GEOPAK Mn/DOT

Automated Caption Blocks

Overview

Two MicroStation macro applications have been developed as a tool to automate the placement of caption block data in Mn/DOT Workmap files and Plat map files. These macro files are: **WkmCapBlk.ba** and **PlatCapBlk.ba**. These macros were developed and are maintained by Roy Graff (Surveys Automation) at the request of the Right of Way/Survey Automation Groups. These macros utilize GEOPAK output files (parcel descriptions).

This document is not intended to be a complete guide to using the macro tool. This document is intended to show how GEOPAK generated output files (GEOPAK parcel data) will process with the macros.

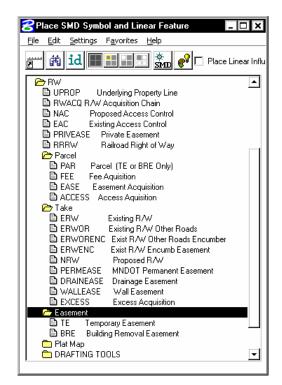
The macros utilize GEOPAK parcel data. The macro does not read data directly from the coordinate geometry database (.GPK file), it reads parcel data from a GPK Output file.

Parcel Element Attributes

It is imperative that GEOPAK Parcel elements, including Takes and Easements are stored with accurate GEOPAK attributes. Standard attributes that are associated with any GEOPAK element type, including parcels, include Features and Descriptions. Parcel elements can employ unique attributes types (not available on other element types), these include; Owner and Improvement.

Feature Attribute

Mn/DOT's standard Survey Manager Database (.SMD), shown below, contains unique feature attributes associated with right of way practices. Feature attributes/types must be assigned to the Parcel parent tract element, Parcel Takes and Parcel Easements.



Description Attribute

The parcel parent tract employs a description attribute to define the location of the parcel parent tract. This description reflects an abbreviated legal description of a parcel and should be defined with the owner's contiguous property location, both acquired and non-acquired portions. (IE. Pt S ½, SE¼, Section 24)

Parcel Easements employ a description attribute to define the expiration date associated with the easement. (IE. TE EXPIRES 12/31/09)

Owner Attribute

The parcel's owner(s) name is assigned to the Parcel element via the Owner attribute. While multiple owner names can be assigned to a parcel, Mn/DOT practice will only associate one owner name to a parcel.

Improvement Attribute

The Improvement attribute assigns miscellaneous yet specific information to a parcel. Mn/DOT uses the Improvement attribute to assign the following information: Full and True Area, Plat Number, Control Section Number, State Project Number, and Torrens Certificate Number.

These attributes must be stored via key-in syntax by the COGO operator. The example circled below shows the proper syntax where all attributes are stored.

```
Parcel 48: 4017 KW72 KW71 KW76 4017

Owner # 1: BYRON ROBYN

Improvements: 5.00 AC PLAT: 33-06 CS: 3303(901) SP: 1234-567 TORRENS: 8901

Feature: FEE

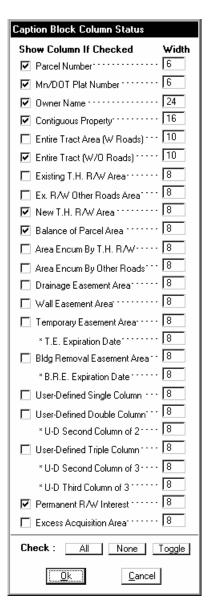
Description: N 330' OF E 660' OF NE1/4 SE1/4
```

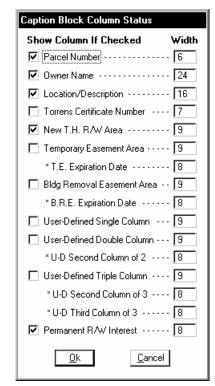
The full and true area, if known, must be the first item entered in the Improvement field. The remaining attributes; PLAT:, CS:, SP:, and TORRENS:, are not required to be in any specific order.

NOTE: Within the caption block macro, the full and true area is used for computing Remaining areas. If no full and true area is define, remaining areas are computed using GEOPAK'S Total Parent Tract Area.

