Tennessee Department of Transportation

Survey & Roadway Design COMPUTER-AIDED DRAFTING & DESIGN STANDARDS

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Introduction

This manual shall be used as the standard for all computer aided drafted and designed plans development produced by and for the Roadway Design Division of the Tennessee Department of Transportation.

Survey submissions shall be in accordance with this manual and/or modifications contained in the consultant's contract or as prescribed by the Regional Survey Supervisor.

Standard Parameters

In order to establish standard parameters by which drawings are to be created, the following parameters have been established:

1. Accuracy Control through working units and resolution providing state wide coverage of the state coordinate system on a design plane. This provides direct correlation of design data point input to the coordinate plane reference point. Coordinates are based on NAD/83(1995).
2. Standard level, color, and weight assignments of design elements assigned according to the type of sheet being generated.
3. Standard level names and text styles established through design file level library **TDOTmain.dgnlib**.
4. Cell development of over 1100 cells relating to design elements, signing, sheet generation, etc. The standard cell libraries are **STDS.CEL** & **SIGN.CEL** for English-unit projects and **METRIC.CEL** & **MSIGN.CEL** for metric projects.
5. Custom line style development of over 500 line styles in resource file **TDOTLINE.rsc** for standardized display of linear design elements.
6. Standard color table **STDCOLOR.TBL** for standardized display of color coded design elements.

Standard File Extensions

The following table lists the TDOT standard file extensions. In order to provide consistency with TDOT standard programs, these extensions shall be used with ***all*** Survey and Roadway Design files.

.CEL	Cell Library
.DGN	Project Graphics Design File
.SHT	Project Sheet Graphics Design File
.DGNLIB	DGN Level & Text Style Library File
.MFC	Aerial Surveys Topography Graphics Design File
.DTM	Aerial Surveys Digital Terrain Model Graphics Design File
.GPK	Geopak Coordinate Geometry Database
.TIN	Geopak Digital Terrain Model File
.RSC	miscellaneous Resource File.
.TBL	Features, Color, etc., Table.
.TXT	ASCII Text File.

Standard Filenames

All graphical information is to be drawn at actual size at its corresponding state plane coordinate location. **Only** text and symbols (MicroStation cells) are scaled to appear correctly when plotted.

Survey DGN Project Filenames

The project's Survey DGN filename will consist of the two-digit county abbreviation, three-digit Project Route, the GPS project number and the file type. All files should use a .DGN extension.

No spaces or extra periods should be used in any filename.

The following is a more detailed explanation of the standard Survey DGN filename:

11222-33FileType.DGN

The filename shall consist of the following parts:

11	two (2) letters to identify the project county location. (see county listing at the end of this section)
222	three (3) numbers to identify the project route.
-33	dash + two (2) numbers to identify the GPS project number.
FileType	file type as described below
DGN	standard file extension.

Survey Project File Types:

Survey	Survey Topography and Profile data Example: DV155-01Survey.DGN
SurveySUE	Survey Subsurface Utility Engineering data Example: DV155-01SurveySUE.DGN

Roadway Design DGN Project Filenames

The project's Roadway Design DGN filenames will consist of the two-digit county abbreviation, the road name, and the file type name. All files should use a .DGN extension except for sheet files which should have .SHT for the extension.

For plan sheet files other than cross sections, the filename shall consist of the sheet number only. Sheet numbers should include "0" prefixes as needed to ensure alphabetic sorting (Example for sheet 9A: 009A.SHT).

No spaces or extra periods should be used in any filename due to compatibility issues with some software.

The following is a more detailed explanation of the standard Roadway Design DGN filename:

CoRoadnameFileType.DGN

The filename shall consist of the following parts:

Co	two (2) letters to identify the project county location. (see county listing at the end of this section)
Roadname	Alphanumeric to identify the state route number or road name if not a state route.
FileType	file type as described below
DGN	standard file extension (SHT for all plans sheets)

Roadway Design Project File Types:

These files are used for the development of project data which is referenced to project plan sheets.

Alignments	Proposed Horizontal & Vertical alignment data Example: DVSR155Alignments.DGN
Proposed	Proposed Horizontal & Vertical data other than alignments shown on main plan sheets. Example: DVSR155Proposed.DGN
PropertyMap	Property Map data Example: DVSR155PropertyMap.DGN.
TrafficControl	Traffic Control data Example: DVSR155TrafficControl.DGN
EPSC	Erosion Prevention and Sediment Control data Example: DVSR155EPSC.DGN
ExistingContours	Existing Contour data Example: DVSR155ExistingContours.DGN
DrainageMap	Drainage Map data Example: DVSR155DrainageMap.DGN
ProposedContours	Proposed Contour data Example: DVSR155ProposedContours.DGN

Signalization	Proposed Intersection Signalization data Example: DVSR155Signalization.DGN NOTE: File in which all signalization work for intersections on the project will be done.
Utilities	Proposed Utilities data Example: DVSR155Utilities.DGN

GEOPAK File Types:

SEShapes	Proposed GEOPAK superelevation shapes Example: DVSR155SEShapes .DGN
RoadwayPattern	Roadway Cross Section pattern lines Includes mainline & side road pattern lines with a different symbology for each roadway. Example: DVSR155RoadwayPattern.DGN.
CulvertPattern	Culvert Cross Section pattern lines Example: DVSR155CulvertPattern.DGN.
PvtDrivePattern	Private drive pattern lines Example: DVSR155PvtDrivePattern.DGN.

Cross Section File Types:
(Use seed file SEEDXS.DGN)

*roadway*XSections	Roadway Cross Section data. Substitute a specific name for *roadway*, mainline or side road. Each roadway's cross sections will be in a separate DGN file. Example: DVSR155MainlineXSections.DGN.
CulvertXSections	Culvert Cross Section data Example: DVSR155CulvertXSections.DGN.
PvtDriveProfiles	Private drive profile data Example: DVSR155PvtDriveProfiles.DGN.

Standard Sheet File Types:
(Use .SHT extension)

sht#	All plan sheets, one sheet per file, sheet number only Examples: Sheet 4 > 004.SHT, Sheet 4A > 004A.SHT Sheet 24 > 024.SHT Sheet 24A > 024A.SHT
*roadway*XSections	Roadway Cross Section sheets. Substitute a specific name for *roadway*, mainline or side road. Each roadway's cross section sheets will be in a separate DGN file. Example: SR155XSections.SHT
*roadway*CulvertXSections	Culvert Cross Section sheets. Example: SR155CulvertXSections.SHT

Number		County
1	AN	Anderson
2	BD	Bedford
3	BN	Benton
4	BS	Bledsoe
5	BT	Blount
6	BR	Bradley
7	CM	Campbell
8	CN	Cannon
9	CA	Carroll
10	CR	Carter
11	CT	Cheatham
12	CH	Chester
13	CB	Claiborne
14	CL	Clay
15	CO	Cocke
16	CF	Coffee
17	CK	Crockett
18	CU	Cumberland
19	DV	Davidson
20	DE	Decatur
21	DK	DeKalb
22	DS	Dickson
23	DY	Dyer
24	FA	Fayette
25	FE	Fentress
26	FR	Franklin
27	GB	Gibson
28	GI	Giles
29	GG	Grainger
30	GR	Greene
31	GD	Grundy
32	HB	Hamblen
33	HT	Hamilton
34	HC	Hancock
35	HM	Hardeman
36	HD	Hardin
37	HK	Hawkins
38	HW	Haywood
39	HS	Henderson
40	HY	Henry
41	HI	Hickman
42	HO	Houston
43	HU	Humphreys
44	JK	Jackson
45	JF	Jefferson
46	JN	Johnson
47	KN	Knox
48	LA	Lake

Number		County
49	LD	Lauderdale
50	LW	Lawrence
51	LE	Lewis
52	LI	Lincoln
53	LO	Loudon
54	MM	McMinn
55	MN	McNairy
56	MC	Macon
57	MD	Madison
58	MA	Marion
59	MS	Marshall
60	MU	Maury
61	ME	Meigs
62	MR	Monroe
63	MT	Montgomery
64	MO	Moore
65	MG	Morgan
66	OB	Obion
67	OV	Overton
68	PE	Perry
69	PI	Pickett
70	PO	Polk
71	PU	Putnam
72	RH	Rhea
73	RO	Roane
74	RB	Robertson
75	RF	Rutherford
76	SC	Scott
77	SQ	Sequatchie
78	SE	Sevier
79	SH	Shelby
80	SM	Smith
81	ST	Stewart
82	SL	Sullivan
83	SU	Sumner
84	TI	Tipton
85	TR	Trousdale
86	UC	Unicoi
87	UN	Union
88	VB	Van Buren
89	WR	Warren
90	WS	Washington
91	WA	Wayne
92	WE	Weakley
93	WH	White
94	WM	Williamson
95	WI	Wilson

Data Exchange between Survey & Roadway Design Personnel

At different points in a project's life prior to submittal for construction certain files will be created, used and appended to by both Survey & Roadway Design personnel.

These files include:

Geopak GPK coordinate/geometric database
MicroStation DGN topography graphics
Geopak TIN digital terrain model

With this in mind the following procedures shall be followed.

GPK Naming Conventions

GPK files shall be named with the project Region number plus an alphanumeric job number assigned by the Regional Survey Supervisor. *Example:* For a Geopak project in Region 2 ... **job2p4.gpk**

The names for any object stored in the GPK file can be up to a maximum of 15 characters.

All **points**, **curves** & **spirals** shall be created with a specific alpha prefix plus any other letters or numbers desired by the user. This procedure must be followed in order to prevent overwriting data stored previously by other personnel.

The following prefixes will be used to name all points and curves stored in the GPK file:

Division	*Prefix*	*Point Example*	*Curve Example*	*Spiral Example*
Survey	S	S105	SC105	SC105A
Roadway Design	D	D105	DC105	DC105A

Chain & **Profile** names shall be named using a descriptive form (such as the road name) so that it can be easily distinguishable by all personnel (Examples: ***SR95***, ***Campbell***). Groundline profiles should include the letters ***GRN*** *in* their names such as ***SR95GRN*** or ***CampbellGRN*** so that they can be distinguished from proposed profiles.

Roadway Design personnel should maintain the names of chains that are associated with the exist. R.O.W. flags whenever possible in order to minimize update time as alignments are adjusted.

Parcel names should be based on the property tract numbers assigned to them. Proposed parcels are stored separately from the original parcel and their names should start with the property tract number followed by text to indicate the type. Examples are shown below.

Present Property Tract 5	**5**
R.O.W. Area to be Acquired from Tract 5	**5ACQ**
Permanent Drainage Easement on Tract 5	**5DRA**
Temporary Slope Easement on Tract 5	**5SLP**
Temporary Construction Easement on Tract 5	**5CON**

In cases where multiple proposed parcels of a given type are required on a parcel then their names should be numbered in order as they occur along the roadway. For example if parcel 5 has 3 different slope easement areas their parcel names would be **5SLP1, 5SLP2** & **5SLP3**.

Graphical Survey Data

All Survey graphics files shall be in 3D MicroStation DGN format. No DXF files, IGES files, or other translation files will be accepted.

Project Data Workflow

The following 2 sections describe the workflow in non-phased and phased projects. Projects not done in phases are described first since this is the way most projects are done. Additional information procedures are the same for either phased or not and is described following the phased project description

Non-Phased Project Data Workflow

by Survey personnel…

Topo Graphics	*.DGN	Field survey data is used to build 3D topographic DGN file. If aerial survey data is available then it is combined with field survey topo DGN for turn in version for Roadway Design.
Digital Terrain Model	*.TIN	Field survey data is used to build TIN file. If aerial survey data is available then it is combined with field survey TIN file for turn in version for Roadway Design.
Cogo Database	*.GPK	Survey sets up initial GPK file for the project with all existing data including preliminary & existing alignments, topo, etc.

by Roadway Design personnel…

Topo Graphics	*.DGN	Adopt 3D topo DGN submitted by Survey. This file is the official Topo file for the project. Changes in label locations are done as needed to enhance plans appearance.
Digital Terrain Model	*.TIN	No changes are to be done.
Cogo Database	*.GPK	Adopt GPK file submitted by Survey. This file is the official GPK file for the project. Further development is done as needed to complete project design.

Note concerning Preliminary centerlines: Once the GPK file is received from Survey, Roadway Design personnel should review preliminary centerline chains submitted by Survey for use as final proposed centerlines. If they need to be adjusted, the chain should first be saved under a different name for later reference as needed. Then the chain should be adjusted as required **without being re-named**. Once the centerline chains are set they can be displayed in the Roadway Design Alignments DGN file as proposed centerlines for inclusion in the plans. **All** alignments should be investigated completely before any additional information on a project is requested.

Phased Project Data Workflow

Final Scoping Report Phase

Aerial Mapping shall be used for preliminary alignment and grade studies. Preliminary alignment and grade will be included as part of Final Scoping Report (FSR) document for use in survey. Other Sections shall perform environmental and historical evaluations.

by Roadway Design personnel…

Topo Graphics	*.MFC	Use 3D DGN submitted by Aerial Surveys for reference only. No changes are to be done.
Digital Terrain Model	*.TIN	Create temporary TIN file from DGN digital terrain model graphics file submitted by Aerial Surveys or with USGS DEM data for alignment investigation.
Cogo Database	*.GPK	In temporary GPK file, horizontal & vertical alignments are developed. These chains & profiles are then submitted to Survey in Geopak Cogo input files for inclusion in the official GPK file.

Phase 1

Under Phase 1, survey personnel will provide the designer with aerial mapping and minimal field survey information for preliminary design. Scanned Tax Map property information shall be used for preliminary property work. Designer shall calculate proposed horizontal and vertical alignments, and send them to survey section when complete.

by Survey personnel…

Topo Graphics	*.DGN	Aerial Mapping plus Survey Phase 1 Collections sent to Roadway Design when Phase 1 is complete as 3D file.
Digital Terrain Model	*.TIN	Original Model as compiled from Aerial Mapping and/or the Phase 1 Survey collections.
Cogo Database	*.GPK	Created By Survey Division

by Roadway Design personnel…

Topo Graphics	*.DGN	Use 3D DGN submitted by Survey for reference only. No changes are to be done.
Digital Terrain Model	*.TIN	No changes are to be done.
Cogo Database	*.GPK	In Phase 1 GPK file, horizontal & vertical alignments are developed. These chains & profiles are then submitted to Survey in Geopak Cogo input files for inclusion in the official GPK file.

Phase 2

Under Phase 2 survey will be completed on: property, existing right-of-way, drainage not included in Phase 1, and on utilities not included in Phase 1. Designer will begin plans development after receipt of Phase 2 survey.

by Survey personnel…

Topo Graphics	*.DGN	Survey Phase 1 *.DGN plus anything that has been added since Phase 1. Submit final 3D Topo file to Roadway Design.
Digital Terrain Model	*.TIN	Survey Phase 1 *.tin plus any changes that have been updated since the Phase 1 submittal.
Cogo Database	*.GPK	Survey Phase 1 *.GPK plus alignments entered by using input files, as well as any additional data collected and processed by the surveyor since the Phase 1 submittal.

by Roadway Design personnel…

Topo Graphics	*.DGN	Adopt final 3D version of Phase 2 DGN submitted by Survey. This file is official Topo file for the project. Changes in label locations are done as needed to enhance plans appearance.
Digital Terrain Model	*.TIN	No changes are to be done.
Cogo Database	*.GPK	In Phase 2 GPK file submitted by Survey, further development is done as needed to complete project design.

Additional Information

Submitting Additional Information Request

by Roadway Design personnel…

Topo Graphics	*.DGN	Submit current Topo DGN and alignments DGN file with documentation of additional Topo and/or digital terrain model information needed. Documentation may take the form of typed information in letter or email or notes in DGN file or on plots. No changes are to be done in Topo file from this point until received back from Survey.
Digital Terrain Model	*.TIN	No changes are to be done.
Cogo Database	*.GPK	In project GPK file further development is done as needed to continue project design. When alignment changes have been done, new information is sent to Survey using Geopak Cogo input files.

Processing Additional Information Request

by Survey personnel…

Topo Graphics	*.DGN	Modify project Topo DGN if needed. Return with documentation of additions and deletions done to existing data. Documentation may take the form of typed information in letter or email or notes in DGN file or on plots.
Digital Terrain Model	*.TIN	Final Survey TIN plus any additional information and/or updates requested.
Cogo Database	*.GPK	Additional info shall be sent to Roadway Design by using Geopak Cogo input files.

After Additional Information is received

by Roadway Design personnel…

Topo Graphics	*.DGN	Adopt updated version of Topo DGN submitted by Survey. Changes in label locations are done as needed to enhance plans appearance.
Digital Terrain Model	*.TIN	No changes are to be done.
Cogo Database	*.GPK	In project GPK file load additional info input file to bring GPK up to date. Further development is done as needed to continue project design.

Geopak Cogo Input Files

To create a Geopak Cogo input file open the Geopak Cogo dialog and on the command line enter the keyin …

MAKE INPUT FILE file-name element-list

where:

file-name	Name of the input file where GEOPAK commands are written. The name should include a descriptive word for contents plus the GPK number. The extension should include the letter "i" plus the user's two letter user code. See example below.
element-list	List of GEOPAK elements for which input file commands are to be created. The format for the element-list must include at least one of the following:

CHAIN name

CURVE name

PARCEL name

point number or range of point numbers

PROFILE name

LINE name

SURVEY CHAIN name

SPIRAL name

ALL

NOTE: The element names may include wild card characters. Selection of a chain implies the inclusion of the store chain command but also implies the inclusion of additional store commands for each individual component element (e.g., point, curve, or spiral comprising the chain). It will not store points used to store curves originally that are not actually part of the chain such as PI points. These will need to be saved separately.

Example

For user Joe Smith to create an input file for GPK project # 203 with a revised version of the chain named campbell for Campbell Rd. on his project …

MAKE INPUT FILE campbell203.ijs chain campbell

To load a Geopak Cogo input file …

1. Change the last 2 letters in the input filename's extension to match your operator code used in Geopak. If the job number is different from the one used for your project, change it to match yours. If you created the input file originally, this step should not be necessary.
2. Start MicroStation and then open Geopak Cogo.
3. From the coordinate geometry dialog, access the pull down **File > File Utility** or if available click the icon.
4. Click on the name you wish to load, set the utility option to **Load** and hit **Apply**. The name listed will be the filename of the input file minus the job number and extension. The file will be loaded into the Cogo editor which you can open for review if desired.
5. Then access the pull down **Edit > Read All** or if available click the icon. You could key in **Read** on the Cogo command line as well. The information will be stored. Note that if you need to over write Cogo elements it will be necessary to click the **Redefine** option on.

