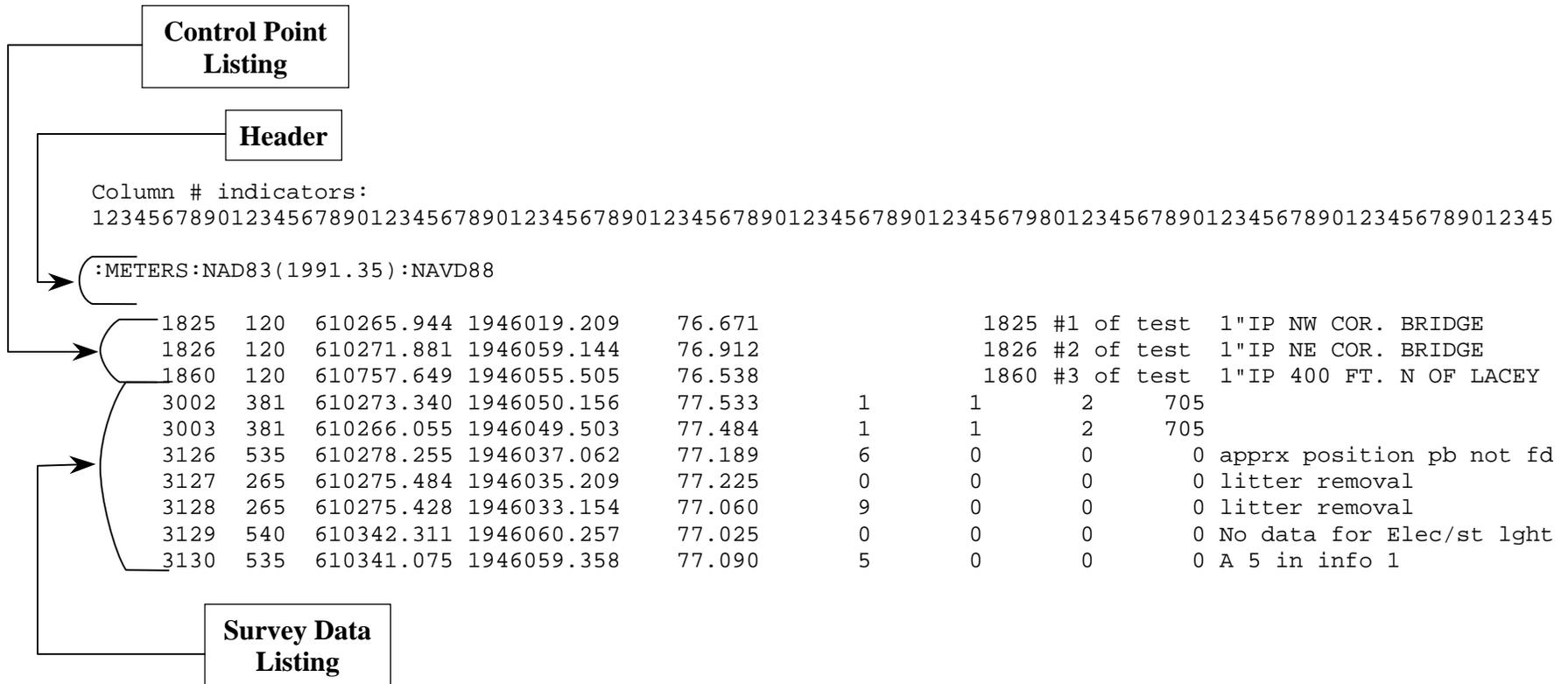
1.1 TSS Format

A typical TSS file is comprised of a header, control point listings, and surveyed data. The header contains descriptive information about the project units and the horizontal & vertical datum of the survey data. A colon precedes this information indicating that it is a comment; CAiCE does not import or use this data. The Control point listings precede and have a slightly different format than the surveyed data points. Control points do not use the four info fields in columns 49 through 80. Columns 49 through 64 are left blank and the control point name is placed in columns 65 through 80. The surveyed data points are the final and major component of a TSS file. The columns contain specific data about each point as well as the information required to store the topo breaklines or feature lines as CAiCE Survey Chains.

The Northing, Easting, and elevation fields are aligned by the decimal points. Other fields are left or right justified, and are either numeric or alphanumeric.

The formatting of the TSS file is explained on the following pages.

Example TSS file:



1.2 TSS Import/Conversion to CAiCE elements

When the TSS file is imported, several ASCII translation tables are referenced to translate the numeric Topo codes to alphanumeric Feature codes and descriptions are inserted in the resulting point objects if appropriate. The translation process uses the *table.sym* and *table.rpt* files. The numeric Topo code from the TSS file is first compared with the *table.sym* file. If a match is found the corresponding alpha code is assigned to the point. This code also becomes part of the point name, the prefix of the point is the same as the code and the numeric portion of the point name is equal to the number in the TSS file.