Workmap vs. Plat Map Macros

The two macros function very much the same way. The difference is with the type of data each tool reports and how it formats the data in the caption. **WkmCapBlk.ba** is used for placing captions in Workmap files. **PlatCapBlk.ba** is used for placing captions in Plat map files. The Plat map version is essentially a stripped down version of the Workmap data. (Plat data does not show existing r/w areas or balance areas.) The two Caption Block Column Status dialogs below (Workmap on left, Plat map on right) indicate the data that is exported from the output file and plotted in the graphics file.





In the example below, the Work Map caption format showing a single parcel (12).

C.S. 3002 (47=110) 901 SP 3002-09

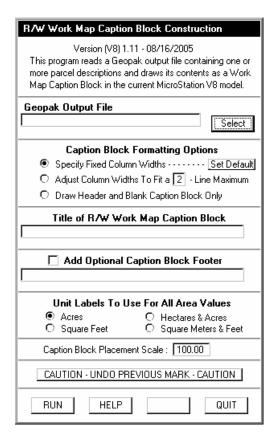
		PARCEL 1	2 - WORK MAP	CAPTION			
PARCEL NUMBER		OWNER	CONTIGUOUS PROPERTY	ENTIRE TRACT WITHOUT ROADS		BALANCE	PERMANENT R/W
I TOWNSET	1.50.		I NOI ENTI	ACRES	ACRES	ACRES	INTERES7
12	30-42	SUSAN M. PEARSON	LOT 2 BLOCK 1 SPRING PINES	1.83	0.11	1.72	FEE

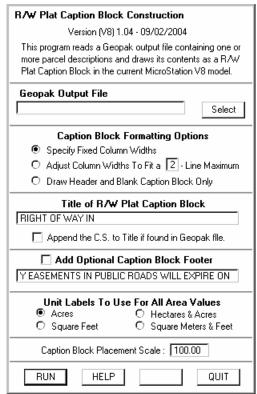
Notice in the example below, the same parcel (12) in the Plat Map caption format.

	PARCEL 12 - F	PLAT MAP CAPTI	ON	
PARCEL	OWNER	LOCATION	NEW T.H. R/W ACRES MORE OR LESS	PERMANENT R/W INTEREST
12	SUSAN M. PEARSON	LOT 2 BLOCK 1 SPRING PINES	0.11	FEE

WkmCapBlk & PlatCapBlk Macro Main Dialog

Below are the main dialogs for each macro. (Workmap on left, Plat map on right.) These dialogs offer the user a wide range of customizing including Titles input, Footer input, multiple units, and plotting scale.



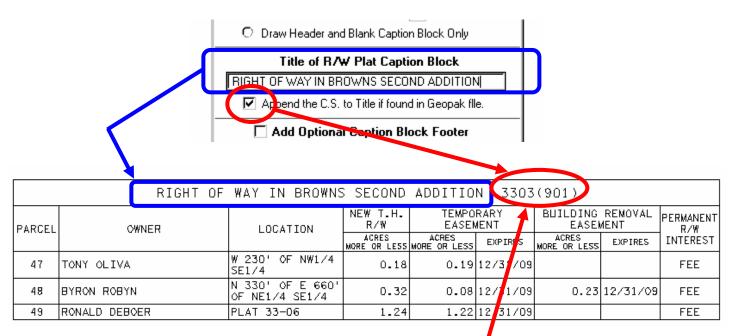


Plat Map Examples:

Optional Caption Block Data

Caption block Titles and Footers can be placed on both Workmap and Plat map caption blocks.

Header with Title and Optional Control Section Number



Parcel 47 : KW67 KW69 KW70 KW68 KW67

Owner # 1: TONY OLIVA

Improvement # 1: 2.5 AC. PLAT: 33-06 CS: 3303(901) SP: 1234-567

Note: On Workmaps the Title should show the Section, Township, and Range, or the complete name of the subdivision plat. (IE. Section 31, Township 102 North, Range 30 West) Do not show just the Section number.