Standard MicroStation Seed Files

C:\Users\Public\MicroStation Standards\seed

Seed files are used as outlines to set up new design files. They contain the standard parameters used as defaults. The following are standard TDOT design file parameters:

Angle format:	Conventional format, measured in degrees, minutes, and seconds.
Data readout:	Master units only, decimal accuracy .02 (English), 003 (Metric).
Fonts:	**LEROYMON** (Font #3) active.
Cell Library:	English, **STDS.CEL** Metric, **METRIC.CEL**
Color Table:	**STDCOLOR.TBL** **AerialColorTable.tbl** (Aerial Surveys SEEDZ.DGN only)

Level Names/Filters & Text Styles: **TDOTmain.dgnlib** (imported from this library)

SEED2D.DGN & **SEED3D.DGN**

Global Coordinate System:	English, Coordinate 0,0,0 is set at UOR position -1200000000,-1200000000,0 from the center of the design plane.
Working units:	English, Master Units = Survey Feet, Sub Units = Tenths, Resolution = 1000 per Survey Foot

SURVSEED.DGN

Global Coordinate System:	English, Coordinate 0,0,0 is set at UOR position -1200000000,-1200000000,0 from the center of the design plane. This 3D seed file is set up for use by Survey personnel. This file is the same as SEED3D.DGN but also includes graphics needed in topographic DGN files.
Working units:	English, Master Units = Survey Feet, Sub Units = Tenths, Resolution = 1000 per Survey Foot

SEEDZ.DGN

Global Coordinate System:	English, Coordinate 0,0,0 is set at UOR position -1200000000,-1200000000,0 from the center of the design plane. This 3D seed file is set up for use by Aerial Survey personnel. This file is the same as SEED3D.DGN but includes settings required for use with Aerial Survey software. Uses special Aerial Survey color table **AerialColorTable.tbl**.
Working units:	English, Master Units = Survey Feet, Sub Units = Survey Feet, Resolution = 1000 per Survey Foot

EAST2D.DGN & **EAST3D.DGN (Regions One and Two)**

Global Coordinate System:	Metric, Coordinate 568000,0,0, is set at UOR position -2125000000,-2125000000,0 from the center of the design plane. **Note that this coordinate setting was made effective as of 1/17/97**. **Any projects started prior to this date should have coordinate 575000,0,0, set at UOR position -2125000000,-2125000000,0 from the center of the design plane (seed files EAST2OLD.DGN & EAST3OLD.DGN),**
Working units:	Metric, Master Units = Meters, Sub Units = Centimeters, Resolution = 10000 per meter

WEST2D.DGN & **WEST3D.DGN (Regions Three and Four)**

Global Coordinate System:	Metric, Coordinate 205000,0,0 is set at UOR position -2125000000,-2125000000,0 from the center of the design plane.
Working units:	Metric, Master Units = Meters, Sub Units = Centimeters, Resolution = 10000 per meter

In conjunction with **Geopak** the following seed files have been developed for use with cross sections. These seed files have the coordinate displays set to show Delta X, Delta Y rather than standard X,Y coordinate values.:

SEEDXS.DGN (2D)

Global Coordinate System:	English, Coordinate 0,0 is set at the lower left corner of the design plane.
Working units:	English, Master Units = Survey Feet, Sub Units = Tenths, Resolution = 10000 per Survey Foot

SEEDXSM.DGN (2D)

Global Coordinate System:	Metric, Coordinate 0,0 is set at the lower left corner of the design plane.
Working units:	Metric, Master Units = Meters, Sub Units = Centimeters, Resolution = 100000 per meter

In conjunction with **Office** the following seed files have been developed for use in 2nd sheet production:

EnglishGeneralNotes.dgn,**EnglishEPSCSpecialNotes.dgn,EnglishDropOffNotes.dgn, Ind&StdDwgsEng.dgn** (2D)

Global Coordinate System:	English, Coordinate 0,0,0 is set at UOR position -1200000000,-1200000000,0 from the center of the design plane.
Working units:	English, Master Units = Survey Feet, Sub Units = Tenths, Resolution = 1000 per Survey Foot

MetricGeneralNotes.dgn,MetricEPSCSpecialNotes.dgn,MetricDropOffNotes.dgn, Ind&StdDwgsMet.dgn (2D)

Global Coordinate System:	Metric, Coordinate 205000,0,0, is set at UOR position -2125000000,-2125000000,0 from the center of the design plane.
Working units:	Metric, Master Units = Meters, Sub Units = Centimeters, Resolution = 10000 per meter

Standard Office Templates

When a new file is created in Microsoft Word or Excel with the **My Templates** option, the template dialog box is opened showing the various blank documents/templates (*.dotx, *.dotm, *.xlltx or *.xltm) which can be used to create new documents. See documentation file **2ndSheetsV8.pdf** for instructions on the use of 2nd sheet templates in conjunction with MicroStation. These files are set up specifically for use with Office 2010 and MicroStation V8i.

TDOT Letters

C:\Users\Public\Office Standards\TDOT Letters

Name	Software
Additional Survey Request Form.xltm	Excel
CAD Plans Disclaimer.dotx	Word
Construction Plans Revision.dotx	Word
Construction Plans Transmittal.dotx	Word
Crash Data Request Form.dotx	Word
Design Exception Request.dotx	Word
Estimate Revision Request.xltx	Excel
FileNet Distribution Request Field Review.dotx	Word
FileNet Distribution Request HG Approval.dotx	Word
FileNet Distribution Request.dotx	Word
Green Sheet Certification Letter.dotx	Word
Letterhead Template-OtherOffices.dotx	Word
Letting Plans Revision.dotx	Word
NEPA Project Description Form.dotx	Word
Project Activity Status Sheet.dotx	Word
Public Hearing Notice.dotx	Word
Red Flag Report.dotx	Word
Region 1 Letterhead.dotx	Word
Region 2 Roadway Design Letterhead.dotx	Word
Region 3 Survey and Roadway Design Letterhead.dotx	Word
Region 4 Roadway Design Letterhead.dotx	Word
Request For Pavement Design.dotx	Word
Request For Review Of Pavement Design.dotx	Word
Resurfacing Safety Review Checklist.dotx	Word
Retaining Wall Transmittal.dotx	Word
Roadway Design Checklist.dotx (Prelim., ROW & Const. Lists)	Word

Roadway Design Division Letterhead 12th Floor.dotx	Word
Roadway Design Division letterhead.dotx	Word
Roadway Design Division Office of Aerial Surveys Letterhead.dotx	Word
ROW Funding Approval.dotx	Word
ROW Plans Revision.dotx	Word
ROW Plans Transmittal.dotx	Word
Soils and Geology Request Form.dotx	Word
TDOT fillable.dotx	Word
TMP Workbook.dotx	Word
Traffic Request Form.dotx	Word
Utility CAD Plans Disclaimer.dotx	Word

TDOT 2nd Sheets

C:\Users\Public\Office Standards\TDOT 2nd Sheets

Name	Software
Bridge Index.dotx	Word
Bridge Quantities.xltm	Excel
Convert Excel To V8.xltm (This Excel file, contains macros for the conversion of older Excel files for use with Office 2010 and MicroStation V8i)	Excel
Convert Word To V8.dotm (This Excel file, contains macros for the conversion of older Word files for use with Office 2010 and MicroStation V8i)	Word
English Drop Off Notes.dotx	Word
English EPSC Special Notes.dotx	Word
English General Notes.dotx	Word
English Index & Std Dwgs.dotx	Word
Estimated Roadway Quantities.xltm	Excel
Maintenance Quantities.xltm	Excel
Metric Drop Off Notes.dotx	Word
Metric EPSC Special Notes.dotx	Word
Metric General Notes.dotx	Word
Metric Index & Std Dwgs.dotx	Word
Project Commitments.xltx	Excel
ROW Notes.dotx	Word

TDOT Tabulated Quantities (English & Metric)

C:\Users\Public\Office Standards\TDOT English Tab Quantities and C:\Users\Public\Office Standards\TDOT Metric Tab Quantities

Name	Software
Box Bridge.xltx	Excel
Box Culvert.xltx	Excel
Bridge Drains.xltx	Excel
Catch Basins and Manholes.xltx	Excel
Catch Basins.xltx	Excel
Concrete Median Barrier.xltx	Excel
Cross Drain Arterials.xltx	Excel
Cross Drain Collectors.xltx	Excel
Cross Drain Endwalls.xltx,	Excel
Cross Drain Freeways.xltx	Excel
Cross Drain Local Roads.xltx	Excel
Drop Inlets.xltx	Excel
Enhanced Silt Fence Check Design Dimensions.xltx	Excel
Erosion Prevention and Sediment Control.xltx	Excel
Grading Quantities Composition Known.xltx	Excel
Grading Quantities Composition Unknown.xltx	Excel
Guardrail Tab Builder.xltm	Excel
Guardrail.xltx	Excel
Manholes.xltx	Excel
Median Drain Endwalls.xltx	Excel
Median Drains.xltx	Excel
Pavement.xltx (Quantities, not a schedule block)	Excel
Removal Of Buildings & Obstructions.xltx	Excel
Removal Of Structures.xltx	Excel
Rip Rap Basins.xltx	Excel
Rip Rap Ditches.xltx	Excel
Roadway Approaches.xltx	Excel
ROW Markers.xltx	Excel
Sediment Control Structure Dimensions.xltx	Excel
Sediment Control Structure Quantities.xltx	Excel
Side Drain Endwalls.xltx	Excel

Side Drain.xltx	Excel
Slab Bridge.xltx	Excel
Slab Culvert.xltx	Excel
Slope Rehabilitation.xltx	Excel
Special Ditches.xltx	Excel
Spring Drains.xltx	Excel
Storm Drainage Endwalls.xltx	Excel
Storm Drainage Pipe Tab Builder.xltm	Excel
Storm Drainage Pipes.xltx	Excel
Storm Drainage Structure Tab Builder.xltm	Excel
Traffic Control.xltx	Excel
Trees.xltx (Tabulation for prop. wetlands)	Excel

Survey

C:\Users\Public\Office Standards\Survey

Name	Software
Property Owner Contact Letter - Aerial Flagging.dotm	Word
Property Owner Contact Letter - Geotechnical Staking.dotm	Word
Property Owner Contact Letter - ROW Staking.dotm	Word
Property Owner Contact Letter - Survey.dotm	Word
Region 1 Survey Letterhead.dotx	Word
Region 3 Survey and Roadway Design Letterhead.dotx	Word
ROWAcqMetric.xltx	Excel
ROWAcqTable.xltm	Excel
Survey Check List_Field.dotx	Word
Survey Check List_Office.dotx	Word
Survey Weekly Progress Report.xltx	Excel
Survey_Contact_Acq_Create.xltm	Excel
SURVEY_SUBMITTAL_CHECK_LIST.dotx	Word
SuveyContact_Avery5160_Labels.docx	Word
SuveyContact_Envelopes.docx	Word
Utility Owners.xltx	Excel

Standard Plot Control Files

Copies of these plot control files are made available to outside sources. However, applicability is ***not*** guaranteed.

Iplot & InterPlot Organizer

C:\Users\Public\InterPlot Standards\Design Scripts
and C:\Users\Public\InterPlot Standards\Settings

In order to produce the correct thickness for lines on plots using Iplot & InterPlot Organizer software, design scripts are used. The standard design scripts are:

For Roadway Plans Production …

Units	Name	Application
English	IRP336.FUL	B/W Full size
	IRP336.HAF	B/W Half size
	COLORE.FUL	Color full size
	COLORE.HAF	Color half size
	PHCOLORE.FUL	Partial color full size for public hearing
	transCOLORE.FUL	Color full size, translucent area fill, White as Off White
	transCOLORE.HAF	Color half size, translucent area fill, White as Off White
	transBlkCOLORE.FUL	Color full size, translucent area fill, White as Black
	transBlkCOLORE.HAF	Color half size, translucent area fill, White as Black
	PDF.FUL	B/W Full size for PDF document generation
	PDF.HAF	B/W Half size for PDF document generation
	PDFColor.FUL	Color Full size for PDF document generation
	transPHCOLORE.FUL	Partial color full size for public hearing, translucent fills , Non Color as Off White
	transPHCOLORE.HAF	Partial color half size for public hearing, translucent fills, Non Color as Off White
	transBlkPHCOLORE.FUL	Partial color full size for public hearing, translucent fills, Non Color as Black
	transBlkPHCOLORE.HAF	Partial color half size for public hearing, translucent fills, Non Color as Black
Metric	IRP336M.FUL	B/W Full size
	IRP336M.HAF	B/W Half size
	COLORM.FUL	Color full size
	PDFM.FUL	B/W Full size for PDF document generation
	PDFM.HAF	B/W Half size for PDF document generation
	PDFMColor.FUL	Color Full size for PDF document generation
	PHCOLORM.FUL	Partial color full size for public hearing

For Standard Drawing Production **only** …

Units	Name	Application
English	IRP336.STD	Standard drawing full size
	IRP336.HLF	Standard drawing half size
	Irp336c.hlf	Standard drawing color plotter half size
Metric	IRP336M.STD	Standard drawing full size
	IRP336M.HLF	Standard drawing half size
	Irp336mc.hlf	Standard drawing color plotter half size

InterPlot Client settings files are used by Roadway Design Division personnel to apply specific design scripts and to send plots to local plot queues using Iplot in MicroStation and with InterPlot Organizer for batch plotting or PDF plan set creation.

Settings files are defined with plot queue names for a given office within the Roadway Design Division at T.D.O.T. The asterisk "*" in the filenames is the floor number for headquarters personnel. Regional office settings filenames do not include a number. Copies of these files are provided to consultants without the plot queues defined.

Settings File	Design Script	Application
English*Color.set	COLORE.FUL	Color full size
English*ColorHaf.set	COLORE.HAF	Color half size
English*Ful-1scale.set	IRP336.FUL	B/W full-size, 1 scale for 2nd sheets
English*Ful.set	IRP336.FUL	B/W full size
English*Haf-2scale.set	IRP336.HAF	B/W half-size, 2 scale for 2nd sheets
English*Haf.set	IRP336.HAF	B/W half size
English*Mylar.set	IRP336.FUL	B/W full size, for mylar plots
English*PH.set	PHCOLORE.FUL	Partial color full size, for public hearing
Metric*Color.set	COLORM.FUL	Color full size
Metric*Ful.set	IRP336M.FUL	B/W full size
Metric*Haf.set	IRP336M.HAF	B/W half size
Metric*Mylar.set	IRP336M.FUL	B/W full size, for mylar plots
Metric*PH.set	PHCOLORM.FUL	Partial color full size, for public hearing
OrgEnglish*Ful.set	IRP336.FUL	B/W full size, InterPlot Organizer plot sets
OrgEnglish*Haf.set	IRP336.HAF	B/W half size, InterPlot Organizer plot sets
OrgMetric*Ful.set	IRP336M.FUL	B/W full size, InterPlot Organizer plot sets
OrgMetric*Haf.set	IRP336M.HAF	B/W half size InterPlot Organizer plot sets
Pdf254English*Ful.set	PDF.FUL	B/W full size, InterPlot Organizer PDF plot sets developed from color 254 plot shapes **(For projects prior to January 2006)**
Pdf254English*Haf.set	PDF.HAF	B/W half size, InterPlot Organizer PDF plot sets developed from color 254 plot shapes **(For projects prior to January 2006)**
Pdf254Metric*Ful.set	PDFM.FUL	B/W full size, InterPlot Organizer PDF plot sets developed from color 254 plot shapes **(For projects prior to January 2006)**
Pdf254Metric*Haf.set	PDFM.HAF	B/W half size, InterPlot Organizer PDF plot sets developed from color 254 plot shapes **(For projects prior to January 2006)**
PdfEnglish*Ful.set	PDF.FUL	B/W full size, InterPlot Organizer PDF plot sets
PdfEnglish*Haf.set	PDF.HAF	B/W half size, InterPlot Organizer PDF plot sets
PdfEnglish*PermitLand.set	PDF.FUL	B/W Landscape full size, InterPlot Organizer Permit PDF plot
PdfEnglish*PermitLandColor.set	PDFColor.FUL	Color Landscape full size, InterPlot Organizer Permit PDF plot
PdfEnglish*PermitPort.set	PDF.FUL	B/W Portrait full size, InterPlot Organizer Permit PDF plot
PdfEnglish*PermitPortColor.set	PDFColor.FUL	Color Portrait full size, InterPlot Organizer Permit PDF plot
PdfEnglish*XSFul.set	PDF.FUL	B/W full size, InterPlot Organizer Cross Section PDF plot sets
PdfEnglish*XSHaf.set	PDF.HAF	B/W half size, InterPlot Organizer Cross Section PDF plot sets
TransEnglish*Colorful. Set	transCOLORE.FUL	Color full size, translucent fills for plots with aerial photography, White as Off White
TransEnglish*ColorHaf.set	transCOLORE.HAF	Color half size, , translucent fills for plots with aerial photography, White as Off White
TransEnglish*BlkColorFul.set	transBlkCOLORE.FUL	Color full size, translucent fills for plots with aerial photography, White as Black
TransEnglish*BlkColorHaf.set	transBlkCOLORE.HAF	Color half size, , translucent fills for plots with aerial photography, White as Black
TransEnglish*PHful.set	transPHCOLORE.FUL	Partial color full size, translucent fills for public hearing plots with aerial photography, Non Color as Off White
TransEnglish*PHhaf.set	transPHCOLORE.HAF	Partial color half size, translucent fills for public hearing plots with aerial photography, Non Color as Off White
TransEnglish*BlkPHful.set	transBlkPHCOLORE.FUL	Partial color full size, translucent fills for public hearing plots with aerial photography, Non Color as Black
TransEnglish*BlkPHhaf.set	transBlkPHCOLORE.HAF	Partial color half size, translucent fills for public hearing plots with aerial photography, Non Color as Black

MicroStation Print & Print Organizer

C:\Users\Public\MicroStation Standards\ pltcfg

In order to produce the correct thickness for lines on plots using MicroStation's Print or Print Organizer functions, printer configuration files are used. **TdotPlot.tbl** is a MicroStation pen table called by printer configuration files to set the date and file specification stamps on sheets as well as setting "Snap Point" text to not plot. The standard printer configuration files are:

For Roadway Plans Production …

Units	Name	Application
English	TdotEngFull.pltcfg	B/W Full size
	TdotEngHaf.pltcfg	B/W Half size
	TdotEngFullc.pltcfg	Color full size
	TdotEngHafc.pltcfg	Color half size
Metric	TdotMetFull.pltcfg	B/W Full size
	TdotMetHaf.pltcfg	B/W Half size
	TdotMetFullc.pltcfg	Color full size
	TdotMetHafc.pltcfg	Color half size

For Raster Image Generation …

Type	Name	Application
JPEG	Tdotjpeg.pltcfg	Full size vectors(B/W), raster (color)
	Tdotjpegc.pltcfg	Full size vectors(color), raster (color)
	Tdotjpeghaf.pltcfg	Half size vectors(B/W), raster (color)
	Tdotjpeghafc.pltcfg	Half size vectors(color), raster (color)
TIFF	Tdottiff.pltcfg	Full size vectors(B/W), raster (color)
	Tdottiffc.pltcfg	Full size vectors(color), raster (color)
	TdotTiffhaf.pltcfg	Half size vectors(B/W), raster (color)
	TdotTiffhafc.pltcfg	Half size vectors(color), raster (color)

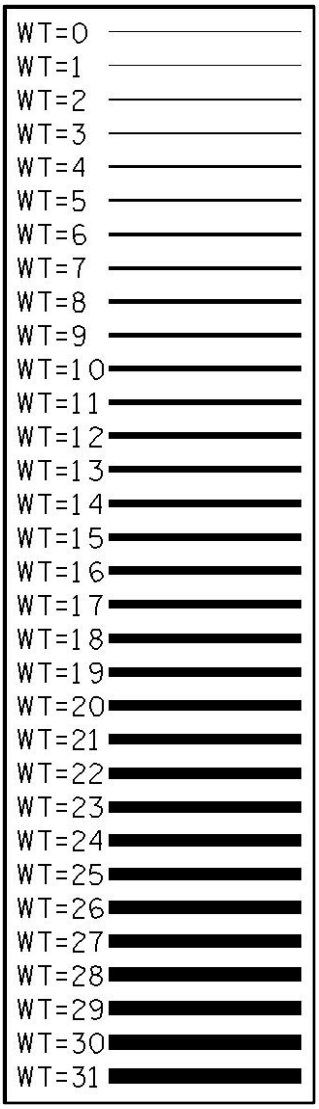
For PDF File Generation …

Units	Name	Application
English	Tdotpdfful.pltcfg	Full size vectors(B/W), raster (B/W)
	Tdotpdffulc.pltcfg	Full size vectors(color), raster (color)
	Tdotpdfhaf.pltcfg	Half size vectors(B/W), raster (B/W)

For Standard Drawing Production **only** …

Units	Name	Application
English	TdotStdEngFull.pltcfg	Standard drawing full size
	TdotStdEngHaf.pltcfg	Standard drawing half size
	TdotStdEngHafhp.pltcfg	Standard drawing color plotter half size
Metric	TdotStdMetFull.pltcfg	Standard drawing full size
	TdotStdMetHaf.pltcfg	Standard drawing half size
	TdotStdMetHafhp.pltcfg	Standard drawing color plotter half size

Standard Line Weights\Thickness



Weight	English (in.)	Metric (mm)
0	0.0060	0.10
1	0.0075	0.19
2	0.0090	0.23
3	0.0105	0.27
4	0.0120	0.30
5	0.0143	0.36
6	0.0176	0.45
7	0.0210	0.53
8	0.0243	0.62
9	0.0276	0.70
10	0.0310	0.79
11	0.0332	0.84
12	0.0354	0.90
13	0.0376	0.96
14	0.0398	1.01
15	0.0420	1.07
16	0.0442	1.12
17	0.0464	1.18
18	0.0486	1.23
19	0.0508	1.29
20	0.0530	1.35
21	0.0555	1.41
22	0.0580	1.47
23	0.0605	1.54
24	0.0630	1.60
25	0.0655	1.66
26	0.0680	1.73
27	0.0705	1.79
28	0.0730	1.85
29	0.0755	1.92
30	0.0780	1.98
31	0.0805	2.04

Standard MicroStation Libraries

Type	Library File	Application
Color Table:	STDCOLOR.tbl	Survey & Roadway Design projects
	AerialColorTable.tbl	Aerial Survey projects
Standard Cell Libraries:	STDS.cel	English projects
	METRIC.cel	Metric projects
Sign Cell Libraries:	SIGN.cel	English projects
	MSIGN.cel	Metric projects
Font Resource:	TDOTFONT.rsc	All projects
Line Style Resource:	TDOTLINE.rsc	All projects
Level, Level Filter & Text Style Library:	TDOTmain.dgnlib	All projects

Standard Color Table - STDCOLOR.TBL

C:\Users\Public\MicroStation Standards\data

The following table lists the TDOT standard color table parameters. In order to provide consistency with older drawings, this table shall be used with ***all*** Survey and Roadway Design drawings. Aerial Surveys use an alternate color table (AerialColorTable.tbl) for their work on aerial photography. Their color settings will differ from the standard ones listed below but the color numbers **should** match the standards on all elements produced.