Additional information is interpreted from the numeric values in the 4 Input Info blocks by referencing the *table.rpt* file.

1.2.1 Table.sym Formats

	Topo Code	Fields No Longer Used					Table.rpt Lookup	Edit Label	Field No Longer Used	Comments	
	<i>Table.sym</i>	110	1	1	5	0	0	HVCS	----	PMHV	PM H&V
	380	3	3	4	2	1	--C-	EP	EP		Pavement edge
	392	3	3	4	2	0	--1-	TRL	TRAIL		Trail, center
	410	3	4	2	2	0	--E-	CROP			Crop, edge

Topo codes - The standard numeric Topo code. If a match for the value in the Topo code column of the TSS file is not found in this column then the *Table.dis* file is searched.

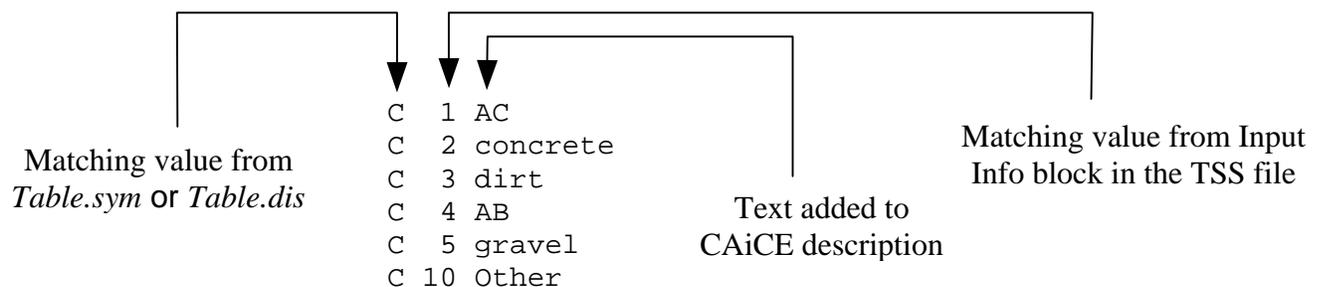
Fields No Longer Used - These are legacy fields that were used by CTMED.

Table.rpt Lookup - Each of the 4 fields correspond to the four Input Info blocks of the TSS file. These values are jointly compared in the *Table.rpt* file. The rows corresponding to the alpha or numeric value from the *Table.sym* or *Table.dis* files are found first. A row in the *Table.rpt* file is then found that matches the numeric value of the info block in the TSS file. The text in the matched row is placed in the Point's description. Some Topo codes include a value as a dimension; see the examples on the following pages.

Edit Label - The alphanumeric CAiCE Feature code assigned to the Points and Survey Chains. This is also used as the prefix for the names of the Points and Survey Chains.

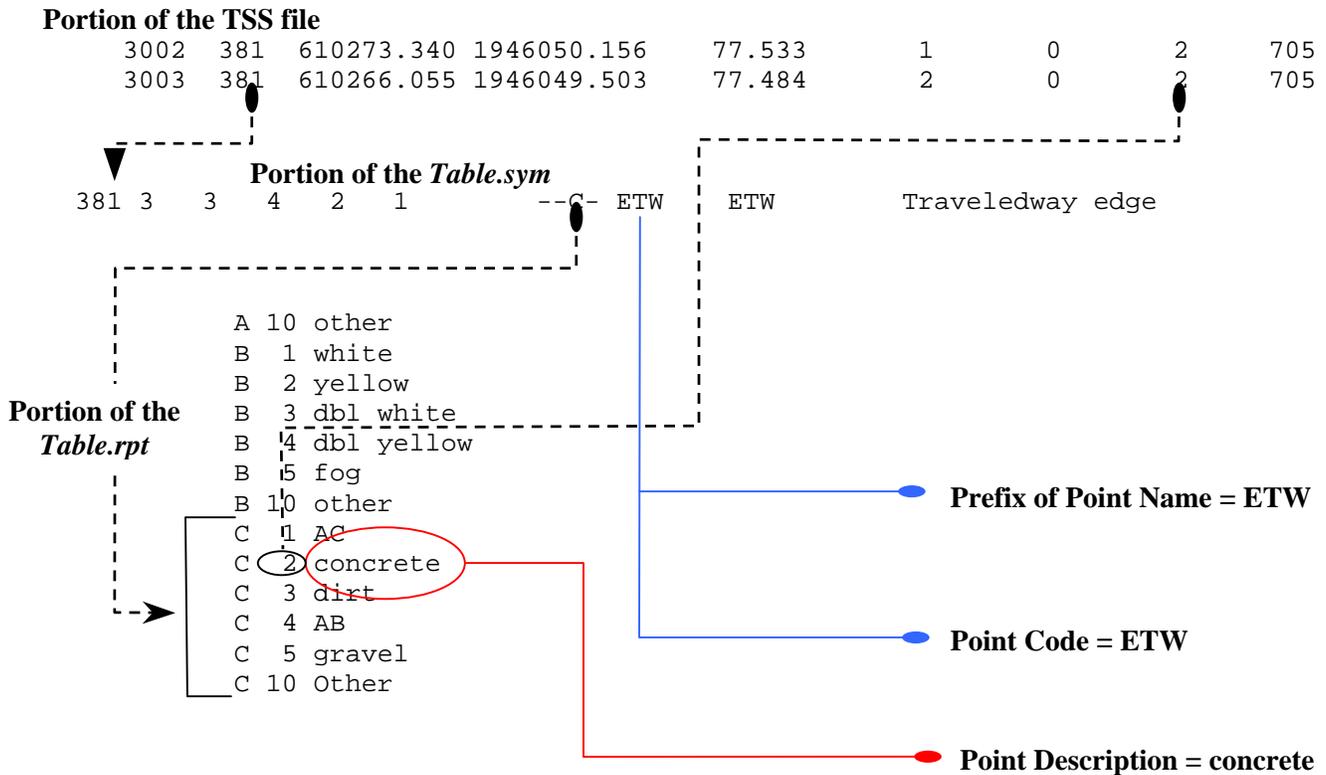
Comments - Descriptive information only, not used in the conversion process.