Optional Plat Map Footer for Public Road Expiration

	RIGHT OF WAY IN BROWNS SECOND ADDITION 3303(901)							
PARCEL	OWNER	LOCATION	NEW T.H. R/W	TEMPO EASEN		BUILDING EASEN		PERMANENT R/W
	OMEN		ACRES WDRE OR LESS	ACRES WORE OR LESS	E)PIRES	ACRES MORE OR LESS	EXPIRES	INTEREST
47	TONY OLIVA	W 230' OF NW1/4 SE1/4	0.18 ₍	R 0.19	12/31/09			FEE
48	BYRON ROBYN	N 330' OF E 660' OF NE1/4 SE1/4	0.32	NG 0.08	12/31/09	0.23	12/31/09	FEE
49	RONALD DEBOER	DLAT 37 DC	1 24	1.22	12/31/09			FEE

NOTE: TEMPORARY EASEMENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/09

Add Optional Caption Block Foote.

ENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/09

GEOPAK Attribute Requirements

To achieve a properly formatted GEOPAK output file, consideration must be made when storing Owner, Feature, Description, and Improvement attributes to Parcel Elements.

Parcel Name and Owner

	RIGHT OF WAY IN BROWNS SECOND ADDITION 3303(901)								
PARCEL	OWNER	LOCATION	NEW T.H. R/W	TEMPO EASEN		BUILDING EASE)		PERMANEN7	
			ACRES MORE OR LESS	ADRES MDRE OR LESS	EXPIRES	ACRES MORE OR LESS	EXPIRES	INTEREST	
47	TONY OLIVA	W 230' OF NW1/4 SE1/4	0.18	0.19	12/31/09			FEE	
48	BYRON ROBYN	N 330' OF E 660' OF NE1/4 SE1/4	0.32	0.08	12/31/09	0.23	12/31/09	FEE	
49	RONALD DEBO <mark>LR</mark>	PLAT 33-06	1.24	1.22	12/31/09			FEE	

NOTE: TEMPORARY EASIMENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/09

Parcel 48

401 KW72 KW71 KW76 4017

Owner # 1 BYRON ROBYN

Improvement # 1: 5.00 AC PLAT: 33-06 CS: 3303(901) SP: 1234-567 TORRENS: 8901

Feature: FEE

Description: N 330' OF E 660' OF NE1/4 SE1/4

Parcel Feature and Easements with Permanent Easement Feature

By default the PERMANENT R/W INTEREST column will default to the Parcel feature type. However if a Parcel has both Fee and Private Easement interests, as shown in the example below, the row will be split and the column will indicate the EASE Interest.

	RIGHT OF MAY IN BROWN'S SECOND ADDITION 3303(901)							
PARCEL	OWNER	LOCATION	NEW T.H. R/W ACRES	EASE		BUILDING EASE	MENT	PERMANENT R/N INTEREST
			HALLES			-		TMIENESI
47	TONY OLIVA	W 230' OF NW1/4 SE1/4	D.18	0.19	12/31/05			FEE
48	BYRON ROBYN	N 330' OF E 660' OF NE1/4 SE1/4	0.32	0.08	12/31/05	0.23	12/31/05	FEE
			0.05					EASE
49	RONALD DEBOER	PLAT 33-06	1.24	1.22	12/31/05			FEE
			2.79					EASE