Number	Color	intensities		
		Red	Green	Blue
0	White	255	255	255
1	Gray	135	135	135
2	Manila	255	205	150
3	Light Blue	0	205	255
4	Dark Sky Blue	60	60	255
5	Orange	255	135	0
6	Red	255	0	0
7	Yellow	255	255	0
8	Green	0	255	0
9	Purple	170	0	170
10	Violet	235	0	235
11	Light Purple	205	155	255
12	Dark Tan	135	85	85
13	Light Brown	205	130	100
14	Olive	170	255	160
15	Dark Red	190	0	90
16	Pink	250	0	150
17	Dark Blue	0	0	185
18	Light Gray	215	215	215
19	Dark Purple	110	45	130
20	Light Green	50	225	140
21	Light Pink	255	170	200
22	Pale Blue	0	255	255
23	Pale Green	180	255	185
24	Yellow-Green	150	255	0
25	Copper	255	165	50
26	Rose	255	85	85
27	Blue-Violet	150	0	255
28	Dark Green	0	175	0
29	Light Violet	145	85	115
30	Apricot	195	85	85
31	Brown	185	135	135
32	Magenta	235	135	150
50	Black	0	0	0
64	Off White	222	217	177
65	Blue	60	60	255
66	Dark Brown	135	85	85
67	Dark Green	0	190	60
68	Light Green	0	215	35
69	TDOT Logo Blue	0	0	255
70	TDOT Logo White	254	254	254
71	TDOT Logo Red	220	0	0.
161	Dark Gray	85	85	85
253	PDF Plot Border Purple	147	112	219
254	Plot Border Blue	60	60	255

Standard Cell Area Patterning

Note that in some cases where dot patterns are used on large areas, MicroStation will issue a warning that a large number of graphics are about to be produced & asks if are you sure you wish to do this. If you are sure that your pattern scale is set correctly you can ignore this message and go on. If you are not sure, cancel and go check your scale.

Table Legend: AS = Active Scale F = Factor EF = English Factor
MF = Metric Factor V = Value (#) = Small Dots Plot Spacing

Pattern Style	AP Cell	Pattern Scale	Pattern Angle	Pattern Delta (Row,Column) (V = F x AS)
Small Base Stone	bstone0.5x	AS	0	0,0
Earth	dearth	AS	0	0,0
Extra Large Dots	ddot6x	AS	0	V,V EF=.08 MF=.00200
Drainage Easement	linee	AS	60	V,0 EF=.15 MF=.00375
Loss of Access	linee	AS	60	V,0 EF=.15 MF=.00375
Small Dumped Rock	dmprk0.5x	AS	0	0,0
Rip Rap	riprap	AS	0	0,0
Concrete	conc16	AS	0	0,0
Reinforced Concrete	hatch	AS	0	0,0
Crown Vetch or Metal	metal	AS	0	V1,V2 EF=.05,.02 MF=.00125,.0005
Scarify	zz	AS	0	0,0
Horizontal Lines	line	AS	0	V,0 EF=.20 MF=.005
Vertical Lines	line	AS	90	V,0 EF=.20 MF=.005
Dumped Rock	dmprk	AS	0	0,0
45 Degree Lines	line	AS	45	V,0 EF=.20 MF=.005
135 Degree Lines	line	AS	135	V,0 EF=.20 MF=.005
Base Stone	bstone	AS	0	0,0
Small Dots at 60 Deg. (.08”)	ddot	AS	60	V,V EF=.08 MF=.00200
Small Dots at 90 Deg. (.07”)	ddot	AS	90	V,V EF=.07 MF=.00175
Small Dots at 45 Deg. (.07”)	ddot	AS	45	V,V EF=.07 MF=.00175
Small Dots at 90 Deg. (.06”)	ddot	AS	90	V,V EF=.06 MF=.00150
Small Dots at 60 Deg. (.06”)	ddot	AS	60	V,V EF=.06 MF=.00150
Small Dots at 90 Deg. (.05”)	ddot	AS	90	V,V EF=.05 MF=.00125
Small Dots at 45 Deg. (.05”)	ddot	AS	45	V,V EF=.05 MF=.00125
Small Dots at 90 Deg. (.04”)	ddot2x	AS	90	V,V EF=.04 MF=.00100
Construction Easement (.04”)	ddot2x	AS	45	V,V EF=.04 MF=.00100
Small Dots at 90 Deg. (.03”)	ddot2x	AS	90	V,V EF=.03 MF=.00075
Slope Easement (.03”)	ddot2x	AS	45	V,V EF=.03 MF=.00075
Small Dots at 90 Deg. (.02”)	ddot2x	AS	90	V,V EF=.02 MF=.00050
Wetlands Mitigation Area (.02”)	ddot2x	AS	45	V,V EF=.02 MF=.00050
Pvt. Drive Shading (.02”)	ddot2x	AS	45	V,V EF=.02 MF=.00050
Traffic Control Work Zone	linewz	AS	60	V,0 EF=.20 MF=.005
Dewatering Structure	dewatr	AS	0	0,0
Erosion Control Blanket	ecblanket	AS	0	0,0
Slope Surface Roughening	ecroughen	AS	0	0,0
Turf Reinforcement Mat	turfrm	AS	60	0,0
Functional Bridge	funbr	AS	0	0,0
Functional Pavement	Funpvm	AS	0	0,0
Functional ROW	funrow	AS	0	0,0

Standard Text Sizes

The following table provides CADD standard text sizes and weights for English-unit projects. Note that, for plot scales other than 1, text sizes can easily be extrapolated by multiplying the text size (at AS=1) by the scale.

Plot Text Size (inch) AS=1	Text Line Spacing 75% AS=1	Weight	Scale Text Size (feet) LS = 0.75 times text size					
			20	40	50	100	200	400
.100	.075	2	2.0	4.0	5.0	10.0	20	40
.120	.090	2	2.4	4.8	6.0	12.0	24	48
.140	.105	4	2.8	5.6	7.0	14.0	28	56
.175	.131	7	3.5	7.0	8.75	17.5	35	70
.200	.150	10	4.0	8.0	10.0	20.0	40	80
.240	.180	10	4.8	9.6	12.0	24.0	48	96
.290	.218	13	5.8	11.6	14.5	29.0	58	116
.350	.263	13	7.0	14.0	17.5	35.0	70	140
.425	.319	14	8.5	17.0	21.3	42.5	85	170
.500	.375	17	10.0	20.0	25.0	50.0	100	200
.700	.525	20	14.0	28.0	35.0	70.0	140	280

The following table provides CADD standard text sizes and weights for metric projects.

Plot Text Size (inch) AS=1	Text Line Spacing 75% AS=1	Weight	Scale Text Size (meters) LS = 0.75 times text size			
			1	100	500	1000
.100	.075	2	0.0025	0.25	1.25	2.50
.120	.090	2	0.0030	0.30	1.50	3.00
.140	.105	4	0.0035	0.35	1.75	3.50
.175	.131	7	0.0045	0.45	2.25	4.50
.200	.150	10	0.0050	0.50	2.50	5.00
.240	.180	10	0.0060	0.60	3.00	6.00
.290	.218	13	0.0075	0.75	3.75	7.50
.350	.263	13	0.0090	0.90	4.50	9.00
.425	.319	14	0.0110	1.10	5.50	11.00
.500	.375	17	0.0125	1.25	6.25	12.50
.700	.525	20	0.0175	1.75	8.75	17.50

For all projects (English and metric), the line spacing (LS=__) should ***always*** be set to 75% of text size at any scale.

Standard Fonts - TDOTFONT.RSC

C:\Users\Public\MicroStation Standards\symb

The standard text font is **LEROYMON (#3)**. This is an equal-space font, designed to approximate the appearance of Leroy lettering used on plans in the past. Font #3 should **always** be used for TDOT work, unless there is a good reason to use another one. **LEROYPRO (#2)** is a proportional-space version of Font #3. It may used when available space for text is small and it is desirable not to reduce the text size. **LEROYSTD** (**#5)** is a modified version of Font #3, which is used for Standard Drawings only and is not applicable to plans development.

Font1 (#1) is a proportional-space font, with tighter packing than Font #2. It is not as close a match to Leroy lettering as Fonts #2 or #3. **Font000 (#0)** is an equal-space version of Font #1. . These are supplied with MicroStation but are not a close match to Leroy lettering, so CADD operators should not use them in Roadway Design Division plans.

ALIGNMENT (#94) is a symbol font used by the Roadway Design Division for horizontal and vertical alignment points. **TERRAMODEL (#6), PLUS3SYM (#9), CONTINENTAL (#90)** and **Features (#93)** are old symbol fonts used in the past by the Roadway Design Division and are kept to support old project data. **They should not** be used for any new data.

USERNOTE (#64) is a special "red-lining" font, which will not plot when the standard plot control files are used. It should be used when it is desirable to make notes in a project file which should not appear on the project prints.

Windows based true type font **Arial** is used with Office files which are linked to MicroStation design files. **Blue Highway Condensed (#195)** was used in the past with Office and is still provided to support old project data.

Font007 (#7), BSK401B (#11), font012 (#12), MONOS810 (#13), font023 (#23), font041 (#41) and font042 (#42) are MicroStation-supplied fonts, and should not be used often; most of them take considerable processor time to plot. They are useful for special headings, etc. Unlike every other text font listed here, characters in Font #7 are not the same height (for a given text size) as they would be in another font. Font #11 mimics the appearance of printed material. Font #12 is an italic version of Font #11. Font #13 mimics the appearance of typed material. Font #23 is an italic version of font #1. It is difficult to read at small text sizes. Font #41 mimics a style of hand-lettering popular in some drafting environments. Font #42 is a non-filled block letter style.

All fonts specifically used by the Roadway Design Division are described above. Several other fonts are found in the font resource file. These include the standard fonts used by the Mapping Division and the Structures Division. A combined font resource file is used to provide for the sharing of files between divisions.

Standard Characters & Symbols

The following table shows which characters or symbols are available in a given font, along with the octal code for that symbol. A check mark in a column for a font indicates that the symbol described at left is available in that font. A character or symbol other than a check mark indicates that the octal code is used for the symbol shown for that font, rather than the standard symbol. A blank indicates that the symbol is not available and that the octal code is undefined in that particular font (in a design file, an undefined character will appear as a blank).

DEC	OCT	char	name	font 0	1	2	3	5	7	11	12	13	23	41	42
008	010	^H	backspace		√	√	√	√	√	√	√	√	√	√	√
009	011	^I	horizontal tab		√	√	√	√	√	√	√	√	√	√	√
032	040		space	√	√	√	√	√	√	√	√	√	√	√	√
033	041	!	exclamation point	√	√	√	√	√	√	√	√	√	√	√	√
043	042	“	double quote	√	√	√	√	√	√	√	√	√	√	√	
035	043	#	number sign	√	√	√	√	√	√	√	√	√	√	√	
036	044	$	dollar sign	√	√	√	√	ϕ[1]	√	√	√	√	√	√	√
037	045	%	per cent sign	√	√	√	√	√		√	√	√	√	√	
038	046	&	ampersand	√	√	√	√	√	√	√	√	√	√	√	√
039	047	‘	apostrophe	√	√	√	√	√	√	√	√	√	√		
040	050	(	open parenthesis	√	√	√	√	√	√	√	√	√	√		√
041	051	)	close parenthesis	√	√	√	√	√	√	√	√	√	√		√
042	052	*	asterisk	√	√	√	√	√		√	√	√	√	√	
043	053	+	plus	√	√	√	√	√		√	√	√	√	√	
044	054	,	comma	√	√	√	√	√	√	√	√	√	√	√	√
045	055	-	hyphen	√	√	√	√	√	√	√	√	√	√	√	√
046	056	.	period	√	√	√	√	√	√	√	√	√	√	√	√
047	057	/	slash	√	√	√	√	√		√	√		√	√	√
048	060	0	zero	√	√	√	√	√	√	√	√	√	√		
049	061	1	one	√	√	√	√	√	√	√	√	√	√	√	√
050	062	2	two	√	√	√	√	√	√	√	√	√	√	√	√
051	063	3	three	√	√	√	√	√	√	√	√	√	√	√	√
052	064	4	four	√	√	√	√	√	√	√	√	√	√	√	√
053	065	5	five	√	√	√	√	√	√	√	√	√	√	√	√
054	066	6	six	√	√	√	√	√	√	√	√	√	√	√	√
055	067	7	seven	√	√	√	√	√	√	√	√	√	√	√	√
056	070	8	eight	√	√	√	√	√	√	√	√	√	√	√	√
057	071	9	nine	√	√	√	√	√	√	√	√	√	√	√	√
058	072	:	colon	√	√	√	√	√	√	√	√	√	√	√	√
059	073	;	semicolon	√	√	√	√	√	√	√	√	√	√	√	√
060	074	<	less than	√	√	√	√	√		√	√	√	√		√
061	075	=	equal	√	√	√	√	√		√	√	√	√	√	√
062	076	>	greater than	√	√	√	√	√		√	√	√	√		√
063	077	?	question mark	√	√	√	√	√	√	√	√	√	√	√	√
064	100	@	commercial at	√	√	√	√	√		√	√	√	√	√	
065	101	A	upper-case A	√	√	√	√	√	√	√	√	√	√	√	
066	102	B	upper-case B	√	√	√	√	√	√	√	√	√	√	√	
067	103	C	upper-case C	√	√	√	√	√	√	√	√	√	√	√	
068	104	D	upper-case D	√	√	√	√	√	√	√	√	√	√	√	
069	105	E	upper-case E	√	√	√	√	√	√	√	√	√	√	√	
070	106	F	upper-case F	√	√	√	√	√	√	√	√	√	√	√	
071	107	G	upper-case G	√	√	√	√	√	√	√	√	√	√	√	
072	110	H	upper-case H	√	√	√	√	√	√	√	√	√	√	√	

[1] diameter symbol

DEC	OCT	char	name	font	0	1	2	3	5	7	11	12	13	23	41	42
073	111	I	upper-case I		√	√	√	√	√	√	√	√	√	√	√	
074	112	J	upper-case J		√	√	√	√	√	√	√	√	√	√	√	
075	113	K	upper-case K		√	√	√	√	√	√	√	√	√	√	√	
076	114	L	upper-case L		√	√	√	√	√	√	√	√	√	√	√	
077	115	M	upper-case M		√	√	√	√	√	√	√	√	√	√	√	
078	116	N	upper-case N		√	√	√	√	√	√	√	√	√	√	√	
079	117	O	upper-case O		√	√	√	√	√	√	√	√	√	√	√	
080	120	P	upper-case P		√	√	√	√	√	√	√	√	√	√	√	
081	121	Q	upper-case Q		√	√	√	√	√	√	√	√	√	√	√	
082	122	R	upper-case R		√	√	√	√	√	√	√	√	√	√	√	
083	123	S	upper-case S		√	√	√	√	√	√	√	√	√	√	√	
084	124	T	upper-case T		√	√	√	√	√	√	√	√	√	√	√	
085	125	U	upper-case U		√	√	√	√	√	√	√	√	√	√	√	
086	126	V	upper-case V		√	√	√	√	√	√	√	√	√	√	√	
087	127	W	upper-case W		√	√	√	√	√	√	√	√	√	√	√	
088	130	X	upper-case X		√	√	√	√	√	√	√	√	√	√	√	
089	131	Y	upper-case Y		√	√	√	√	√	√	√	√	√	√	√	
090	132	Z	upper-case Z		√	√	√	√	√	√	√	√	√	√	√	
091	133	[	open bracket		√	√	√	√	√		√	√	√	√		
092	134	\	backslash		√	√	±[2]	±	±		√	√	√	√		
093	135	]	close bracket		√	√	√	√	√		√	√	√	√		
094	136	^	circumflex		√	√	°[3]	°	°		√	√	√	√		
095	137	_	underline		√	√	√	√	√		√	√	√	√		
096	140	`	grave accent		√	√	Θ[4]	Θ	Θ	√	√	√	√	√		
097	141	a	lower-case a		√	√	√	√	√	√	√	√	√	√		√
098	142	b	lower-case b		√	√	√	√	√	√	√	√	√	√		√
099	143	c	lower-case c		√	√	√	√	√	√	√	√	√	√		√
100	144	d	lower-case d		√	√	√	√	√	√	√	√	√	√		√
101	145	e	lower-case e		√	√	√	√	√	√	√	√	√	√		√
102	146	f	lower-case f		√	√	√	√	√	√	√	√	√	√		√
103	147	g	lower-case g		√	√	√	√	√	√	√	√	√	√		√
104	150	h	lower-case h		√	√	√	√	√	√	√	√	√	√		√
105	151	i	lower-case i		√	√	√	√	√	√	√	√	√	√		√
106	152	j	lower-case j		√	√	√	√	√	√	√	√	√	√		√
107	153	k	lower-case k		√	√	√	√	√	√	√	√	√	√		√
108	154	l	lower-case l		√	√	√	√	√	√	√	√	√	√		√
109	155	m	lower-case m		√	√	√	√	√	√	√	√	√	√		√
110	156	n	lower-case n		√	√	√	√	√	√	√	√	√	√		√
111	157	o	lower-case o		√	√	√	√	√	√	√	√	√	√		√
112	160	p	lower-case p		√	√	√	√	√	√	√	√	√	√		√
113	161	q	lower-case q		√	√	√	√	√	√	√	√	√	√		√
114	162	r	lower-case r		√	√	√	√	√	√	√	√	√	√		√
115	163	s	lower-case s		√	√	√	√	√	√	√	√	√	√		√
116	164	t	lower-case t		√	√	√	√	√	√	√	√	√	√		√
117	165	u	lower-case u		√	√	√	√	√	√	√	√	√	√		√
118	166	v	lower-case v		√	√	√	√	√	√	√	√	√	√		√
119	167	w	lower-case w		√	√	√	√	√	√	√	√	√	√		√
120	170	x	lower-case x		√	√	√	√	√	√	√	√	√	√		√
121	171	y	lower-case y		√	√	√	√	√	√	√	√	√	√		√
122	172	z	lower-case z		√	√	√	√	√	√	√	√	√	√		√