1.2.2 Table.rpt Format



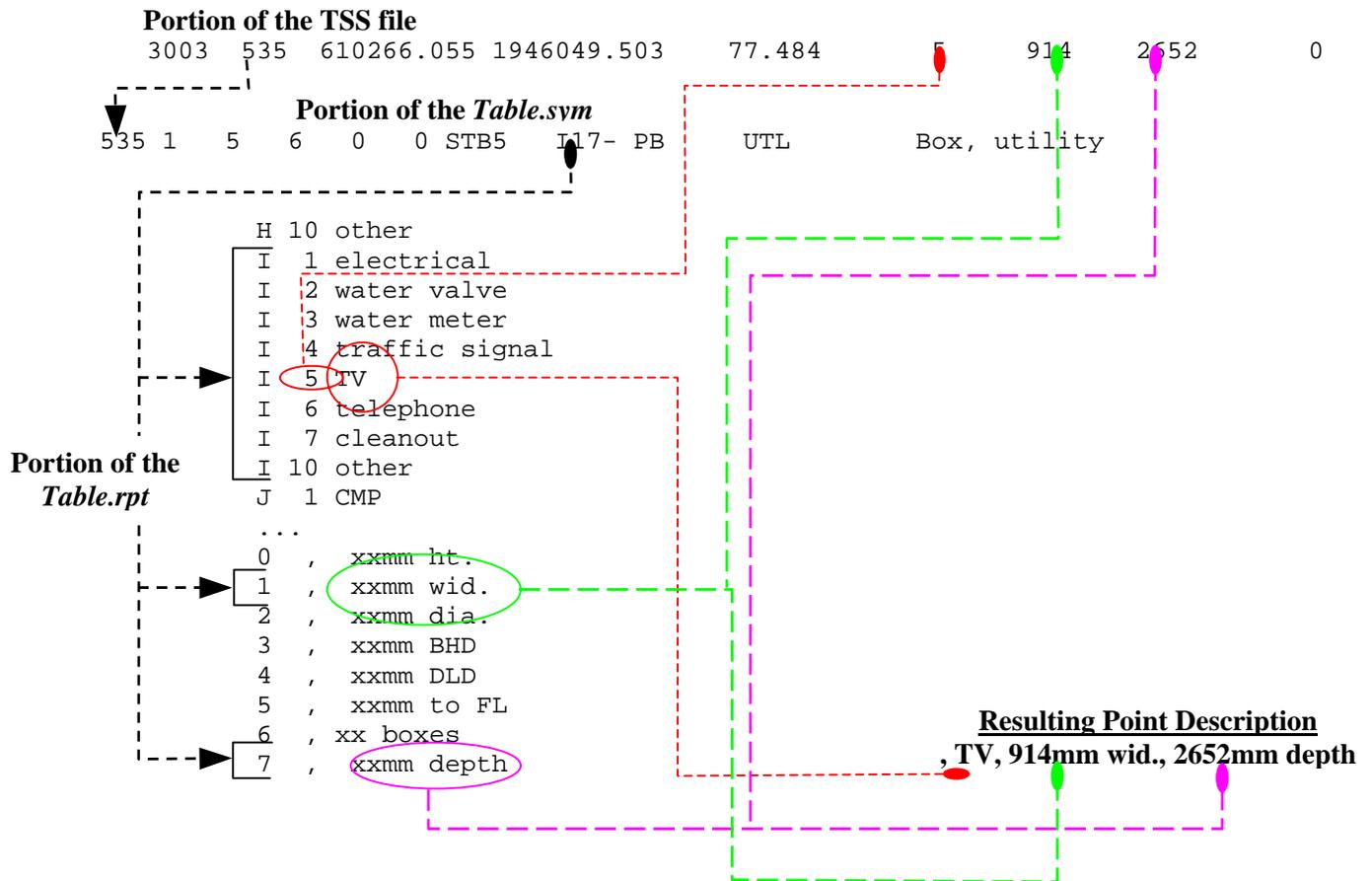
1.2.3 TSS file interaction with the *Table.sym* & *Table.rpt*