NOTE: TEMPORARY EASEMENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/05

```
Parcel 48: 4017 KW72 KW71 KW76 4017
Owner # 1: BYRON ROBYN
                                                          SP: 1234-567 TORRENS: 8901
Improvement #
                 3.00 AC PLAT: 33-06 CS: 3303(901)
Featur : FEE
Description: N 330' OF E 660' OF NE1/4 SE1/4
     Taken #1: KW69 BS2071 BS2072 4114 KW69
     Name: OLDTHRW
     Feature: ERWOR
     Description: PLAT 33-06
                                         13,182.32 \text{ ft}^2 =
                                                                         0.30 a
     Taken area
     Taken #2: BS2073 BS2074 BS1164 BS2075 BS2073
     Name: NEWTHRW
     Feature: NRW
     Description: PLAT 33-06
                                         13,876.02 ft<sup>2</sup> =
                                                                         0.32 a
     Taken area
     Easement #1: BS2576 BS2077 BS1164 BS2078 BS2076
     Name: PF1
     Feature: PE
     Description: LAT 33-06
     Easement area
                                          2,102.43 \text{ ft}^2 =
                                                                         0.05 a
     Easement #2: TB108 TB109 TB110 TB107 TB108
     Name: TE1
     Feature: TE
     Description: TE EXPIRES 12/31/05
     Easement area
                                          2,040.29 \text{ ft}^2 =
                                                                         0.05 a
     Easement #3 : TB111 TB106 TB113 TB112 TB111
     Name: TE2
     Feature: TE
     Description: TE EXPIRES 12/31/05
                                         1,491.90 \text{ ft}^2 =
                                                                         0.03 a
     Easement area
     Building: TB100 TB101 TB102 TB103 TB104 TB105 TB100
     Name: BTE1
     Feature: BRE
     Description: BRE EXPIRES 12/31/05
     Building area
                                         10,126.93 \text{ ft}^2 =
                                                                         0.23 a
```

0.1790

Parcel Take and Easement Features and Descriptions

NRW - New Right of Way

The sum of all NRW featured Takes per parcel is tabulated in the NEW T.H. R/W ACRES column.

	RIGHT OF WAY IN BROWNS SECOND ADDITION 3303(901)							
PARCEL OWNER		LOCATION	NEW T.H. TEMPORARY BUI		BUILDING EASE		PERMANEN7	
		7	ACRES NDRE OF LESS	ACRES	.ESS EXPIRES	ACRES MORE OR LESS	EXPIRES	INTEREST
47	TONY OLIVA	W 230' OF NW1/4 SE1/4	0.18	0.	.19 12/31/09			FEE
48	BYRON ROBYN	N 330' OF E 460' OF NE1/4 SE /4	0.32	0.	.08 12/31/09	0.23	12/31/09	FEE
49	RONALD DEBOER	PLAT 33-06	1.24	1.	.22 12/31/09			FEE

NOTE: TEMPORARY EASEMENTS IN PUBLIC ROAD? WILL EXPIRE ON 12/01/00

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* 1 print par 47
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Parcel 47: KW67 KW69 KV70 KW68 KW67

Owner # 1: TONY OLIVA

Improvement # 1: 2.5 AC. PLAT: 33-06 CS: 3303(901) SP: 1234-5

Feature: FEE

Description: W 230' OF NW1/4 SE1/4

Taken: KW68 KW67 TB134 BS2071 KW69 KW67

Name: NawTHRW Feature: NRW

Taken area = $7,796.1863 \text{ ft}^2 =$

Easement : BS2074 BS2071 TB134 TB133 BS2074

Name: TE1 Feature: TE

Description: TE EXPIRES 12/31/09

Easement area = $8,409.7115 \text{ ft}^2 = 0.1931 \text{ a}$

TE – Temporary Easement

The sum of all TE featured Easements per parcel is tabulated in the TEMPORARY EASEMENT column.

RIGHT OF WAY IN BROWNS SECOND ADDITION 3303(901)									
PARCEL	OWNER	LOCATION		NEW T.H	TEMPO FASEI		BUILDING EASE		PERMANENT R/W
				ACRES MDRE OR LESS	ADRES MORE OR LESS	E)PIRES	ACRES MORE OR LESS	EXPIRES	INTEREST
47	TONY OLIVA	W 230' OF NW SE1/4	1/4	0.18	0.19	12/31/09			FEE
48	BYRON ROBYN	'	660' /4	0.32	0.08	2/31/09	0.23	12/31/09	FEE
49	RONALD DEBOER	PLAT 33-06		1.24	1.22	12/31/09			FEE