[2] plus-or-minus symbol
[3] degree symbol
[4] theta

DEC	OCT	char	name	font	0	1	2	3	5	7	11	12	13	23	41	42
123	173	{	open brace		√	√	√	cl[5]	cl		√	√	√	√		
124	174	|	vertical line		√	√	cl	√	√		√	√	√	√		
125	175	}	close brace		√	√	√	pl[6]	bl[7]		√	√	√	√		
126	176	~	tilde		√	√	Δ[8]	Δ	Δ		√	√	√	√		
129	201		fraction 1/2		√	√	√	√	√					√		
130	202		fraction 1/4		√	√	√	√	√					√		
131	203		fraction 3/4		√	√	√	√	√					√		
132	204		fraction 1/8		√	√	√	√	√					√		
133	205		fraction 3/8		√	√	√	√	√					√		
134	206		fraction 5/8		√	√	√	√	√					√		
135	207		fraction 7/8		√	√	√	√	√					√		
136	210		fraction 1/16		√	√	√	√	√					√		
137	211		fraction 3/16		√	√	√	√	√					√		
138	212		fraction 5/16		√	√	√	√	√					√		
139	213		fraction 7/16		√	√	√	√	√					√		
140	214		fraction 9/16		√	√	√	√	√					√		
141	215		fraction 11/16		√	√	√	√	√					√		
142	216		fraction 13/16		√	√	√	√	√					√		
143	217		fraction 15/16		√	√	√	√	√					√		
144	220		fraction 1/32		√	√	√	√	√					√		
145	221		fraction 3/32		√	√	√	√	√					√		
146	222		fraction 5/32		√	√	√	√	√					√		
147	223		fraction 7/32		√	√	√	√	√					√		
148	224		fraction 9/32		√	√	√	√	√					√		
149	225		fraction 11/32		√	√	√	√	√					√		
150	226		fraction 13/32		√	√	√	√	√					√		
151	227		fraction 15/32		√	√	√	√	√					√		
152	230		fraction 17/32		√	√	√	√	√					√		
153	231		fraction 19/32		√	√	√	√	√					√		
154	232		fraction 21/32		√	√	√	√	√					√		
155	233		fraction 23/32		√	√	√	√	√					√		
156	234		fraction 25/32		√	√	√	√	√					√		
157	235		fraction 27/32		√	√	√	√	√					√		
158	236		fraction 29/32		√	√	√	√	√					√		
159	237		fraction 31/32		√	√	√	√	√					√		
160	240		fraction 1/64		√	√	√	√	√					√		
161	241		fraction 3/64		√	√	√	√	√					√		
162	242		fraction 5/64		√	√	√	√	√					√		
163	243		fraction 7/64		√	√	√	√	√					√		
164	244		fraction 9/64		√	√	√	√	√					√		
165	245		fraction 11/64		√	√	√	√	√					√		
166	246		fraction 13/64		√	√	√	√	√					√		
167	247		fraction 15/64		√	√	√	√	√					√		
168	250		fraction 17/64		√	√	√	√	√					√		
169	251		fraction 19/64		√	√	√	√	√					√		
170	252		fraction 21/64		√	√	√	√	√					√		
171	253		fraction 23/64		√	√	√	√	√					√		
172	254		fraction 25/64		√	√	√	√	√					√		
173	255		fraction 27/64		√	√	√	√	√					√		
174	256		fraction 29/64		√	√	√	√	√					√		

[5] centerline symbol
[6] property line symbol
[7] baseline symbol
[8] delta

DEC	OCT	char	name	font	0	1	2	3	5	7	11	12	13	23	41	42
175	257		fraction 31/64		√	√	√	√	√					√		
176	260		fraction 33/64		√	√	√	√	√					√		
177	261		fraction 35/64		√	√	√	√	√					√		
178	262		fraction 37/64		√	√	√	√	√					√		
179	263		fraction 39/64		√	√	√	√	√					√		
180	264		fraction 41/64		√	√	√	√	√					√		
181	265		fraction 43/64		√	√	√	√	√					√		
182	266		fraction 45/64		√	√	√	√	√					√		
183	267		fraction 47/64		√	√	√	√	√					√		
184	270		fraction 49/64		√	√	√	√	√					√		
185	271		fraction 51/64		√	√	√	√	√					√		
186	272		fraction 53/64		√	√	√	√	√					√		
187	273		fraction 55/64		√	√	√	2[9]	√					√		
188	274		fraction 57/64		√	√	√	3[10]	√					√		
189	275		fraction 59/64		√	√	√	ϕ[11]	√					√		
190	276		fraction 61/64		√	√	√	μ[12]	√					√		
191	277		fraction 63/64		√	√	√	bl[13]	√					√		
200	310	±	plus/minus								√		√			

[9] superscript 2 (squared)
[10] superscript 3 (cubed)
[11] diameter symbol
[12] mu (micro symbol)
[13] baseline symbol

Standard Special Symbols

LEROYMON (Font #3)			
For:	**Enter:**		**Description**
centerline symbol	**{**	or **\123**	left brace
property line symbol	**}**	or **\125**	right brace
baseline symbol	**63/64**	or **\191**	$^{63}/_{64}$
delta (Δ)	**~**	or **\126**	tilde
theta (Θ)	**`**	or **\96**	left single quote (accent)
degree (°)	**^**	or **\94**	caret
plus-or-minus (±)	****	or **\92**	backslash
diameter (∅)	**59/64**	or **\189**	$^{59}/_{64}$
micro (μ)	**61/64**	or **\190**	$^{61}/_{64}$
squared (superscript 2; ^{2})	**55/64**	or **\187**	$^{55}/_{64}$
cubed (superscript 3; ^{3})	**57/64**	or **\188**	$^{57}/_{64}$

LEROYSTD (Font #5)			
Font #5 is to be used ***only*** on Standard Drawings.			
For:	**Enter:**		**Description**
centerline symbol	**{**	or **\123**	left brace
baseline symbol	**}**	or **\125**	right brace
delta (Δ)	**~**	or **\126**	tilde
theta (Θ)	**`**	or **\96**	left single quote (accent)
degree (°)	**^**	or **\94**	caret
plus-or-minus (±)	****	or **\92**	backslash
diameter (∅)	**$**	or **\36**	dollar

Standard Text Styles - TDOTmain.dgnlib

C:\Users\Public\MicroStation Standards\dgnlib

The dgnlib file contains standard text styles which can be used for placing general labels or notes not automatically placed by special functions or other programs. DGN seed files have the same text styles loaded by default as well. Most text styles accessed through MicroStation's text tools set the basic text parameters based on a scale of 50 and the desired color. The only exceptions to that scale are text styles for Signalization which are set up at a base scale of 20.

To use these to their best advantage they should be accessed through the special VBA programs Text **Styles Plus** and **XS Text Styles Plus**. These programs not only set the appropriate text style but also the level and weight required. The text sizes are automatically updated based on the current active scale and the current active color is set to match the text style color in case leader lines are required. They can be accessed via the TDOT drop down menu or from Geopak's D&C Manager.

Text Style List

Aerial Survey - Photo Control
Building - Exist.
Business - Functional
Centerline - Exist. Road
Centerline - Prelim.
Centerline - Prop.
Centerline Curve - Exist. Road
Centerline Curve - Prelim.
Centerline Curve - Prop.
Drainage - Natural
Drainage - Prop.
Drainage Area Shape - Exist.
Drainage Br. & Cross Drain Size Prop.
Drainage Br. Deck - Exist.
Drainage Br. Hydraulic Data - Exist.
Drainage Bridge - Exist.
Drainage Pipe & Culvert - Exist.
Drainage Storm Sewer - Exist.
Easement - Exist.
Erosion Control
Guardrail - Exist.
Guardrail - Prop.
Lighting - Prop.
Non-Transportation - Exist.
Pavement Marking - Exist.
Pavement Marking - Prop.
Political Boundary
Profile - Prop.
Profile Curve - Prop.
Profile Drainage - Natural
Profile Drainage - Prop.
Profile Drainage Bridge - Exist.
Profile Drainage Pipe & Culvert - Exist.
Profile Drainage Storm Sewer - Exist.
Profile Drainage Storm Sewer - Prop.
Profile Existing Road
Profile Ground Line
Profile Project Info - Exist.
Profile Project Info Name - Exist.
Profile Survey Control
Profile Utilities Cable - Exist.
Profile Utilities Electric - Exist.
Profile Utilities Gas - Exist.
Profile Utilities OH - Exist.
Profile Utilities Sanitary Sewer - Exist.
Profile Utilities Telephone - Exist.
Profile Utilities Water - Exist.
Project Info - Exist.
Project Limits
Property Line - Exist.
Property Marker - Exist.
Property Owner
Property Tract/Parcel Number
Railroad - Exist.
Roads - Exist
Roads - Functional
Roads - Prop.
Roadside Barriers - Exist.
Roadside Barriers - Prop.
ROW & Easements - Prop.

ROW - Exist.
ROW - Functional
ROW Bearing & Distance - Prop.
ROW Marker - Exist.
ROW Sta. & Offset - Exist.
ROW Sta. & Offset - Prop.
Scarification - Prop.
Scratch
Signalization - Prop.
Signs - Exist.
Signs - Prop.
Signs - Temporary
Slope Line - Prop.
Survey Control
Survey Control - Temporary
Traffic Control - Exist.
Traffic Control - Prop.
Traffic Control - Temporary
Transportation - Exist.
Transportation - Prop.
Transportation Urban - Exist.
Transportation Urban - Prop.
Utilities Cable UG - Exist.
Utilities Cable OH - Prop.
Utilities Cable UG - Prop.
Utilities Electric & Cable OH - Prop.
Utilities Electric OH - Exist.
Utilities Electric OH - Prop.
Utilities Electric Tele. & Cable OH - Prop.
Utilities Electric UG - Exist.
Utilities Electric UG - Prop.
Utilities Fiber Optic UG - Exist.
Utilities Fiber Optic OH - Prop.
Utilities Fiber Optic UG - Prop.
Utilities Gas - Exist.
Utilities Gas - Prop.
Utilities Lighting - Exist.
Utilities Lighting - Prop.
Utilities Owners - Exist.
Utilities Poles - Exist.
Utilities Sanitary Sewer - Exist.
Utilities Sanitary Sewer - Prop.
Utilities Telephone OH - Exist.
Utilities Telephone OH - Prop.
Utilities Telephone UG - Exist.
Utilities Telephone UG - Prop.
Utilities Water - Exist.
Utilities Water - Prop.
Vegetation - Exist.
Vegetation - Prop.
XS Bridge Limits - Prop.
XS Drainage - Exist.
XS Drainage - Prop.
XS Finished Grade - Prop.
XS Finished Grade Slopes - Prop.
XS Pavement - Exist.
XS Retaining Wall - Prop.
XS ROW - Exist.
XS ROW - Prop.
XS Subgrade Slopes - Prop.
XS Superelevation Limits - Prop.

Standard Line Styles - TDOTLINE.RSC

C:\Users\Public\MicroStation Standards\symb

This file contains custom line styles used by the Roadway Design Division. The file was created in 2D so line styles can be used in 2D or 3D design files. All line styles are created at a scale of 1.

Custom line styles are used automatically by Geopak's D&C manager DDB database and SMD feature table. To change the default scale of 50 in D&C Manager go to **Settings > Design**. This scale setting is not used by actual size line styles such as pavement stripes.

All line styles were built in an English design file. To use for metric projects multiply desired scale by .025. Example: For 500 scale..... 500 X .025 = 12.5

To manually use a line style at a particular scale make the appropriate settings as follows:

1. Go to the **Attributes** tool box and under line style selection choose the line style by name, go to the drop down menu option **Element>Line Styles>Custom** or keyin **LINESTYLE SETTINGS** and choose the line style from the **Line Styles** dialog by double clicking on it.
2. To set the scale, in the **Line Styles** dialog click on the **Scale Factor** button if not already on and set the scale factor to the scale value desired.
3. Use whatever element placement tool needed and appearance will be as desired.

To change the scale of element(s) using a custom linestyle:

1. Fence the elements or group together with a selection set if you wish to apply the new scale to multiple elements at one time.
2. From the TDOT drop down menu under **Custom Line Styles** pick option **Change Line Style Scale** or in D&C Manager go to **Drafting Standards> Tools> Custom Line Styles> Scale LineStyle**. In MicroStation's Tool Settings enter the desired scale.
3. Data point to accept the fence contents or to identify a single element to set the scale. Active selection sets are automatically updated to the new scale.

To change the location of text or symbols on an element using a custom linestyle to improve readability or appearance:

1. From the TDOT drop down menu under **Custom Line Styles** pick option **Shift Style Pattern** or in D&C Manager go to **Drafting Standards> Tools> Custom Line Styles> Shift LineStyle**.
2. Identify element with a data point and then move cursor left or right to shift symbols.
3. Data point to accept new location.

Example: This is a great way to fix short property lines on which a PL symbol did not show up.

To flip or reverse the display of a custom linestyle

1. From the TDOT drop down menu under **Custom Line Styles** pick option **Reverse/Flip Pattern** or in D&C Manager go to **Drafting Standards> Tools> Custom Line Styles> Flip LineStyle**.
2. Identify the beginning of element with a data point and then data point near the other end to indicate the new beginning location.

NOTE: Custom line styles which include text are set up to auto-rotate and are not affected when this function is used.

Custom Line Style Name List

0 BLANK
1"GAS LINE
1"GAS LINE PROP
1"SUE GAS LINE
1"SUE WATER LINE
1"WATER LINE
1"WATER LINE PROP
1-1/2"GAS LINE
1-1/2"GAS LINE PROP
1-1/2"WATER LINE
1-1/2"WATER LINE PROP
1-1/4"GAS LINE
1-1/4"GAS LINE PROP
1-1/4"SUE GAS LINE
1-1/4"SUE WATER LINE
1-1/4"WATER LINE
1-1/4"WATER LINE PROP
1/2"GAS LINE
1/2"GAS LINE PROP
1/2"SUE GAS LINE
1/2"SUE WATER LINE
1/2"WATER LINE
1/2"WATER LINE PROP
10"FMS LINE
10"FMS LINE PROP
10"GAS LINE
10"GAS LINE PROP
10"SA LINE
10"SA LINE PROP
10"ST LINE
10"SUE GAS LINE
10"SUE SA LINE
10"SUE WATER LINE
10"WATER LINE
10"WATER LINE PROP
12"FMS LINE
12"FMS LINE PROP
12"GAS LINE
12"GAS LINE PROP
12"SA LINE
12"SA LINE PROP
12"ST LINE
12"SUE GAS LINE
12"SUE SA LINE
12"SUE WATER LINE
12"WATER LINE
12"WATER LINE PROP
14"FMS LINE
14"FMS LINE PROP
14"GAS LINE
14"GAS LINE PROP
14"SA LINE
14"SA LINE PROP
14"ST LINE
14"SUE GAS LINE
14"SUE SA LINE
14"SUE WATER LINE
14"WATER LINE
14"WATER LINE PROP
15"GAS LINE
15"GAS LINE PROP
15"SA LINE
15"SA LINE PROP
15"ST LINE
15"SUE GAS LINE
15"SUE SA LINE
15"SUE WATER LINE
15"WATER LINE
15"WATER LINE PROP
16"FMS LINE
16"FMS LINE PROP
16"GAS LINE
16"GAS LINE PROP
16"SA LINE
16"SA LINE PROP
16"ST LINE
16"SUE GAS LINE
16"SUE SA LINE
16"SUE WATER LINE
16"WATER LINE
16"WATER LINE PROP
18"FMS LINE
18"FMS LINE PROP
18"SA LINE
18"SA LINE PROP
18"ST LINE
18"SUE GAS LINE
18"SUE SA LINE
18"SUE WATER LINE
18"WATER LINE
18"WATER LINE PROP
2"FMS LINE
2"FMS LINE PROP
2"GAS LINE
2"GAS LINE PROP
2"SUE GAS LINE
2"SUE WATER LINE
2"WATER LINE
2"WATER LINE PROP
20"FMS LINE
20"FMS LINE PROP
20"SA LINE
20"SA LINE PROP
20"ST LINE
20"SUE GAS LINE
20"SUE SA LINE
20"SUE WATER LINE
20"WATER LINE
20"WATER LINE PROP
22"FMS LINE
22"FMS LINE PROP
20"GAS LINE
20"GAS LINE PROP
22"SA LINE
22"SA LINE PROP
22"ST LINE
22"SUE GAS LINE
22"SUE SA LINE
22"SUE WATER LINE
22"WATER LINE
22"WATER LINE PROP
24"FMS LINE
24"FMS LINE PROP
24"GAS LINE
24"GAS LINE PROP
24"SA LINE
24"SA LINE PROP
24"ST LINE
24"SUE GAS LINE
24"SUE SA LINE
24"SUE WATER LINE
24"WATER LINE
24"WATER LINE PROP
26"FMS LINE
26"FMS LINE PROP
26"GAS LINE
26"GAS LINE PROP
26"SA LINE
26"SA LINE PROP
26"WATER LINE
26"WATER LINE PROP
27"SA LINE
27"SA LINE PROP
27"ST LINE
27"SUE GAS LINE
27"SUE SA LINE
27"SUE WATER LINE
27"WATER LINE
27"WATER LINE PROP
28"FMS LINE
28"FMS LINE PROP
28"SA LINE
28"SA LINE PROP
3"GAS LINE
3"GAS LINE PROP
3"SUE GAS LINE
3"SUE WATER LINE
3"WATER LINE
3"WATER LINE PROP
3/4"GAS LINE
3/4"GAS LINE PROP
3/4"SUE GAS LINE

3/4"SUE WATER LINE
3/4"WATER LINE
3/4"WATER LINE PROP
30"FMS LINE
30"FMS LINE PROP
30"GAS LINE
30"GAS LINE PROP
30"SA LINE
30"SA LINE PROP
30"ST LINE
30"SUE GAS LINE
30"SUE SA LINE
30"SUE WATER LINE
30"WATER LINE
30"WATER LINE PROP
32"SA LINE
32"SA LINE PROP
32"ST LINE
32"SUE GAS LINE
32"SUE SA LINE
32"SUE WATER LINE
32"WATER LINE
32"WATER LINE PROP
34"SA LINE
34"SA LINE PROP
34"ST LINE
34"SUE GAS LINE
34"SUE SA LINE
34"SUE WATER LINE
34"WATER LINE
34"WATER LINE PROP
36"GAS LINE
36"GAS LINE PROP
36"SA LINE
36"SA LINE PROP
36"ST LINE
36"SUE GAS LINE
36"SUE SA LINE
36"SUE WATER LINE
36"WATER LINE
36"WATER LINE PROP
4"FMS LINE
4"FMS LINE PROP
4"GAS LINE
4"GAS LINE PROP
4"SA LINE
4"SA LINE PROP
4"SUE GAS LINE
4"SUE WATER LINE
4"WATER LINE
4"WATER LINE PROP
40"SA LINE
40"SA LINE PROP
40"ST LINE
40"SUE GAS LINE
40"SUE SA LINE
40"SUE WATER LINE
40"WATER LINE
40"WATER LINE PROP
42"SA LINE
42"SA LINE PROP
42"ST LINE
42"SUE GAS LINE
42"SUE SA LINE
42"SUE WATER LINE
42"WATER LINE
42"WATER LINE PROP
45"SA LINE
45"SA LINE PROP
45"ST LINE
45"SUE SA LINE
45"SUE WATER LINE
48"SA LINE
48"SA LINE PROP
48"ST LINE
48"SUE SA LINE
48"SUE WATER LINE
5/8"GAS LINE
5/8"GAS LINE PROP
54"SA LINE
54"SA LINE PROP
54"ST LINE
54"SUE SA LINE
6"FMS LINE
6"FMS LINE PROP
6"GAS LINE
6"GAS LINE PROP
6"SA LINE
6"SA LINE PROP
6"SUE GAS LINE
6"SUE SA LINE
6"SUE WATER LINE
6"WATER LINE
6"WATER LINE PROP
60"SA LINE
60"SA LINE PROP
60"ST LINE
60"SUE SA LINE
66"SA LINE
66"SA LINE PROP
66"ST LINE
66"SUE SA LINE
72"SA LINE
72"SA LINE PROP
72"ST LINE
72"SUE SA LINE
8"FMS LINE
8"FMS LINE PROP
8"GAS LINE
8"GAS LINE PROP
8"SA LINE
8"SA LINE PROP
8"SUE GAS LINE
8"SUE SA LINE
8"SUE WATER LINE
8"WATER LINE
8"WATER LINE PROP
BARRICADE
BARRIER WALL PORT
BERM
BIKE PEDESTRIAN SAFETY RAIL
BRIDGE DRAIN 18" PROP
BRUSH LINE
C&G 4-30 M
C&G 4-30 RM
C&G 4-36 M
C&G 4-42 M
C&G 6-30
C&G 6-33 M
C&G 6-36
C&G 6-39 M
C&G 6-42
C&G 6-45 M
CABLE
CABLE (UG)
CABLE (UG) PROP
CABLE BARRIER
CABLE BARRIER PROP
CABLE PROP
CENTER LINE
CITY LINE
CLTEMP
COMPOST FILTER BERM
CONTINUOUS
COUNTY LINE
CROSSWALK
CROSSWALK LONGITUDINAL
CURB
Curb 4" M Type A
Curb 4" M Type B
Curb 6" M Type A
Curb 6" M Type B
Curb 6" Type A
Curb 6" Type B
DASH
DASH3
DIMENSION LINE
DITCH SPEC
DITCH SPEC SHORT
DIV CHAN TEMP
DOTS
EROSION CONTROL BLANKET TYPE 1
EROSION CONTROL BLANKET TYPE 2
EROSION CONTROL BLANKET TYPE 3
EROSION CONTROL BLANKET TYPE 4