As shown below, the topo code in the TSS file is **381**. The import routine searches the *Table.sym* file for **381**. In the *Table.sym* file, a **--C-** is found in the area that corresponds to data from Info blocks 1-4. The **C** corresponds to data in Info block 3 of the TSS file. The search continues in the *Table.rpt* file and looks for any rows matching the **C**, six rows are found. Since the TSS file has a value of **2** in Info block 3, the routine identifies the single row beginning with a **C** that contains a **2** in the second column. The text in the third column of that row, **concrete**, is added to the description field of the point.



As shown below, the topo code in the TSS file is **535**. The Import routine searches the *Table.sym* file for a **535**. In the *Table.sym* file for topo code **535**, the values connecting the data in the Info blocks from the TSS file with the *Table.rpt* file are, **I17-**. An **I** is found in the first column (corresponding to data from Info block 1 of the TSS file), a **1** is found in the second column (corresponding to data from Info block 2 of the TSS file), a **7** is found in the third column (corresponding to data from Info block 3 of the TSS file), and no value, **-**, is found in the fourth column.

- **Info block 1:** In the TSS file, a value of **5** is in Info block 1. The Import routine searches the *Table.rpt* file until a row with an **I** and a **5** is found. The text in the selected row, **TV**, is added to the description field of the stored Point.
- **Info block 2:** In the TSS file, a value of **914** is in Info block 2. The Import routine searches the *Table.rpt* file until a row is found with a **1** in the first column. The text in the selected row, **xxmm wid.**, is added to the description field of the stored Point. Note, the value in Info block 2 of the TSS file, **914**, is substituted for the **xx**, i.e. **914mm wid.**
- **Info block 3:** In the TSS file, a value of **2652** is in Info block 3. The Import routine searches the *Table.rpt* file until a row is found with a **7** in the first column. The text in the selected row, **xxmm depth**, is added to the description field of the stored Point. Note, the value in Info block 3 of the TSS file, **2652**, is substituted for the **xx**, i.e. **2652mm depth**.



1.2.4 Point & Line Attribute

Points and lines can be assigned one of two attributes that are used to determine if the data will be triangulated in the DTM. The value in the Input Info block 4 of the TSS file determines this attribute.

- ◆ Triangulated elements are coded with a **701** or **705** in Info block 4 of the TSS file.
- ◆ Non-triangulated elements, i.e. underground pipes, are coded with a value other than 701 or 705, typically **0**, in Info block 4 of the TSS file.

1.2.5 Point Type

Points can be classified as either a line point or a curve point. A curve point is a point shot along a curve and is used to calculate spline curves when the line is drawn or when a breakline is used in a DTM. All points are line points by default unless otherwise specified. The value in the Input Info block 2 of the TSS file determines this Point Type.

- ◆ **Line Point:** A value of **0** or **1** in info block 2
(Any value other than 2 will produce a Line Point but it is recommended to use a 0 or 1)
- ◆ **Curve Point:** A value of **2** in info block 2

```
3002 381 610273.340 1946050.156 77.533 1 0 2 701
```

1.2.6 Curve Point Configuration

The curve point configuration determines the resulting type of curve, creating either a horizontal curve or a parabolic curve.

A horizontal curve can only be created when two line points precede a single curve point which is then followed by two additional line points. The first pair of line points defines the back tangent of the curve, the second pair defines the tangent ahead of the curve, and the curve point is the POC. This configuration can be used in many curb return and island layouts. Attention must be paid to the location of the Line Points, if any of the Line Points fall too far within the area of the curve then the resulting curve may not pass through this field collected point.

All other curve point configurations, containing three or more curve points in a row, will create a smooth spline curve that passes through all of the curve points.