NOTE: TEMPORARY EASEMENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/09

```
Parcel 48: 4017 KW72 KW71 KW76 4017
Owner : BYRON ROBYN
Improvements: 5.00 AC PLAT: 33-06 CS: 3303(901)
                                                           SP: 1234-567 TORRENS: 8901
Feature: FEE
Description: N 330' OF E 660' OF NE1/4 SE1/4
     Taken #1: KW69 BS2071 BS2072 4114 KW69
     Name: OLDTHRW
     Feature: ERWOR
     Description: PLAT 33-06
                                            13,182.32 ft<sup>2</sup> =
                                                                             0.30 a
     Taken area
     Taken #2: BS2073 BS20 4 BS1164 BS2075 BS2073
     Name: NEWTHRW
     Feature: NRW
     Description: PLAT 33-0
                                            13,876.02 ft<sup>2</sup> =
     Taken area
                                                                             0.32 a
     Easement #1: BS2076 BS2077 BS1164 BS2078 BS2076
     Name: PE1
     Feature: PE
     Description: PLAT 31-06
                                             2.102.43 \text{ ft}^2 =
                                                                             0.05 a
     Easement area
     Easement #2: TB1 8 TB109 TB110 TB107 TB108
     Name: TE1
Feature: TE
     Descripe
                        XPIRES 12/31/05
     Easement area
                                             2,040.29 \text{ ft}^2 =
                                                                             0.05 a
                       B111 TB106 TB113 TB112 TB111
     Easement
     Name: T/2
Feature: TE
     Descript
               on:
                    E EXPIRES 12/31/05
     Easement area
                                                                             0.03 a
                                             1,491.90 \text{ ft}^2 =
     Building: TB100 TB101 TB102 TB103 TB104 TB105 TB100
     Name: BTE1
     Feature: BRE
     Description: TE EXPIRES 12/31/09
     Building area
                                            10,126.93 \text{ ft}^2 =
                                                                             0.23 a
                                   218,015.12 ft<sup>2</sup> =
                                                                       5.00 a
Total parent tract area =
                                    27,058.34 \text{ ft}^2 =
Total taken area
                                                                       0.62 a
Total easement area
                                       5,634.62 \text{ ft}^2 =
                                                                       0.13 a
Remaining area
                                    190,956.78 \text{ ft}^2 =
                                                                       4.38 a
```

BRE – Building Removal Easement

The sum of all BRE features per parcel is tabulated in the BUILDING REMOVAL EAEMENT column.

PARCEL	OWNER	LOCATION	NEW T.H. R/W	TEMPO EASEN		⊎UILDING EASE		PURMANENT R/W
TARCEL	OMER	LOCATION	ACRES	ADRES WDRE OR LESS	E)PIRES	MORE OR LESS	EXPIRES	INTÉRÉST
47	TONY OLIVA	W 230' OF NW1/4 SE1/4	0.18	0.19	12/31/0			FEE
48	BYRON ROBYN	N 330' OF E 660' OF NE1/4 SE1/4	0.32	0.08	12/31/09	0.23	2/31/09	FEE
49	RONALD DEBOER	PLAT 33-06	1.24	1.22	12/3//09			FEE
NOTE • TEMPORARY EASEMENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/09 Parcel 48: 4017 KW72 KW71 KW76 4017								

Feature: FEE Description: N 330' OF E 660' OF NE1/4 SE1/4 Taken #1: KW69 BS2071 BS2072 4114 KW69 Name: OLDTHRW Feature: ERWOR Description: PLAT 33-06 13 82.32 ft² = .30 a Taken area Taken #2: BS2073 BS2074 BS1164 BS2 75 BS2073 Name: NEWTHRW Feature: NRW Description: PLAT 33-06 13,876.02 ft² = Taken area 0.32 a Easement #1: BS2076 BS2077 BS 164 BS2078 BS2076 Name: PE1 Feature: PE Description: PLAT 33-06 2,102.43 ft² = 05 a Easement area TB110 TB107 TB108 Easement #2: TB108 TB109 Name: TE1 Feature: TE Description: TE EXPIRES 12/31/09 $2,040.29 \text{ ft}^2 =$ 0 05 a Easement area TB111 TB106 TB113 TB112 TB111 Easement #3: Name: TE2 Feature: TE Description: TE EXPIRES 12/31/09 03 a Easement area $1,491.90 \text{ ft}^2 =$ 0 Building : TB1 0 TB101 TB102 TB103 TB104 TB105 TB100 Name: STE1 Feature: BRE Description: BRE EXPIRES 12/31/09 0.23 a Building area 10,126.93 ft² =