FENCE
FENCE HIGH VISIBILITY
FENCE SHORT
FIBER (UG)
FIBER (UG) PROP
FIBER OPTIC
FIBER OPTIC PROP
FILTER BARRIER
FILTER SOCK 12”
FILTER SOCK 18”
FILTER SOCK 24”
FILTER SOCK 8”
FLEXIBLE CHANNEL LINER CLASS 3
FLEXIBLE CHANNEL LINER CLASS 4
FLOATING TURBIDITY CURTAIN
FMS LINE
FMS LINE PROP
FOREST LINE
GAS LINE
GAS LINE PROP
GR Br End Prop
GR Br Rail Prop
GR Br End Prop Low Volume
GR Term Inline
GR Term Type 12
GR Term Type 13
GR Term Type 21
GR Term Type 38
GRID LINE
GUARDRAIL ATTENUATOR NARROW LOW MAINTENANCE
GUARDRAIL ATTENUATOR NARROW REUSABLE
GUARDRAIL ATTENUATOR SACRIFICIAL
GUARDRAIL ATTENUATOR WIDE LOW MAINTENANCE
GUARDRAIL ATTENUATOR WIDE REUSABLE
GUARDRAIL LT
GUARDRAIL MED
GUARDRAIL MED PROP
GUARDRAIL RT
GUARDRAIL SIN PROP
GUY
GUY PROP
HANDICAP RAMP
HATCH IN (CW)
HATCH OUT (CW)
HAY BALES
HEDGE
INSTREAM DIVERSION
JACKED BORED CONDUIT 1”
JACKED BORED CONDUIT 2”
JACKED BORED CONDUIT 3”
JACKED BORED CONDUIT 4”
LEADER LARGE
LEADER LINE
LEADER SMALL
LONG DASH DOT
LONG SHORT DASH
LONG TWO SHORT
MB GLARE WALL
MB GLARE WALL-PIER
MB SINGLE SLOPE WALL
MB SINGLE SLOPE WALL-32 INCH
MB SINGLE SLOPE WALL-51 INCH
MB SINGLE SLOPE WALL-GRADE SEPARATED
MB SINGLE SLOPE WALL-HALF
MB SINGLE SLOPE WALL-PIER
MB WALL
MB WALL-GR
MB WALL-HALF
MB WALL-PIER
MEDIAN SLOPE
MULCH FILTER BERM
OH WIRE XING
P/C
P/C PROP
P/T
P/T PROP
P/T/C
P/T/C PROP
PAP LOC CL
PIPE CULVERT 18" PROP
PIPE CULVERT 18" TEMP
PIPE CULVERT 24" PROP
PIPE CULVERT 24" TEMP
PIPE CULVERT 30" PROP
PIPE CULVERT 30" TEMP
PIPE CULVERT 36" PROP
PIPE CULVERT 36" TEMP
PIPE CULVERT 42" PROP
PIPE CULVERT 42" TEMP
PIPE CULVERT 48" PROP
PIPE CULVERT 48" TEMP
PIPE CULVERT 54" PROP
PIPE CULVERT 54" TEMP
PIPE CULVERT 60" PROP
PIPE CULVERT 60” TEMP
PIPE CULVERT 66" PROP
PIPE CULVERT 66" TEMP
PIPE CULVERT 72" PROP
PIPE CULVERT 72" TEMP
PIPE CULVERT 78" PROP
PIPE CULVERT 84" PROP
POWER
POWER (UG)
POWER (UG) PROP
POWER PROP
POWER/CABLE
POWER/CABLE PROP
PROPERTY
PVMT MRK 10-10 W 12"
PVMT MRK 10-30 W 4"
PVMT MRK 10-30 W 6"
PVMT MRK 10-30 Y 4"
PVMT MRK 10-30 Y 6"
PVMT MRK 2-4 W 4"
PVMT MRK 2-4 W 6"
PVMT MRK 2-4 W 8"
PVMT MRK 3-12 W 8"
PVMT MRK 3-9 W 12"
PVMT MRK DBL 10-30 LT Y 4"
PVMT MRK DBL 10-30 RT Y 4"
PVMT MRK DBL SOL Y 4"
PVMT MRK REMOVE STRIP
PVMT MRK SOL W 12"
PVMT MRK SOL W 24"
PVMT MRK SOL W 4"
PVMT MRK SOL W 6"
PVMT MRK SOL W 8"
PVMT MRK SOL Y 12"
PVMT MRK SOL Y 4"
PVMT MRK SOL Y 6"
PVMT MRK SOL Y 8"
PVMT MRK TEMP STRIP
ProfileGrid
Property w/fn
RAILROAD
RADIUS SLOPE
RETAINING WALL
ROCK WALL
ROCK WALL FACE
ROW CA FENCE PROP
ROW CA PROP
ROW FENCE EX
ROW LINE
RUMBLE STRIP 16" CONT
RUMBLE STRIP 16" NON-CONT
RUMBLE STRIP 36" CONCRETE
RUMBLE STRIPE 4" CENTER CONT
RUMBLE STRIPE 4" NON-CONT
RUMBLE STRIPE 8" NON-CONT
SA LINE
SA LINE PROP
SA SEWER
SAND BAG
SAND BAG2
SEDIMENT TUBE 12"
SEDIMENT TUBE 18"
SEDIMENT TUBE 20"
SEDIMENT TUBE 24"
SEDIMENT TUBE 8"
SIDE DRAIN 15" PROP
SIDE DRAIN 18" PROP
SIDE DRAIN 24" PROP
SIDE DRAIN 30" PROP
SIDE DRAIN 36" PROP

SIDE DRAIN 42" PROP
SIDE DRAIN 48" PROP
SIDE DRAIN 54" PROP
SIDE DRAIN 60" PROP
SIDE DRAIN 66" PROP
SIGNAL LOOP WIRE
SIGNAL LOOP WIRE OFF PVMT
SIGNAL SPAN WIRE
SILT FENCE
SILT FENCE BACKED
SILT FENCE ENHANCED
SLOPE DRAIN 10" TEMP
SLOPE DRAIN 12" TEMP
SLOPE DRAIN 15" PERM
SLOPE DRAIN 15" TEMP
SLOPE DRAIN 18" PERM
SLOPE DRAIN 18" TEMP
SLOPE DRAIN 24" PERM
SLOPE DRAIN 30" PERM
SLOPE DRAIN 36" PERM
SLOPE DRAIN 8" TEMP
SOLID
ST SEWER
ST SEWER 12" PROP
ST SEWER 12" PROP CL4
ST SEWER 12" PROP CL5
ST SEWER 12" PROP CMP
ST SEWER 12" PROP UNSPECIFIED
ST SEWER 15" PROP
ST SEWER 15" PROP CL4
ST SEWER 15" PROP CL5
ST SEWER 15" PROP CMP
ST SEWER 15" PROP UNSPECIFIED
ST SEWER 18" PROP
ST SEWER 18" PROP CL4
ST SEWER 18" PROP CL5
ST SEWER 18" PROP CMP
ST SEWER 18" PROP UNSPECIFIED
ST SEWER 24" PROP
ST SEWER 24" PROP CL4
ST SEWER 24" PROP CL5
ST SEWER 24" PROP CMP
ST SEWER 24" PROP UNSPECIFIED
ST SEWER 30" PROP
ST SEWER 30" PROP CL4
ST SEWER 30" PROP CL5
ST SEWER 30" PROP CMP
ST SEWER 30" PROP UNSPECIFIED
ST SEWER 36" PROP
ST SEWER 36" PROP CL4
ST SEWER 36" PROP CL5
ST SEWER 36" PROP CMP
ST SEWER 36" PROP UNSPECIFIED
ST SEWER 42" PROP
ST SEWER 42" PROP CL4
ST SEWER 42" PROP CL5
ST SEWER 42" PROP UNSPECIFIED
ST SEWER 48" PROP
ST SEWER 48" PROP CL4
ST SEWER 48" PROP CL5
ST SEWER 48" PROP UNSPECIFIED
ST SEWER 54" PROP
ST SEWER 54" PROP CL4
ST SEWER 54" PROP CL5
ST SEWER 54" PROP UNSPECIFIED
ST SEWER 60" PROP
ST SEWER 60" PROP CL4
ST SEWER 60" PROP CL5
ST SEWER 60" PROP UNSPECIFIED
ST SEWER 66" PROP
ST SEWER 66" PROP CL4
ST SEWER 66" PROP CL5
ST SEWER 66" PROP UNSPECIFIED
ST SEWER 72" PROP
ST SEWER 72" PROP CL4
ST SEWER 72" PROP CL5
ST SEWER 72" PROP UNSPECIFIED
ST SEWER 78" PROP
ST SEWER 78" PROP CL4
ST SEWER 78" PROP CL5
ST SEWER 78" PROP UNSPECIFIED
ST SEWERM 1050 PROP
ST SEWERM 1050 PROP UNSPECIFIED
ST SEWERM 1200 PROP
ST SEWERM 1200 PROP UNSPECIFIED
ST SEWERM 1350 PROP
ST SEWERM 1350 PROP UNSPECIFIED
ST SEWERM 1500 PROP
ST SEWERM 1500 PROP UNSPECIFIED
ST SEWERM 300 PROP
ST SEWERM 300 PROP CMP
ST SEWERM 300 PROP UNSPECIFIED
ST SEWERM 375 PROP
ST SEWERM 375 PROP CMP
ST SEWERM 375 PROP UNSPECIFIED
ST SEWERM 450 PROP
ST SEWERM 450 PROP CMP
ST SEWERM 450 PROP UNSPECIFIED
ST SEWERM 600 PROP
ST SEWERM 600 PROP CMP
ST SEWERM 600 PROP UNSPECIFIED
ST SEWERM 750 PROP
ST SEWERM 750 PROP CMP
ST SEWERM 750 PROP UNSPECIFIED
ST SEWERM 900 PROP
ST SEWERM 900 PROP CMP
ST SEWERM 900 PROP UNSPECIFIED
STATE LINE
STOP LINE
STREAM
SUE FIBER
SUE GAS LINE
SUE P/T
SUE POWER
SUE SA SEWER
SUE TV
SUE UNKNOWN
SUE WATER LINE
SWAMP LINE
T/C
T/C PROP
TELEPHONE
TELEPHONE (UG)
TELEPHONE (UG) PROP
TELEPHONE PROP
TRENCH DRAIN
TURF REINFORCEMENT MAT CLASS 1
TURF REINFORCEMENT MAT CLASS 2
TURF REINFORCEMENT MAT CLASS 3
TV(UG)
TYPE 12 SLOPE
TYPE 21 SLOPE
TYPE 38 SLOPE
WATER LINE
WATER LINE PROP
YIELD LINE

Standard MicroStation Visual Basic Applications

C:\Users\Public\MicroStation Standards\vba

These customized programs/tools are used to provide access to cells or other programs, produce graphics or manipulate them and to perform calculations. All cell access dialogs include a cell placement option button with choices such as placement with a spin to set the angle or placement along another element at a user defined spacing.

All of these are available through the TDOT drop down menu or through Geopak's D&C Manager. The VBA program **TDOT Roadway Design Division Toolbox** is another alternate way to access the most commonly used tools. See PDF documentation file **TDOTRoadwayDesignDivisionPrograms.pdf** for complete workflows and methods of use for these programs.

AerialSurveyGraphicsLevelFix.mvba Generates a selection set of all graphics in the file and then reads graphic group numbers to determine levels graphics should be on and then changes the level as needed.

AerialSurveysProcessSurfaceTextFiles.mvba This program is set up for use by Aerial Survey personnel to generate DTM surface graphics from ASCII text files and then check this surface information by building surfaces from them. It automatically reads the text files and displays spot points and breaklines in the DGN file and then sets up the views for reviewing. Various aerial survey software functions including creating a surface, displaying & deleting contours and ultimately saving the surface are started for the user when requested. A list box with all surface ASCII text files from the current folder is provided for selection for batch processing. The following command buttons are provided for the surface review process: Create DGN File, Open DGN File, Build Surface & Review then View Contours & Set Front View, Delete Contours & Save Surface then Set Up Final Views.

AerialSurveysUpdateSurfaceFile.mvba This program is set up for use by Aerial Survey personnel to use when checking surface information and building surfaces from them. It automatically converts the files to V8i, sets up views for reviewing and automatically starts various aerial survey software functions for setting coordinate system, creating a surface, displaying & deleting contours and ultimately saving the surface and creating an updated V7 DGN file. A list box with all DGN files from the current folder is provided for selection for batch processing. The following command buttons are provided for the surface review process: Open Selected File, Build Surface & Review then View Contours & Set Front View, Delete Contours & Save Surface then Set Up Final Views, Finalize DGN & Save as V7 (This function paces V7 files in sub folder UpdatedV7DGNs under the current folder. If it does not exist the sub folder is created.).

AerialSurveySurfaceGraphicsLevelFix.mvba This program is set up for use by Aerial Survey personnel to fix surface files generated by others in which the graphics are on the wrong levels for our use. This program generates a selection set of all graphics in the file and then reads the type to trap for lines. If the line only has 2 vertices that match within a tolerance they are moved to level number 325 for points. If the line has more than 2 vertices or 2 different vertices they are moved to level number 29 for break lines. The program allows processing of multiple files.

AerialSurveyTools.mvba This program provides a dialog access point to various aerial survey tools not automatically used by aerial survey software including the following programs:

MFC to DTM
View On 1 to 4
Update Contours
Fix Topo Levels by ISFC Feature Number
Fix levels in DTM files by Element Type

AerialSurveyUpdateContours.mvba This program deletes the current Aerial Survey contour graphics, compresses the file and using ISEE software updates the surface and generates new contours. Finally the program reactivates the ISSD software.

ArcRadiusLengthLabel.mvba Calculates the radius and length from an arc element and sets it up for placement as a label. Text can be placed at the angle of the tangent line at the point of identification or it can be placed horizontal to the view with a leader line as a flag. Program will process arcs in complex strings. Metric application includes both metric & English measurements.

AreaPatterns.mvba This program provides access to Roadway Design Division area pattern cells. Clicking on any area pattern in the dialog list will make all settings for that area pattern, start the area pattern tool and show an example in the preview window. In addition, it sets the active level used for the area pattern. The active scale is given in a keyin field which is used to control the pattern scale and pattern delta. Command buttons are provided to Change Pattern Element Level, Place Area Pattern (to restart the area pattern command) and Change Shape To Fill Solid Black.

BatchTextEditor.mvba This program looks for the specified text string in the selected DGN files and changes it to the new text string given. It uses the MicroStation Find/Replace text tool to make the changes. Find/Replace Text options Match Case, Whole Words, Use Regular Expressions and Change In Cells are provided. All are on by default except for Use Regular Expressions. No confirmation is offered and all changes are automatically done so it is critical that a full example of the text string is provided to avoid changing the

wrong text.
This tool was specifically created to edit project numbers when they change but can be used to edit any text string in multiple DGN files.

BlankSignCells.mvba Access blank sign and sign component cells.

CellTools.mvba This program provides tools to facilitate placement of cells. They are called automatically by cell dialogs when alternate cell placement options are chosen. Programs will function without input from those dialogs since they just use the currently active cell.

Place Cell and Rotate

This tool takes the currently active cell and first prompts the user for a location point while dynamically displaying the cell at an angle of 0. Once given, dynamics go into a rotation mode prompting the user to specify a point to set the cells angle. A small dialog is provided with the current active scale displayed that can be adjusted if needed. A command button is also provided to restart cell placement when interrupted by the use of other MicroStation tools.

Place Cells Along an Element

This tool takes the currently active cell and will place it along other MicroStation elements at a user specified spacing and distance. When started, the Place Cells Along an Element dialog is provided with text entry fields to set the spacing to be used between the cells, the cell scale, cell angle to use when cells are placed and an option to place a cell at the end when the distance at the end is less than the specified spacing. Set these values as needed first then click the Place Cells Along command button. The program first prompts the user to identify the element to place cells along. This point corresponds to where cell placement will start. When the element has been identified, another point accepts it and indicates the direction to go along the element as well as the ending location for cell placement. Cells are then placed along the element at the specified spacing and distance along it. All cells are combined into a separate graphic group. This program uses the MicroStation command Construct Active Point @Dist Along Element to place point cells at the requested spacing. It also uses the MicroStation command Measure Distance Along an Element to calculate the distance where cell placement should end. Note that currently the scale used for point cells in MicroStation V8i is the reciprocal of the current active scale. For this reason the program temporarily changes the active scale to yield the correct scale when the cells are placed as points. After cell placement the active scale is reset to its normal value. For example with a desired scale of 50 the program will set it as 1/50 or 0.02.

CenterlineCells.mvba Access centerline cells.

CodePavementLayers.mvba Place pavement schedule pavement codes with vertical or dynamic leader and a dot terminator.

ConstructionSignCells.mvba Access construction sign cells. Includes tools for placement of annotation, leader lines and symbols as permanent or temporary signs.

DeleteAllXSectionGrids.mvba Deletes all working cross section grids by level name. When the program is executed, it records all levels currently shown in view 1, turns all levels off and then turns all working cross section grid levels on using their names. It then sets up a temporary fence and does a void delete on all graphics. Finally it restores the levels originally displayed in view 1.

DeleteEarthWorkShapes.mvba Deletes all earthwork shape graphics by level name. When the program is executed, it records all levels currently shown in view 1, turns all levels off and then turns the earthwork shape level on using its name. It then sets up a temporary fence and does a void delete on all graphics. Finally it restores the levels originally displayed in view 1.

DeletePropXSectionGraphics.mvba Deletes all proposed cross section graphics by level name. When the program is executed, it records all levels currently shown in view 1, turns all levels off and then turns all proposed cross section levels on using their names. It then sets up a temporary fence and does a void delete on all graphics. Finally it restores the levels originally displayed in view 1.

DistanceBearingLabel.mvba Calculates the bearing angle and distance from a line or line string segment and sets it up for placement as a label. Text can be placed at the angle of the line or it can be placed horizontal to the view with a leader line as a flag. Program will process line or line strings in complex strings. Metric application includes both metric & English measurements.

DPprofile.mvba This program was primarily designed to issue a data point based on station and elevation on the profile. It also includes options to dynamically track station and elevation values on the profile and to place labels for them. Dynamic tracking options include dynamic graphic label, station lock and elevation lock. Locks allow dynamic tracking on just station or elevation. Geopak accuracy format controls are provided for station and elevation. These control values placed with labels and when using the dynamic tracking function. When placing labels, the current active element symbology and text settings are used to control all aspects of the labels which are placed. For this reason, a command button is provided to access the Text Styles Plus program to aide in making these settings. The length of the leader line which is placed with the labels is controlled dynamically by the user. Annotation may be placed above or below the profile point being labeled.

DrainagePlanCells.mvba Access drainage plan view cells. Includes access to programs to place box culverts or bridges, pipe endwalls and to draw flow direction.

DrainageProfileCells.mvba Access drainage profile view cells. Includes command buttons for access to programs to place box culverts or bridges, slab culverts or bridges and pipes. A command button is also provided to open the Data Point Station and Elevation visual basic application to identify cell location points can be set by station and elevation.

DrawBoxPlan.mvba Draws proposed Box Culvert or Bridge in the plan view given 2 user defined points for begin & end and values for number of barrels, barrel width, barrel height, short wing wall length, long wing wall length, wall thickness, skew angle and skew direction. Label options include scale, choice to place label as a flag with leader lines and terminator. The wing wall dimensions are optional and the structure can be placed without them. The wall thickness value is only used to check the span length along the roadway to aide in determining whether it is a culvert or a bridge.

DrawBoxProfile.mvba Draws proposed or existing Box Culvert or Bridge in the profile view given a user defined center flow line point and values for number of barrels, barrel width, barrel height, outside wall thickness, inside wall thickness, top slab thickness, bottom slab thickness, skew angle, skew direction, label scale and vertical exaggeration. The combination of barrel width, wall thicknesses and skew are used to check the span length along the roadway to aide in determining whether a proposed structure is a culvert or a bridge. A command button is provided to open the Data Point Station and Elevation visual basic application to identify the flow point for placement of the structure by station and elevation.

DrawFlowDirection.mvba Draws drainage flow direction graphics when given 2 user defined points to set begin & end of leader for drainage maps, creeks, streams or rivers.

DrawCurbRamp.mvba This program draws proposed curb ramps in the plan view based on standard roadway drawings RP-H-3 to RP-H-9, RP-R-2. Options in the dialog for type, location, ramp width, landing length, sidewalk width, grass separator width and roadway curb width are given to determine the curb ramp dimensions. Additional check box controls are offered to match parallel ramps to the sidewalk width when greater than minimum, set perpendicular ramp landing beginning to the sidewalk when the grass separator width plus the curb offset is greater than the minimum of 6.5 feet and to place a leader line with text labels. As different types and locations are chosen, the default values and information on the dialog face are changed. If a control is not used for a given type or location then it is specified as

N/A or non-applicable. When the user clicks the Draw Curb Ramp command button they are first prompted to identify the curb line. When the curb line(s) are identified, information from those elements are read and combined with the control information provided in the dialog to determine the curb ramp dimensions, etc. For placements along the roadway, at concrete islands, concrete medians, splitter islands or bicycle ramps the ramp is shown dynamically to aid the user in identifying the next point needed to finish the placement. The outer limits of all ramps are created as a shape using the curb ramp line style so that later area calculations can be done with Geopak's D&C Manger quantity calculation tools.

If a perpendicular ramp is placed which exceeds the limits specified by the widths of the sidewalk and grass separator then additional lines are drawn from the back of the ramp to aide in adjusting the back of the sidewalk to accommodate the ramp. A message dialog is brought up indicating that these lines need to be used to adjust the sidewalk to maintain a 4' foot path transition back to the normal sidewalk. Since this message would appear every time you place a curb ramp, a clickable option to suppress the message during that session is provided.

DrawPermSlopeDrain.mvba Draws in a permanent slope drain with inlet symbol and rip-rap pad at the outlet end. The pipe is drawn in with the appropriate custom line style. Geopak Adhoc data for pay item number, description, unit and roadway side slope is added to the pipe line element so that quantities can be calculated later by Geopak's D&C Manager. The pipe size and side slope value are used to calculate the 45 degree bend location in the slope drain pipe. The side slope is also used during final quantity calculations to adjust the measured horizontal length of pipe since these pipes follow the roadway side slope. On the Draw Permanent Slope Drain dialog is a command button for Pay Item Info. When the user clicks on this option, the User Specified Pay Item Values dialog opens. This dialog contains fields for entering pay item number, description, unit and roadway side slope information with options to modify or read pay item information assigned to previously placed graphics.

DrawPipeProfile.mvba Draws proposed or existing Pipe in the profile view given a user defined center flow line point and values for pipe height, pipe width, number of pipes, space between pipes, skew angle, skew direction, label scale, vertical exaggeration and pipe type. A command button is provided to open the Data Point Station and Elevation visual basic application to identify the flow point for placement of the structure by station and elevation.

DrawPlotBorder.mvba This program sets symbology, etc. and provides a tool for users to draw plot border shapes on plans sheets. This is intended for use on older jobs where sheets were used that

did not include plot shapes as they do now. A Plot Border Type option is provided to place either standard or PDF plot border shapes. Once the type is set, the user can click on the Draw Plot Shape command button to start placement which prompts the user for 2 points to define the diagonal of the desired block shape. The shape is displayed dynamically during placement. The Open DGN command button is provided to go to the File Open dialog so the user can jump to the next sheet file.

DrawProfileGrid.mvba Draws a working profile grid in profile area with stations and elevations. A dialog is provided for entry of scales, station limits and elevation limits. The resulting range of the profile is shown dynamically prior to placement so that adjustment can be made as needed. This program supports English or metric application.

DrawSlabProfile.mvba Draws proposed or existing Slab Culvert or Bridge in the profile view given a user defined center flow line point and values for number of barrels, barrel width, barrel height, outside wall thickness, inside wall thickness, top slab thickness, footing slab thickness, skew angle, skew direction, label scale and vertical exaggeration. The combination of barrel width, wall thicknesses and skew are used to check the span length along the roadway to aide in determining whether a proposed structure is a culvert or a bridge. A command button is provided to open the Data Point Station and Elevation visual basic application to identify the flow point for placement of the structure by station and elevation.

DrawTempSlopeDrain.mvba Draws in a temporary slope drain with inlet symbol and optional rip-rap at the outlet end. The pipe is drawn in with the appropriate custom line style. Geopak Adhoc data for pay item number, description, unit and roadway side slope is added to the pipe line element so that quantities can be calculated later by Geopak's D&C Manager. The side slope value is used during final quantity calculations to adjust the measured horizontal length of pipe since these pipes follow the roadway side slope. On the Draw Temporary Slope Drain dialog is a command button for Pay Item Info. When the user clicks on this option, the User Specified Pay Item Values dialog opens. This dialog contains fields for entering pay item number, description, unit and roadway side slope information with options to modify or read pay item information assigned to previously placed graphics.

DrawTypeAEndwall.mvba Draws proposed Type A pipe endwalls in the plan view given 2 user defined points to define the pipe angle and values for pipe size, pipe type, skew and skew direction to determine the dimensions & quantities. Endwall definition data with required standard drawings and quantities is written as Geopak adhoc data attributes on the line string which forms the endwall. Includes separate dialog to review endwall information.

DrawTypeSDEndwall.mvba Draws proposed Type SEW & 12D pipe endwalls in the plan view given 2 user defined points to define the pipe angle and values for pipe size, pipe type, side slope and type (with or w/o grate) to determine the dimensions & quantities. Endwall definition data with required standard drawings and quantities is written as Geopak adhoc data attributes on the line string which forms the endwall. Includes separate dialog to review endwall information.

DrawTypeSTEndwall.mvba Draws proposed Type Straight pipe endwalls in the plan view given 2 user defined points to define the pipe angle and values for pipe size, pipe type, skew, skew direction and number of pipes to determine the dimensions & quantities. Endwall definition data with required standard drawings and quantities is written as Geopak adhoc data attributes on the line string which forms the endwall. Includes separate dialog to review endwall information.

DrawTypeUEndwall.mvba Draws proposed Type U pipe endwalls in the plan view given 2 user defined points to define the pipe angle with pipe size, pipe type, side slope, skew, skew direction, number of pipes and type (with or w/o grate) to determine the dimensions & quantities. Endwall definition data with required standard drawings and quantities is written as Geopak adhoc data attributes on the line string which forms the endwall. Includes separate dialog to review endwall information.

DrawVehicleTrajectoryPath.mvba This program is used draw a vehicle trajectory path to help determine the point of need for guardrail. Options on its dialog are provided for the Alignment Orientation: Tangent or Curve Section, Path to Hazard Location: Begin or End Left or Right and the desired Tangent Trajectory Angle. Note that for tangent sections the tool uses the Construct Line at Active Angle to a Line and for curve sections it uses the Construct Tangent to a Curve tool.

ErosionControlCells.mvba Access erosion prevention and sediment control cells. Includes access to programs to place EPSC area patterns, permanent slope drains, temporary slope drains, filter assemblies by catch basin type, proposed trees, storm water outfall labels and legend cells.

ErosionControlLegendCells.mvba Access erosion prevention and sediment control legend cells.

ExistingPipeProfileLabeler.mvba Draws and labels existing pipes on the profile. Chain, reference datum, and scale information is attained when the user selects the Geopak profile cell. Scale controls text sizes that are used. When the Apply command button is clicked the GPK file is scanned for all existing pipe features and any that intersect the specified chain are

drawn and labeled on the profile based on the information found in the GPK file.

Generate2Dfrom3DTop.mvba This program generates a 2D design file of a 3D model from the top view maintaining all elements and their X & Y coordinate values. Traps are provided to check for attempts to use in a 2D file and to check for the existence of the file to be created with an option to overwrite. After 2D file creation you are offered an option to open the file.

GeoTechAreaPatterns.mvba This program provides access to Geotechnical Engineering area pattern cells. Clicking on any area pattern in the dialog list will make all settings for that area pattern, start the area pattern tool and show an example in the preview window. In addition, it sets the active level used for the area pattern. The active scale is given in a keyin field which is used to control the pattern scale and pattern delta. Command buttons are provided to Change Pattern Element Level and Place Area Pattern (to restart the area pattern command).

GetCogoElement.mvba VBA program provided by Bentley to read COGO element attributes from graphic elements. This program is not used directly by the user but is called as a function by other VBA programs.

HA_IntersectLabel.mvba Labels horizontal alignment (chain) intersections in the plan view and includes an alternate dialog for labeling chain ends with station and coordinate values. It includes a Type option which sets the graphics attributes & text sizes based on selection which include: Proposed Centerline, Preliminary Centerline, Existing Drainage, Existing Centerline & Scratch. . Terminator option sets the type of terminator to be displayed at end of leader line if desired. Also includes a coordinate decimals control to adjust the displayed accuracy of the coordinate values. The default is 4. The dialog has a preview window so that you can see how the label will appear when placed.

For the Label Intersections dialog view, the mainline chain and intersecting chain drop-downs are populated based on chains stored in the GPK file. Text boxes display chain name and intersecting station for each chain and can be modified within each text box. If multiple intersections are found a Select Intersection Number control is displayed so that the user can pick the correct one to be labeled.

For the Label Chain Ends dialog view, all visible controls described above behave the same. The option buttons indicate which end of the chain is to be used to generate text displayed in the label and its location.

For both dialog views, clicking the Label button will initialize dynamics so that the user may situate the label as desired. The leader end point will be either the chain

intersection or end location depending on which dialog view is active. The switch button at the bottom displays the previous view's name and is clicked to move back and forth between dialogs. All graphic and text controls can be modified on the fly and updates will be visible immediately.

HApoints.mvba Places the required point text symbols for all key points of any horizontal alignment/chain stored in the project GPK file in the plan view. The PI symbol (triangle) with short sub tangents are placed for all spiral-curve combinations or simple curves. The point on chain symbol (circle) is placed at the begin & end and at all on chain curve points. The PI symbol (triangle) by itself is placed at any break in tangent direction without a curve along the horizontal alignment. An ID chain button is provided to select the chain graphically. This is applicable to the following horizontal alignment types: Proposed Roadway Centerline, Preliminary Roadway Centerline, Existing Roadway Centerline, Proposed Special Ditch Centerline, Existing Stream Baseline, Functional Roadway Centerline, Proposed Private Drive Centerline.

HighwayRouteSignCells.mvba Access highway route sign cells. Includes tools for placement of annotation, leader lines and symbols as permanent or temporary signs. Also includes option to fill in route number on sign face.

IDCBandPlaceFilterAssembly.mvba Places the appropriate erosion control filter assembly cell based on the catch basin cell identified with a spin to set angle.

IplotSet.mvba Copies the Iplot settings file chosen to IPLOT.SET so that those settings will be used by default. First a file list dialog box is opened with a list of the Iplot settings files from the default settings folder. Once the file is chosen the macro deletes the existing iplot.set file, copies the new file to iplot.set and then displays a success message on the dialog to indicate the settings file that was activated. The settings file list dialog remains active so that other settings can be chosen later if desired. The macro displays an error message if iplot.exe is not found in C:\Program Files (x86)\Common Files\InterPlot\IPLOT\bin.

LabelConduit.mvba Places a conduit label specified by user or by identifying conduit or fiber optic line. Set up for application for lighting or signalization.

LabelEPSCStormWaterOutfalls.mvba Places storm water outfall labels on EPSC sheets. Includes control of label text and an auto increment option for the number or suffix letter of the label.

LabelPullBox.mvba Places a pull box label specified by user or by identifying pull box. Set up for application for lighting or signalization.

LightingCells.mvba Access lighting cells. Includes access to programs Label Conduit, Label Pull Box, Place Jack/Bored Conduit and Place Cell.

MeasureAreaandAnnotate.mvba Starts up MicroStation's Measure Area command with option to annotate last area calculated in square feet and acres using active level and color. In metric files dual units are given. Includes option to re-start Measure Area as needed.

mfc2dtm.mvba Aerial Survey program used to convert planimetric data to DTM specifications. Program should **only** be used on a copy of the original mfc file. Program assumes all data is collected to TDOT standard specifications.

MoveRasterbyDatumAdjust.mvba This program moves a raster file by a user given datum adjustment factor. The dialog includes the field to enter the datum adjustment factor as needed and command buttons to open Raster Manager so that raster files to be moved can be selected, to move selected raster attachments by the datum adjustment factor and for cases where the factor may have been in error, one to move raster files back to their original locations based on the adjustment factor. One or more raster files can be moved at the same time.

PavementMarkingCells.mvba Access pavement marking cells. Also includes buttons to access VBA programs to place stop bars, crosswalks or yield lines as well as an option to set the active angle by 2 points.

PermitFormsCells.mvba Access permit and form cells. Includes option to drop cell for editing.

PlaceandAnnotateXSsheets.mvba Places graphics for roadway or culvert cross section sheets. Includes options to place shared sheet cells, plot borders, title and project data annotation.

PlaceArrowHead.mvba Access arrow head cells. Includes options to place by 2 points using active level and color or as element terminator as well as a scale control field with set scale option.

PlaceBillboardSign.mvba This Aerial Survey program places an existing billboard sign and includes options for 1 or multiple posts and whether to set post size dynamically. Aerial Surveys feature #603 (graphic group #) is set automatically for the graphics. Dialog also includes a command button to call the Aerial Survey Place Overhead Sign vba program.

PlaceCoorGridTick.mvba Place a single dynamic coordinate grid tick with annotation or as a group with a user defined range and increment.

PlaceCrosswalk.mvba Place parallel or longitudinal bar crosswalk. Longitudinal crosswalks include additional background graphics used in quantity calculations.

PlaceJackedBoredConduit.mvba This program places jacked or bored conduit under roadways. Choices are given for the pull box type (Type A, Type B, Type C, Fiber Optic Type A or Fiber Optic Type B) and conduit size (2" or 3"). The active scale is shown with a keyin field which is used to control the size of pull boxes and other symbolization. Graphics which are placed include: pull boxes, filled shape across roadway to indicate that conduit is jacked or bored and a conduit line between the pull boxes. The conduit line is placed at the appropriate custom line style for later quantity calculation. Set up for application for lighting or signalization.

PlaceLabel.mvba Places leader lines and includes options for two lines of text with or without a horizontal line between them and terminator with your choice of arrow heads or a dot at the end. This program uses the current active settings for level, color & weight and is the perfect tool when used in conjunction with Text Styles Plus which sets those parameters. Also includes button to access VBA program Text Styles Plus as well as a scale control field.

PlaceLightPole.mvba This Aerial Survey program places an existing Light pole and includes options for non-utility light poles with 1, 2, 3 or 4 lights or high mast full, half or offset luminaires. You can also include a guy wire and anchor with the placement. Aerial Surveys feature numbers (graphic group #) 801, 802, 803, 804, 830, 831 & 833 are set automatically for the Light pole cells depending on the type. Guy wire graphics are placed with Aerial Surveys feature #820. Dialog also includes a command button to call the program to place guy wire with anchor only and a command button to call the Aerial Survey Place Utility Pole vba program.

PlaceNorthArrow.mvba Place standard north arrow cell at true north.

PlaceOverheadSign.mvba This Aerial Survey program places an existing overhead sign and includes options for 1 or 2 posts and whether to set post size dynamically. Aerial Surveys feature #651 (graphic group #) is set automatically for the graphics. Dialog also includes a command button to call the Aerial Survey Place Billboard Sign vba program.

PlacePlanPhaseStamps.mvba This program is used to place (for the first time), replace or remove plan phase stamp cells in plan sheet files. When the command is first started the Place Plan Phase Stamps in File dialog is displayed. Drop down lists are provided to specify plan phase stamp to be replaced, new plan phase stamp to be placed and plan phase stamp to be just removed.

The option None in the Remove Current Stamp w/o Replacement: list allows first time placement or replacement using the other lists. If the remove option is set to anything else then that is searched for and removed and the other list values are ignored.

The option None in the replace list allows for first time placement of a plan phase stamp in the sheet files. As noted in the dialog, first time placements are set at a default location based on the sheet type which is normally above the engineer's seal block.

After a first time placement, sheets should be reviewed for location adjustment as needed. If any stamp other than the None option is set under Replace Current Stamp:, then the files are searched for that stamp cell which when found is replaced by the value set under Place New Stamp: Once those options are set use standard selection methods to highlight the MicroStation files to be processed. All files with DGN, 2D, 3D or SHT extensions from the open DGN file's folder are included in the list.

A command button is provided to select just the SHT files as well as one to select all of the files. When files to be processed have been selected, click on the Process Files command button to start the placement of plan phase stamps. Each file is opened and processed. During processing a file count is provided in the MicroStation Status message field. When finished a completion message box is displayed.

PlaceProposedTrees.mvba This program places proposed trees and adds Geopak Adhoc data for pay item number, description, unit and quantity to the cell element. This data is used later by Geopak's D&C Manager to compile final quantities. The size of the tree cell is controlled by the current active scale which is shown on the dialog for adjustment as needed. The Place Proposed Tree dialog includes all standard proposed tree pay items which can be chosen for placement. At the end of the list on the Place Proposed Tree dialog is an option for a user specified tree. When the user clicks on this option, the User Specified Pay Item Values dialog opens. This dialog contains fields for entering pay item number, description, unit and quantity. The Read Element command button on the dialog is provided in case the user wishes to duplicate the pay item values from a tree placed previously. This can also be used to just check trees already placed.

PlaceSteps.mvba This program places stairway steps when four points are given by the user to establish its location and dimensions. This was created specifically for use by Aerial Surveys personnel for use when gathering topographic information from aerial photography.

When started, the program immediately prompts the user for a point on a left corner of the stairway. A second point

is requested to set the end of the stairway on the left. These 2 points determine the length as well as the elevations at each end of the steps. A third point is requested from the right side to set the stairway width. The fourth and final point is measured from the 3rd point to set the step's depth (width across the top). This measurement and the elevation change from top to bottom are averaged for application along the stairway.

After the last point is provided all graphics are written to the file as lines with the graphic group number/ISFC feature code of 45. At any time during point placement, resets can be used to back up for re-entry of previous points. Although set up for 3D DGN application with elevations, this tool can be used in 2D DGNs although all elevations will be zero.

PlaceStopBar.mvba Place stop bar. Includes fill shape and line for quantity calculation.

PlaceTransTower.mvba This Aerial Survey program places an existing transmission tower. Aerial Surveys feature #811 (graphic group #) is set automatically.

PlaceUtilityPole.mvba This Aerial Survey program places an existing utility pole and includes option for a regular utility pole or a utility pole with light. You can also include a guy wire with an anchor with the placement. Aerial Surveys feature #800 (graphic group #) is set automatically for the utility pole cells. Guy wire graphics are placed with Aerial Surveys feature #820. Dialog also includes a command button to call the program to place guy wire with anchor only. Dialog also includes a command button to call the Aerial Survey Place Light Pole vba program.

PlaceVegetation.mvba This Aerial Survey program places existing vegetation and includes options for tree, bush, woods line, hedge and brush line. The size of the tree cell is set dynamically with 2 points to reflect the actual coverage of the tree crown. Aerial Surveys feature numbers (graphic group #) 400, 403, 404, 405 & 408 are set automatically for the vegetation depending on the type.

PlaceYieldLine.mvba Place yield line triangle pavement marking. Key in fields are provided to control triangle base width and spacing. Triangle shapes are placed with line style used for area quantity calculations.

PlanPhaseCells.mvba Access plan phase stamp cells. Includes a command button to call the program to place place plan phase stamps in multiple files.

PreV8iDotPatternFix.mvba This program scans all graphics in the active file and then reads for any dot pattern elements and duplicates the circle for the filled dot without fill so that they will plot

correctly and create printable patterns in PDF documents as well. This replicates the way MicroStation V8i patterns with filled shapes where it duplicates the shape without fill so that the weight of the shape is honored when printing.

PublicHearingCells.mvba Access public hearing cells.