TE and BRE Easement Descriptions

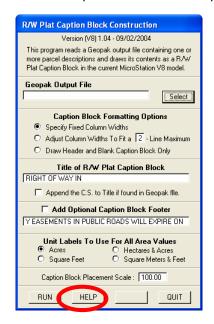
	RIGHT OF WAY IN BROWNS SECOND ADDITION 3303(901)							
PARCEL	OWNER	LOCATION	NEW T.H. R/W	TEMPO EASE)		BUILDING EASE		PERMANENT R/W
			ACRES MORE OR LESS	ADRES MDRE OR LESS	EXPIRES	ACRES MORE OR LESS	EXPIRES	INTEREST
47	TONY OLIVA	W 230' OF NW1/4 SE1/4	0.18	0.19	12/31/09			FEE
48	BYRON ROBYN	N 330' OF E 660' OF NE1/4 SE1/4	0.32	0 08	12/31/09	0.63	12/31/09	FEE
49	RONALD DEBOER	PLAT 33-06	1.24	1.27	12/31/09			FEE

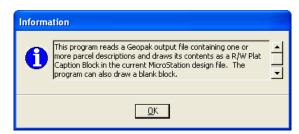
NOTE: TEMPORARY EASEMENTS IN PUBLIC ROADS WILL EXPIRE ON 12/01/09

Parcel 48: 4017 KW72 KW71 KW76 4017	
Owner # 1: BYRON ROBYN Improvements: 5.00 AC PLAT: 33-06 CS: 3303(901) SP: 1234-567 TFeature: FEE Description: N 330' OF E 660' OF NE1/4 SE1/4	OFRENS: 89
Taken #1: KW69 BS2071 BS2072 4114 KW69 Name: OLDTHRW Feature: ERWOR Description: PLAT 33-06 Taken area = 13,182.32 ft ² =	0.30 a
Taken #2: BS2073 BS2074 BS1164 BS2075 BS2073 Name: NEWTHRW Feature: NRW Description: PLAT 33-06 Taken area = 13,876.02 ft2 =	0.32 a
Easement #1: BS2076 BS2077 BS1164 BS2078 BS2076 Name: PE1 Feature: PE Description: PLAT 33-06 Easement area = 2,102.43 ft3 =	0.05 a
Easement #2: TB108 TB109 TB110 TB107 TB108 Name: TE1 Feature: TE Description: TE EXPIRES 12/31/09 Easement area 2,040./9 ft ² =	0.05 a
Easement #3: TB111 TB106 TB113 TB112 TF111 Name: TE2 Feature: TE Description: TE EXPIRES 12/31/09 Easement area = 1.491.90 ft2 =	0.03 a
Building: TB100 TB101 TB102 TB103 TB104 TB105 TB100 Name: BTE1 Feature: BRE Description: BRE EXPIRES 12/31/09 Building area = 10,126.93 ft ² =	0.23 a
Total parent tract area = 218,015.12 ft² = 5.00 Total taken area = 27,058.34 ft² = 0.62 Total easement area = 5,634.62 ft² = 0.13 Remaining area = 190,956.78 ft² = 4.38	a a

Plat Map Caption Block Macro Help

The contents of the Plat Caption Block macro help information text is shown below:





This program reads a GEOPAK output file containing one or more parcel descriptions and draws its contents as a R/W Plat Caption Block in the current MicroStation design file. The program can also draw a blank block.

The GEOPAK parcel data must be formatted properly to produce an output file that runs correctly in this program. Tim Brown has written a help document containing the GEOPAK requirements.