RegulatorySignCells.mvba Access regulatory sign cells. Includes tools for placement of annotation, leader lines and symbols as permanent or temporary signs.

RotateElementHorizontal.mvba Rotates identified element horizontal to the view it is picked in. For shapes or line strings it reads the nearest segment to set the element's rotation.

RotateFenceContentsHorizontal.mvba Rotates the contents of a fence or selection set horizontal to the view based on 2 points which define the desired horizontal.

SchoolSignCells.mvba Access school sign cells. Includes tools for placement of annotation, leader lines and symbols as permanent or temporary signs.

SetTextParametersAS.mvba Sets the active text size, weight, and line spacing based on the given plot scale and the text size desired when plotted. The user given scale is used to set the active scale. To avoid problems when placing text the Text node lock is turned off. This tool is best used after picking a standard text style from the program, Text Styles Plus, which will set the appropriate level and color for the text.

SheetTitleCells.mvba Access sheet title cells.

SignalHeadCells.mvba Access signal head face cells. Includes options to place signal head number list annotation and left turn signal sign face with annotation.

SignalHeightAttachmentDiagram.mvba Generates a signal attachment height diagram from proposed signalization plan view graphics in a selection set. The diagram scale factor and the current active scale is shown with keyin fields to reset as needed.

SignalizationDeviceCells.mvba Access signalization device cells. Includes options to place signal head number with circle, place mast arm by length and place pedestrian signal head with leader. Also includes command buttons to access Signal Head Cells, Place Signal Attachment Height Diagram, Station Offset Labeler, Label Conduit, Place Cell, Data Point Station Offset Place Jack/Bored Conduit, Draw Curb Ramp, Geopak's DP Station Offset, D& C Manager and Draw Transition tool as well as an option to set the active angle by 2 points.

SignDetailCells.mvba Access sign detail cells.

SlopeCalculater.mvba **C**alculates slopes based on 2 points and if desired will place a label for the slope. Slope is shown in the dialog in the 3 standard formats: cross slope, percent grade & side slope. Slope label graphics are placed at the current active level, symbology & text parameters.

StaOffLabel.mvba Places a station & offset label based on any chain stored in the Geopak GPK file with optional title text line and terminator. An ID chain button is provided to select the chain graphically. Includes a dynamic mode with ability to lock station or offset values. Label can be placed as a flag or perpendicular to the chain. This program uses the current active settings for level, color & weight and is a great tool when used in conjunction with Text Styles Plus which sets those parameters and includes a button to access that VBA program as well as a scale control field. Metric application includes both metric & English measurements for the offset.

StormDrainagePipeLabel.mvba Places proposed storm drainage pipe labels. It is intended for use on short pipes which cannot display the size portion of the storm drainage pipe custom line style. It includes an option to identify the pipe to automatically set up the desired label text. An option to place the label as a flag with terminator is provided. The current active scale is shown with a keyin field to reset as needed. Scale is used to control the size of label text and terminator.

StandardSheetCells.mvba Access standard sheet cells. Also includes buttons to access VBA programs to access sheet title cells & to place north arrow.

SurveyProjectWorkFlowToolbox.mvba This toolbox provides access to many of the tools, commands and functions used most often by TDOT Survey personnel. It is an alternative to access of them through the Geopak Survey drop down menu and are presented in a work flow format as was shown on the Survey Operations dialog in Geopak 2001. The dialog includes the following categories: Project Control, Dataset Processing, Graphics Display, Coordinate Geometry & DTM Processing. When this vba program is started Geopak Survey is loaded and when the dialog is closed Geopak Survey and the vba is unloaded.

TDOTDesignDivToolbox.mvba This toolbox is an alternate access point to all cell dialogs as well as common programs used on a daily basis. It also includes access to several frequently used MicroStation & Geopak functions.

TennesseeSignCells.mvba Access Tennessee sign cells. Includes tools for placement of annotation, leader lines and symbols as permanent or temporary signs.

TextstylesPlus.mvba This program takes up the slack from text styles used through MicroStation's text commands. When used alone, MicroStation's text styles only set basic text controls and text color based on a single scale. Program sets the appropriate text style but also the level and weight required. The text sizes are automatically updated based on the current active scale and the current active color is set to match the text style color in case leader lines are required. Also includes button to access VBA program Place Label with Leader Line as well as a scale control field.

TitleSheetCells.mvba Access title sheet cells. Also includes button to access VBA program to place a north arrow cell.

TopographicCells.mvba Access topographic cells. Also includes buttons to access VBA programs to place a single dynamic coordinate grid tick or coordinate grid ticks as a group and to place a north arrow cell.

TrafficControlCells.mvba Access traffic control device cells. Includes access to programs to place construction signs, work zone area pattern and traffic control legend cells.

TrafficControlLegendCells.mvba Access traffic control legend cells.

TrafficFlowDiagramCells.mvba Access traffic flow diagram cells.

TypicalSectionCells.mvba Access typical section cells. Also includes access to VBA programs to code pavement layers and place area patterns as well as an option to drop cells for editing.

UpdateProjectCriteriaFiles.mvba Copies selected project cross section criteria files from the standard criteria folder to the project folder. The standard criteria folder is determined by MicroStation configuration variable GPK_MY_CRITERIADIR. For use when revised criteria files are downloaded from the web and need to be updated in the project folder also.

UtilityCellsProp.mvba Access proposed utility cells.

UtilityCellsExist.mvba Access existing utility cells.

V8_Import.mvba This program is used to delete old level filters, text styles and import new V8i levels, level filters and text styles. It can also be used to re-attach the standard color table when it is revised.

This program was originally developed for use when converting V7 project DGN files to V8 and can still be used for this purpose if needed. After using MicroStation's Batch Converter for the initial conversion of the files with levels 1-63, this program is used to delete old V7 level filters, import additional V8i levels, filters & text styles, attach the V8i color table and to reset English working units to survey feet.

VA_labeler.mvba Places annotation for vertical alignments stored in the Geopak GPK database including points, curves, grades, crest & sag locations. Applicable for use with roadways, special ditches or private drives. RD01 vertical curve design standards are used to determine design speeds and are read from the text file VALabel_Speed_kvl.txt.

Includes sub-program, **Label Intersections**, which will annotate intersections with other chains on the profile. This also includes an option for user defined locations to be labeled which can be saved out for later recall.

VerticalCurveDesign.mvba This program is set up to be used to design or check vertical curves for roadways. Entrance and exit grades for the vertical curve can be keyed in or identified graphically. After the grades are set, one of 3 Design Controls must be set, length, K value or design speed. Clicking on the Calculate Curve command button computes the unknown design values, displays them in the dialog and the curve is temporarily visualized in graphics. If desired, the curve can be drawn in permanently by clicking the Draw Curve command button. Curve graphics include the curve and circle point text symbols at the VPC, VPI & VPT. RD01 vertical curve design standards are read from the text file VALabel_Speed_kvl.txt.

ViewON1thru4.mvba This program turns on views 1 to 4 and makes sure that views 5 to 8 are off. Finally it tiles views 1 to 4. This is set up to help set views in Aerial Surveys files while they are inside photogrammetry software doing photo review and clean up.

WarningSignCells.mvba Access warning sign cells. Includes tools for placement of annotation, leader lines and symbols as permanent or temporary signs.

XSTextstylesPlus.mvba Set up specifically for use in cross section files, this program takes up the slack from text styles used through MicroStation's text commands. Program sets the appropriate text style but also the level and weight required. The text sizes are automatically updated based on the current active scale and the current active color is set to match the text style color in case leader lines are required. Also includes button to access VBA program Place Label with Leader Line as well as a scale control field.

Standard TDOT Roadway Design Division Interface

MicroStation Interface

C:\ProgramData\Bentley\MicroStation V8i (SELECTseries)\WorkSpace\Interfaces\MicroStation\tdot

tdot.dgnlib

MicroStation V8i dgnlib interface file provided to access Roadway Design Division programs as well as some commonly used MicroStation functions in a **TDOT** drop down menu from the main MicroStation menu bar.

Also includes the **Roadway Design Division Tool Strip** with access to:
Roadway Design Division Tool boxes (Roadway Design Division Tool box, Survey Project WorkFlow Toolbox)
Rotate to Horizontal Tools (Element, Fence/Selection Set, View by Element)
Text Styles Plus
Modify Custom Line Style Tools (Shift, Flip, Scale)
Graphic Group Lock Toggle
Plotting Tools (Iplot, Iplot Default Settings, InterPlot Organizer, MicroStation Print)

To access, set the interface option in the MicroStation Manager dialog to **tdot.**

Note: Iplot & InterPlot Organizer options are only functional if InterPlot software is loaded.

MicroStation Configuration Variables

C:\Program Files (x86)\Bentley\MicroStation V8i (SELECTseries)\MicroStation\config\appl

TDOT.cfg

MicroStation configuration variable file used to assign standard folder locations and other configurations for MicroStation and Geopak. The file includes top level settings for the MicroStation Standards and Geopak Standards folders which allow modification as needed by consultants.

Note:
If consultants do not download standard files to the default folders used by T.D.O.T. which are given in this document and on the web page for downloads, it will be necessary to edit this file to reflect the correct file locations. See web document **TDOT Roadway Design Division V8 Configurations for Consultant CADD Managers.pdf** for instructions on setting up a project level configuration file using tdot.cfg.

Standard MicroStation Level Mapping Files

C:\Users\Public\MicroStation Standards\data

TDOTV8main.csv	Main level mapping file which includes **all** standard Roadway Design Division levels. Used during batch conversion of MicroStation J/V7 non-cross section DGN files or with the Save As function in MicroStation to re-map level names in V8i DGN files.
TDOTV8xsections.csv	Cross section level mapping file which includes levels used for cross section graphics only. Used **only** during batch conversion of MicroStation J/V7 cross section DGN files to re-map level names. This is also used with V7 private drive profile DGN files developed using Geopak cross section functions

C:\Users\Public\MicroStation Standards\dgnlib

TDOTV8mainOnTheFly.csv	This file is used to map level names during "on the fly" MicroStation J/V7 DGN file conversions. This is when you attempt to open a V7 file and then tell MicroStation to go ahead and convert to V8i. Cross section DGN files **should not** be converted in this way since the wrong level names will be applied.

Standard MicroStation Image Files

C:\Users\Public\MicroStation Standards\image

The .following JPEG image files were developed from the standard MicroStation plan phase stamp cells so that they can be easily applied as watermarks to PDF plan sets using Adobe Acrobat. This requires a complete version of that software which allows the editing of PDF documents. See documentation file **Adding Plan Phase Stamps as a Watermark in PDF Plan Sets.pdf** for guidance on the use of these files.

Phase Stamp - Constructability Field Review.jpg
Phase Stamp - For Incidentals Only.jpg
Phase Stamp - For Title Search Only.jpg
Phase Stamp - Hydraulic Grade Approval.jpg
Phase Stamp - P S & E Review.jpg
Phase Stamp - Preliminary Field Review.jpg
Phase Stamp - Preliminary Plans Subject to Change.jpg
Phase Stamp - Preliminary Plans.jpg
Phase Stamp - ROW Field Review (Utilities Only).jpg
Phase Stamp - ROW Field Review.jpg
Phase Stamp - ROW Plans (Utilities Only).jpg
Phase Stamp - ROW Plans Permit Application Plan Set.jpg
Phase Stamp - ROW Plans.jpg
Phase Stamp - Unofficial Set Not For Bidding.jpg

Standard Aerial Survey Files

Aerial Survey personnel utilize many of the standard files described in this document. The following list describes some special files used by them.

Aerial50 Features Table.mdb	Feature database used with Intergraph ISFC and ISDC software which is set up for 50 scale, English application. Includes features for topographic and DTM compilation. All feature settings are based on T.D.O.T. Roadway Design Division CADD standards.
AerialColorTable.tbl	Special MicroStation color table which includes alternate color settings for use during photogrammetry compilation in conjunction with aerial photography.
camera UCX April 09	File used for calibration of the Microsoft/Vexcel UXC large format digital aerial photography camera.

Standard AutoTrack Design Vehicle Library

C:\Users\Public\Documents\AutoTrack\Library

AutoTrack software is used by Roadway Design Division personnel to investigate and design for vehicle turning movements at intersections, cul-de-sacs and other tight areas where vehicle movement may be restricted.

US_Tennessee.ATL	Tennessee design vehicle library used with AutoTrack software which is based on the AASHTO Geometric Design of Highways and Streets (2001, 2004 &2011 versions). This library only contains design vehicles applicable for use in Tennessee.

Standard Geopak Files

C:\Users\Public\Geopak Standards

The files described below control design and drafting produced with Geopak software.

Design & Computation Manager

tdot.ddb	Controls Horizontal & Vertical Alignment displays, drafting standards for all general project linework and calculates quantities from MicroStation graphics. Also provides access to special programs for drafting & design.
tdotmetric.ddb	Version of tdot.ddb for use on metric projects.

Survey Feature Preferences

TNDOT.smd	Controls graphical display of survey data. Used with COGO to visualize items stored in the GPK file.

DTM/TIN Graphic Displays

tdotEXIST.lpf	Used in conjunction with the **Load DTM Features** dialog. Controls graphical displays from digital terrain model data such as contours, surface boundaries and DTM elements. This file is for use with existing TIN surfaces.
tdotPROP.lpf	This file is for use with proposed TIN surfaces.

Label Style Files

tdotdef_plan.lsf	Used with the **Plan View Labeler** to place standard labels.
tdotdef_prof.lsf	Used with the **Profile Labeler** to place standard labels.
tdotdef_xs.lsf	Used with the **Cross Section Labeler** to place standard labels.
tdotdef_drainage.lsf	Used with the **Drainage Labeler** to place standard labels.

Horizontal Alignment Spiral Curve Design Tables

Used in conjunction with **Horizontal Alignment Generator** to design spiral curves based on the superelevation emax rate and the design speed in miles per hour. These are based on the standard roadway drawings RD01-SE-2 and RD01-SE-3.

HA_spiral_emax4.tbl	0.04 (4 %) superelevation emax rate
HA_spiral_emax6.tbl	0.06 (6 %) superelevation emax rate
HA_spiral_emax8.tbl	0.08 (8 %) superelevation emax rate
HA_spiral_emax10.tbl	0.10 (10 %) superelevation emax rate

Horizontal Alignment Turning Path Design Tables

Used in conjunction with **Horizontal Alignment Generator** to develop vehicle turning paths for intersection design. These are based on the AASHTO Geometric Design of Highways and Streets (2001 & 2004 versions). These files only contain design vehicles applicable for use in Tennessee.

HA_Turning_Path_TN_2001english.tbl	English 2001 design vehicles
HA_Turning_Path_TN_2004english.tbl	English 2004 design vehicles
HA_Turning_Path_TN_2001metric.tbl	Metric 2001 design vehicles
HA_Turning_Path_TN_2004metric.tbl	Metric 2004 design vehicles

Vertical Alignment Curve "K" Value Design Tables

tdot01.kvl	Used in conjunction with **Profile Generator** to design vertical curves based on "K" values and the design speed in miles per hour. This table uses values from the RD01 standard roadway drawings.
tdotmetric.kvl	Used in conjunction with **Profile Generator** to design vertical curves based on "K" values and the design speed in kilometers per hour. This table uses values from the RDM standard roadway drawings.
VALabel_Speed_kvl.txt	Used in conjunction with **VA Labeler**, a MicroStation vba program used to annotate vertical alignments, to determine design speeds. Also used by MicroStation vba program, **Vertical Curve Design Tool**, to determine design speeds or K values. This file includes K values and speeds from RDO1 standard roadway drawings for vertical alignments.

Superelevation Preferences

These files have been developed to apply TDOT standard superelevation based on the values and procedures indicated on the standard roadway drawings RD01-SE-2 and RD01-SE-3 for English projects (RDM01-SE-2 and RDM01-SE-3 for metric projects).

tennessee.sep	Superelevation preferences that apply the values in the English tables and sets other controls.
Tenn-RadiusTable_e.csv	English superelevation rates based on radius, max rate and design speed.
Tenn-eTable_l.csv	English transition lengths based on the number of lanes, superelevation rate and design speed.
tennesseeMetric.sep	Superelevation preferences that apply the values in the Metric tables and sets other controls.
Tenn-RadiusTable_e_metric.csv	Metric superelevation rates based on radius, max rate and design speed.
Tenn-eTable_l_metric.csv	Metric transition lengths based on the number of lanes, superelevation rate and design speed.

To use Superelevation preference files …

1. In **GEOPAK's Automated Superelevation** dialog go to the drop down option **File>Preferences**.
2. On the Superelevation Preferences dialog go to the drop down option **File>Open** and load **tennessee.sep** or **tennesseeMetric.sep**.

At this point you should now be able to access TDOT's superelevation preferences through the **GEOPAK Automated Superelevation** dialog. Click on the **Preference File** field drop down arrow and choose **tennessee** or **tennesseeMetric**.

Under the **e Selection** field clicking its drop down arrow gives you the following e max choices:

4% e max	urban desirable
6% e max	urban allowable
8% e max	rural desirable
10% e max	rural allowable

Under the **L Selection** field clicking its drop down arrow gives you the following roadway lanes choices:

2 Lane 4 Lane 6 Lane

If the **Preference File , e Selection** or **L Selection** options do not show go to drop down option **User>Directories** on the **GEOPAK Automated Superelevation** dialog and click **Default** or **Select** to set directory paths to find these files.

Drainage Files

TDOTEnglish.dlb	Geopak drainage library containing standard TDOT rainfall data tables, land use area designations, drainage nodes (catch basins, manholes & junction boxes), drainage links (pipes & boxes) and tangent spread sections. See documentation file **TDOTGeopakDrainageNodes.pdf** for a listing of all drainage nodes and their control values.
DrainageProject.gdf	Template file for creating new Geopak drainage projects for TDOT projects. Once this file is copied for a new project the user should open the **Project> Preferences** dialog under the Geopak Drainage menu bar and set the project specific values under **Project Components**, **Rainfall Parameters** and **Land Use Options**.
TDOTdrainageprefs.dpf	Drainage project preference file which can be used to reset drainage project preferences back to default values in current drainage projects.
TDOTStormSewerProfiles-Design.ppf	Preference file used with **Geopak Drainage Profiles** to control storm drainage profile displays during design of storm drainage systems and includes data such as control elevations and hydraulic grade line.

TDOTStormSewerProfiles-Plan.ppf Preference file used with **Geopak Drainage Profiles** to control storm drainage profile displays for projection onto roadway profile plan sheets.

Drainage Report Format Files

Used in conjunction with **Geopak Drainage Report Generato**r to create **csv** formatted files for import into Excel quantity tabulation blocks.

TDOTnodesFULL.drf Data for drainage nodes (catch basins, manholes, junction boxes) Includes full listing of data used by auto-build Excel template for tabulation.

TDOTlinksFULL.drf Data for drainage links (storm sewer pipes & boxes). Includes full listing of data used by auto-build Excel template for tabulation.

TDOTculvertsFULL.drf Data for drainage culverts (crossdrains & sidedrains) Includes full listing of data.

Plan & Profile Sheet Production

Used in conjunction with the **Geopak Plan & Profile Sheet** dialog to produce plans sheets.

tdot.psl Plans sheet library with settings to produce full present layout sheets, full plan layout sheets, full profile sheets , split plan/profile sheets, split plan/plan layout sheets (set up with the same station limit on top & bottom for project phase layouts) and split plan/plan layout sheets (set up with continuous stationing through top & bottom for resurfacing layouts).

Cross Section Sheet Production

Used in conjunction with the **Geopak Cross Section Sheet Composition** dialog to produce cross section sheets.

Roadway10scale.xssl Cross section sheet library with settings to produce 10 scale English roadway cross section sheets.

Roadway20scale.xssl Cross section sheet library with settings to produce 20 scale English roadway cross section sheets.

Culvert10scale.xssl Cross section sheet library with settings to produce 10 scale English culvert cross section sheets.

Culvert20scale.xssl Cross section sheet library with settings to produce 20 scale English culvert cross section sheets.

MetricRoadway100scale.xssl Cross section sheet library with settings to produce 100 scale metric roadway cross section sheets.

MetricRoadway200scale.xssl Cross section sheet library with settings to produce 200 scale metric roadway cross section sheets.