To process in batch mode, the user must enter or browse to a GEOPAK parcel description file. The program contains two formatting options when using this method, specifying either fixed widths for each column or the maximum number of lines per parcel.

To draw a blank block, the user must leave the GEOPAK file name blank and choose the 'Blank Caption Block' formatting option.

The user can enter a title for the caption block and an optional footer line below the block if desired.

The user can specify the units to be used in the block. If necessary, the program will convert area values in the GEOPAK file to the specified units.

The height and width plotting scales default to the current design file settings. The user can adjust either or both to change the size of the caption block to be placed.

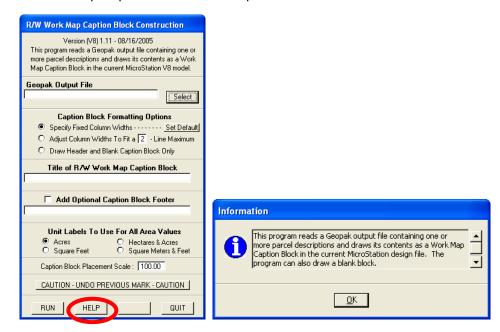
When all the settings are entered, the user clicks the 'Run' button, and a column settings dialog box opens. Columns will be checked if there is corresponding data in the GEOPAK file. The user can include or exclude any column or change any column width as needed.

Each block is placed as a separate graphic group. All blank cells in a block contain 'enter data' fields for ease of manual data entry. All text fields within a block can be edited with MicroStation tools. All area values are rounded exactly as they appear in the block.

NOTE: If ERWENC or ERWORENC appear in the GEOPAK parcel, it implies that these areas are included in the 'Entire Tract' area, and they will be added to the 'NEW T.H. R/W' area when the block is drawn. These are existing highway easements for which fee title will be acquired.

Work Map Caption Block Macro Help

The contents of the Work Map Caption Block macro help information text is shown below



This program reads a GEOPAK output file containing one or more parcel descriptions and draws its contents as a Work Map Caption Block in the current MicroStation design file. The program can also draw a blank block.

The GEOPAK parcel data must be formatted properly to produce an output file that runs correctly in this program. Tim Brown has written a help document containing the GEOPAK requirements. See: http://www.dot.state.mn.us/tecsup/caes/index.html or see:

To process in batch mode, the user must enter or browse to a GEOPAK parcel description file. The program contains two formatting options when using this method, specifying either fixed widths for each column or the maximum number of lines per parcel. The 'Set Default' button returns column widths to their default values if necessary.

To draw a blank block, the user must leave the GEOPAK file name blank and choose the 'Blank Caption Block' formatting option.

The user can enter a title for the caption block and an optional footer line below the block if desired.

The user can specify the units to be used in the block. If necessary, the program will convert area values in the GEOPAK file to the specified units.

The height and width plotting scales default to the current design file settings. The user can adjust either or both to change the size of the caption block to be placed.

When all the settings are entered, the user clicks the 'Run' button, and a column settings dialog box opens. Columns will be checked if there is corresponding data in the GEOPAK file. The user can include or exclude any column or change any column width as needed.

Each block is placed as a separate graphic group. All blank cells in a block contain 'enter data' fields for ease of manual data entry. All text fields within a block can be edited with MicroStation tools. All area values are rounded exactly as they appear in the block.

COMPUTATION NOTES:

- 1. If ERW or ERWOR appear in the GEOPAK parcel, it implies that these areas are included in the 'Entire Tract' area, and they will be subtracted when the block is drawn. These are existing highway easements for which fee title will not be acquired.
- 2. If ERWENC or ERWORENC appear in the GEOPAK parcel, it implies that these areas are included in the 'Entire Tract' area, and they will be added to the 'NEW T.H. R/W' area when the block is drawn. These are existing highway easements for which fee title will be acquired.

Mn/DOT	GEOPAK
	—————————————————————————————————————

Caption Block Computations/Area Values

It is imperative that the operator verifies the values within the automated caption block. All area values should be checked to confirm that they "add up" and match the values as computed in the GEOPAK Parcel Description Output file.