MetricCulvert100scale.xssl	Cross section sheet library with settings to produce 100 scale metric culvert cross section sheets.
MetricCulvert200scale.xssl	Cross section sheet library with settings to produce 200 scale metric culvert cross section sheets.

Typical Sections and Criteria Files

C:\Users\Public\Geopak Standards\criteria

These files have been developed to apply TDOT standard roadway typical sections as well as other non-roadway items to Geopak cross sections. All roadway typical sections are based on the “RD01-” standard roadway drawings.

***.x**	Criteria files
criteria.ctl	Default English Geopak criteria control file containing typical section definitions.
English_criteria.ctl	English Geopak criteria control file containing typical section definitions.
Metric_criteria.ctl	Metric Geopak criteria control file containing typical section definitions.
Typical.cel	Typical section cell library
***.wri**	Write documents containing descriptions of all typical sections

All T.D.O.T. Roadway Design Division roadway typical sections are set up to function in a shapeless mode with no superelevation shapes, or in conjunction with superelevation shapes in a shaped mode. In this way a preliminary proposed cross section run can be made with only a horizontal and vertical alignment set at the time or a fully defined final cross section run can be made with the same typical section and its associated criteria files.

Criteria files are set up to look for pavement, shoulder and sidewalk lines in the plan view to control transitioning of their widths. As the plans are developed, and these lines are produced in graphics at TDOT's standard symbologies, this control will be reflected on the proposed cross sections when they are processed. When guardrail and guardrail slope limit lines are present in the plan view then side slopes, median slopes and shoulders are widened or flattened as needed. The guardrail location is shown on the cross section with a single or median guardrail cell.

If superelevation shapes are applied then the slopes of pavement, shoulders and subgrade will reflect these altered values. Otherwise normal tangent cross slopes will be applied.

On roadways with medians, from the finished grade point on the left to the finished grade point on the right, criteria files are set up to deal with locations where this area is transitioned in or out. As this area narrows the inside segments are reduced or changed as the situation warrants.

Case I or Case II variable slopes are placed by default with most typical sections. Application of fixed slopes, special ditches and benching is supported. Special ditches can be placed beside the roadway, at the toe of fill slopes or at the top of cut slopes. Benches can be formed in rock cuts, earth cuts or earth fills.

Excavation limit lines which are used when generating earthwork quantities are placed at all slope ties.

The following annotation is provided on the proposed cross sections:

centerline name & station	cross section grid with offsets & elevations
finished grade elev.	cross slopes & side slopes
ditch flow line elevations	subgrade tie offset & elev.
final slope tie offset & elev.	ditch widths
bench elevations, slopes & widths	

Slope lines and ditch flow lines are produced in the proposed plan view MicroStation file if desired.

Variables used with typical sections take one of three forms:

Name.....alignment or file name.

Value.....numeric width, depth, etc.

Question.....Y or N (yes or no) to control processing.

For more detailed descriptions of the variables used by the typical sections and their criteria files, access their Write documents through Geopak's **Typical Sections** dialog under **Project Manager>Proposed Cross Sections>Shape Clusters>Typical** or by opening them from their standard file location **C:\Users\Public\Geopak Standards \criteria** .

Roadway Typical Sections:

Name	Description
1LNRMP	1 Lane Interchange Ramp
1LNRMPSE	1 Lane Interchange Ramp w/Shoulders & Subgrade at Superelevation Rate
1LNRMPU	1 Lane Urban Interchange Ramp
1LNRMPRT	1 Lane Interchange Ramp, FG on left edge of lane
1LNRMPRTU	1 Lane Urban Interchange Ramp, FG on left edge of lane
2LNLCL	2 Lane Local Roads
2LNRMP	2 Lane Interchange Ramp
2LNRMPU	2 Lane Urban Interchange Ramp
2LNRTS	2 Lane State Routes
2LNTS1A	2 Lane Local Roads (ADT<=400, RD01-TS-1A)
2LNTS2	2 Lane Collector Roads (as per RD01-TS-2)
2LNU	2 Lane Urban
2LNUS	2 Lane Urban w/Shoulders
3LN	3 Lane

3LNUS	3 Lane Urban w/Shoulders
4LNDMD	4 Lane with Depressed Median
4LNFMD	4 Lane with Flush Median
4LNILT	4 Lane Independent Roadway Left
4LNIRT	4 Lane Independent Roadway Right
4LNMB	4 Lane with Median Barrier
4LNMBU	4 Lane Urban with Median Barrier
4LNRMD	4 Lane with Raised Median
4LNU	4 Lane Urban
4LNUDS	4 Lane with Depressed Median Urban w/Shoulders
4LNUF	4 Lane with Flush Median Urban
4LNUFS	4 Lane with Flush Median Urban w/Shoulders
4LNUR	4 Lane with Raised Median Urban
4LNURS	4 Lane with Raised Median Urban w/Shoulders
4LNUS	4 Lane Urban w/Shoulders
5LNU	5 Lane Urban
5LNUS	5 Lane Urban w/Shoulders
6LNDMD	6 Lane with Depressed Median
6LNFMD	6 Lane with Flush Median
6LNILT	6 Lane Independent Roadway Left
6LNIRT	6 Lane Independent Roadway Right
6LNMB	6 Lane with Median Barrier
BRDECK	Undivided Roadway Bridge Deck
BRDECD	Divided Roadway Dual Bridge Decks
BRDECKMB	Median Barrier Roadway Bridge Deck
CROWNDITCHBENCH	Crown Roadway with Bench before Special Ditch
DMEDDITCHBENCH	Depressed Median Roadway with Bench before Special Ditch
MULTILNMB	Multi-Lane Freeway with Median Barrier
PATHIND	Independent Shared Use Path
PVTDR	Private Drive
RADII	Shoulders W/Slopes for application around intersection radii or cul-de-sac edge of pavements
RADIIU	Urban Shoulders W/Slopes for application around intersection radii or cul-de-sac edge of pavements
RECRW	Rural crown resurfacing with widening
REUCRW	Urban crown resurfacing with widening
ROUNDABOUT	Rural or Urban Roundabout
ROUNDRAMP	Roundabout Intersecting Roadway

Non-Roadway Typical Sections:

Name	Description
BERMIND	Independent Earth Berm
SDIND	Independent Special Ditch

LINEOFSIGHT	Plot Line of Sight Location
P_XEOP	Plot Existing Pavement
P_XROW	Plot Present R.O.W. Limits
P_PROW	Plot Proposed R.O.W. Limits
P_ROCK	Plot Rock Layer Top & Bottom Lines at Depth
P_ROCKB	Plot Rock Layer Bottom Line at Depth
P_TOPS	Plot Topsoil at Depth
P_UMTL	Plot Un-Suitable Material Layer
RUNWAY	Airport runway or taxiway with runway safety area
WALLLEFT	Retaining wall left of roadway centerline
WALLRIGHT	Retaining wall right of roadway centerline

Criteria Files:

Name	Description
AirportSymbDef.x	Define Variables for Runway Element Symbologies
BridgeDeck.x	Concrete Bridge Deck w/rails, sidewalk, MB walls, etc.
C&G6in.x	6 Inch Non-Mountable Curb & Gutter
CurbTypeA6inM.x	6 Inch Mountable Type A Curb
Case1slopes.x	Case I Variable Slopes
Case1slopesC&G.x	Case I Variable Slopes for Urban Areas
Case1slopesDitchBench.x	Case I Variable Slopes which include a bench between roadway and special ditch for channel change.
Case2slopes400ADT.x	Case II Variable Slopes specifically for use on roadways with ADT<=400.
Case2slopes.x	Case II Variable Slopes
Case2slopesC&G.x	Case II Variable Slopes for Urban Areas
Case2slopesDitchBench.x	Case II Variable Slopes which include a bench between roadway and special ditch for channel change.
InsideShoulder.x	Inside Shoulder for Divided Roadways
LineofSight.x	Locate and Annotate Line of Sight Centerline
MedianBarrierShlds.x	Concrete Median Barrier w/Inside Shoulders
MedianBarrierPavement.x	Pavement & Subgrade w/Widening for median barrier divided roadways
MedianDep4.x	Depressed Median w/4:1 Slopes
MedianDep6.x	Depressed Median w/6:1 Slopes
MedianRaisedGrass.x	Raised Grass Median w/0.04 F/F slopes (Includes type A 6” mountable curbs)
MultiLaneFreewayMBPavement.x	Multi-Lane Freeway with MB Pavement & Subgrade w/Widening
MultiLaneFreewayMBShlds.x	Multi-Lane Freeway Concrete Median Barrier with Shoulders
Pavement.x	Pavement & Subgrade w/Widening

PavementResurfW.x	Resurfacing Pavement & Subgrade w/Widening
PlotExistPavement.x	Plot Existing Pavement
PlotPresentROW.x	Plot Present R.O.W. Limits
PlotProposedROW.x	Plot Proposed R.O.W. Limits
PlotRockatDepth.x	Plot Rock Layer at Specified Depth
PlotTopsoilatDepth.x	Plot Topsoil Layer at Specified Depth (Inches)
PlotUnsuitableMatl.x	Plot Un-Suitable Material Layer at Depth & Width
PvtDrPavement.x	Private Drive Pavement & Subgrade
PvtDrslopes.x	Private Drive Side Slopes
PvtDrVar.x	Private Drive Variables
RadiusShoulder.x	Outside shoulder used along EOP radii
RadiusUrbanShoulder.x	Outside urban shoulder used along EOP radii
RaisedMedianPavement.x	Pavement & Subgrade w/Widening for raised median divided roadways
RampCase1slopes.x	Case I Variable Slopes for Ramps
RampInsideShoulder.x	Inside Shoulder for Ramps
RampInsideShoulder_at_SE.x	Inside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampPavement.x	Ramp Pavement & Subgrade w/Widening
RampRightPavement.x	Ramp Right Pavement & Subgrade w/Widening
RampShoulder.x	Outside Shoulder for Ramps
RampShoulder_at_SE.x	Outside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampUrbanInsideShoulder.x	Urban Inside Shoulder for Ramps
RampUrbanShoulder.x	Urban Outside Shoulder for Ramps
RetainingWall.x	Retaining wall with backslopes to ground on cross sections with optional earth or concrete swale ditch behind wall. Creates ASCII text files with wall area and wall stake-out point information.
RoundaboutC&G4in30RM.x	4" Roundabout Mountable Curb & Gutter
RoundaboutCentralIsland.x	Roundabout Central Island w\Type "A" 6" NM Curb
RoundaboutPavement.x	Roundabout Pavement & Subgrade w/Widening
RoundaboutRampPavement.x	Roundabout Intersecting Roadway Pavement & Subgrade w/Widening
RoundaboutSplitterIsland.x	Roundabout Splitter Island w/6" Non-Mountable Curb & Gutter
RoundaboutTruckApron.x	Roundabout Truck Apron
RunwayPavement.x	Pavement & Subgrade w/Widening for Airport Runways & Taxiways
RunwayShoulder.x	Outside Shoulder used with Airport Runways & Taxiways
RunwaySlopes.x	Airport Runway & Taxiway Side Slopes
SharedUsePathInd.x	Independent Shared Use Path (not connected to roadway)

Shoulder.x	Outside Shoulder
Shoulder_fullsuper.x	Outside Shoulder which applies full superelevation to shoulder on finished grade and subgrade
Shoulder_no_04Max.x	Outside Shoulder w/o .04 Max Superelevation
ShoulderResurfW.x	Resurfacing Outside Shoulder
SidewalkAreaLeft.x	Left Sidewalk & Grass Areas beyond Curb
SidewalkAreaRight.x	Right Sidewalk & Grass Areas beyond Curb
SpecialDitchInd.x	Independent Special Ditch (not connected to roadway)
SymbDef.x	Default Define Variables for all Element Symbologies
SymbDefEnglish.x	English Define Variables for all Element Symbologies
UrbanPavement.x	Pavement & Subgrade w/Widening for Urban Areas
UrbanShoulder.x	Outside Shoulder used with Curbs and C&G in Urban Areas
UrbanPavementResurfW.x	Resurfacing Pavement & Subgrade w/Widening for Urban Areas
UrbanShoulderResurfW.x	Resurfacing Outside Shoulder used with Curbs and C&G in Urban Areas
Var*.x	Re-Definable Variable files used to control special side slope conditions such as fixed slopes, special ditches and benching
Vdef*.x	Define variable files used to set default values

Criteria Files not used directly by the typical sections:

These files as well as any other criteria files can be added to roadway side slope conditions as needed in special areas.

Name	Description
BarrierAtNoiseWall.x	Concrete Barrier 51" Wall at Noise Wall
BarrierHalfWall.x	Concrete Barrier Half Wall as used in front of retaining walls, median piers or sign supports
BarrierWall.x	Concrete Median Barrier Wall
Berm.x	Berm for application along roadway
BermInd.x	Berm for independent application
Case2slopesToWall.x	Case II Variable Slopes which extends to a “Wall” which has been created in a previous run
CompositeSideSlope.x	Composite Side Slope Tie to ground
ConcreteSwale.x	Concrete Swale Ditch
ConcreteSwaleAtNormalDitch.x	Concrete swale at normal ditch location with rural roadway subgrade closure
C&G4inM.x	4 Inch Mountable Curb & Gutter
C&G6inM.x	6 Inch Mountable Curb & Gutter
CurbTypeA4inM.x	4 Inch Mountable Type A Curb
CurbTypeA6in.x	6 Inch Non-Mountable Type A Curb

CurbTypeB4inM.x	4 Inch Mountable Type B Curb
CurbTypeB6in.x	6 Inch Non-Mountable Type B Curb
CurbTypeB6inM.x	6 Inch Mountable Type B Curb
CurbTypeB6inMBack.x	Special version of 6 Inch Mountable Type B Curb which is used at the end of final slope tie and is drawn in backwards for tie to existing parking lot.
GrassSeparatortoWall.x	Urban Grass Separator which starts at the back of curb and extends to a “Wall” which has been created in a previous run.
MedianRaisedConc.x	Raised Concrete Median w/0.02 F/F slopes (Includes type A 6” mountable curbs)
MedianRaisedGrass8to1NoCurb.x	Raised Grass Median w/8:1 slopes & w/o curbs
MedianSlope.x	Single 6:1 median slope
MedianDep10.x	Depressed Median w/10:1 Slopes
MedianDep6-10.x	Depressed Median w/6:1 subgrade tie & 10:1 median slopes
PlotRockBottom.x	Plot Bottom of Rock Layer at Specified Depth for use where rock surfaces are developed for the top of rock
PvtDrProfileRural.x	Private Drive Profiles - Rural Roadways
PvtDrProfileUrban.x	Private Drive Profiles - Urban Roadways
PvtDriveProfileUrbanTypeACurb.x	Private Drive Profiles - Urban Roadways w/type A detached curb
RampBarrierHalfWall.x	Concrete Barrier 51" Half Wall for Ramps.
RampShoulderToWall.x	Ramp Shoulder which extends to Walls (already in place).
RampSideSlopeToWall.x	Ramp Side Slope which extends to a “Wall” which has been created in a previous run with optional earth or concrete swale ditch at wall intersection.
SharedUsePath.x	Shared Use Path along the edge of a roadway with tie to roadway
SharedUsePathNoRoadway.x	Independent Shared Use Path along the edge of a roadway without tie to roadway
ShoulderToWall.x	Outside Shoulder which extends to a “Wall” which has been created in a previous run
SideSlopetoChainProfile.x	Side Slope Tie to Chain & Profile. Includes separate controls for left and right, used to force slope ties to user’s specified locations.
SideSlopeToWall.x	Side Slope which extends to a “Wall” which has been created in a previous run with optional earth or concrete swale ditch at wall intersection.
SideSlopeToWallUrban.x	Side Slope which extends to a “Wall” which has been created in a previous run with optional earth or concrete swale ditch at wall intersection for use with urban retaining walls in fill or cut.
SimpleSideSlope.x	Simple Side Slope Tie to ground

SimpleSideSlopeRamp.x	Simple Side Slope Tie to ground for Ramps, includes subgrade tie subroutine.
SlopeButtress1.5.x	Fill Slope Buttress - 1.5.1 buttress slope based on top of buttress elevation.
SubgradeIntercept.x	Wedge Subgrade Closure at Ditch Slope.
SubgradeVerticalTie.x	Forms vertical tie from subgrade to FG, for use at edge of lane additions etc. where normal side slopes are not needed on one side of cross section.
SubgradeVerticalTieRamp.x	Forms vertical tie from subgrade to FG, for use with ramp typicals at edge of lane additions etc. where normal side slopes are not needed on one side of cross section.
SubgradeVerticalTieResurf.x	Forms vertical tie from subgrade to FG, for use with resurfacing typicals where section ends within exiting pavement and subgrade depth equals overlay height plus pavement removal depth.
SubgradeVerticalTieShoulder.x	Forms vertical tie from subgrade to FG, for use at outside edge of shoulder where normal side slopes are not needed on one side of cross section.
SubgradeVerticalTieShoulderNoGround.x	Forms vertical tie from subgrade to FG, for use at outside edge of shoulder without a final tie to ground.
Swaleslopes.x	2:1 side slope for outside concrete swale ditch
VarBenchCatchment.x	Special criteria file written to vary catchment special ditch depths and widths at the base of rock cuts.
VdefCompositeSideSlope.x	Special criteria file written to set variable definitions for use with CompositeSideSlope.x.

Metric Criteria Files:

Most criteria files are can be used for Metric or English but some do include hard coded values. The following criteria files are set up with hard coded values for Metric. Note that any variables specified as inches should be entered as millimeters. To automatically apply metric criteria files with typical sections, replace the file criteria.ctl in the criteria directory with Metric_criteria.ctl and rename as criteria.ctl. To apply the metric text symbology settings it will be necessary to replace the file SymbDef.x with SymbDefMetric.x renamed as SymbDef.x .To switch back to English repeat these procedures with English_criteria.ctl and SymbDefEnglish.x.

Name	Description
Case1slopesmetric.x	Case I Variable Slopes
Case1slopesC&Gmetric.x	Case I Variable Slopes for Urban Areas
Case2slopesmetric.x	Case II Variable Slopes
Case2slopesC&Gmetric.x	Case II Variable Slopes for Urban Areas
Case2slopesmetric400.x	Case II Variable Slopes specifically for use on roadways with ADT<=400.
CurbTypeA6inMmetric.x	150 mm Mountable Type A Curb
C&G6inMetric.x	150 mm Non-Mountable Curb & Gutter

InsideShoulderMetric.x	Inside Shoulder for Divided Roadways
PavementMetric.x	Pavement & Subgrade w/Widening
PvtDrProfileRuralMetric.x	Private Drive Profiles - Rural Roadways
PvtDrProfileUrbanMetric.x	Private Drive Profiles - Urban Roadways
MedianRaisedConcMetric.x	Raised Concrete Median w/2% slopes (Includes type A 150 mm mountable curbs)
MedianRaisedGrassMetric.x	Raised Grass Median w/4% slopes (Includes type A 150 mm mountable curbs)
RaisedMedianPavementMetric.x	Pavement & Subgrade w/Widening for raised median divided roadways
RampCase1slopesMetric.x	Case I Variable Slopes for Ramps
RampInsideShoulderMetric.x	Inside Shoulder for Ramps
RampInsideShoulderMetric_at_SE.x	Inside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampPavementMetric.x	Ramp Pavement & Subgrade w/Widening
RampShoulderMetric.x	Outside Shoulder for Ramps
RampShoulderMetric_at_SE.x	Outside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampUrbanInsideShoulderMetric.x	Urban Inside Shoulder for Ramps
RampUrbanShoulderMetric.x	Urban Outside Shoulder for Ramps
RetainingWallMetric.x	Retaining wall with backslopes to ground on cross sections with optional earth or concrete swale ditch behind wall. Creates ASCII text files with wall area and wall stake-out point information.
ShoulderMetric.x	Outside Shoulder
Shoulder_fullsuperMetric.x	Outside Shoulder which applies full superelevation to shoulder on finished grade and subgrade
ShoulderResurfWMetric.x	Resurfacing Outside Shoulder
Shoulder_no_04MaxMetric.x	Outside Shoulder w/o .04 Max Superelevation
SidewalkAreaLeftMetric.x	Left Sidewalk & Grass Areas beyond Curb
SidewalkAreaRightMetric.x	Right Sidewalk & Grass Areas beyond Curb
SymbDefMetric.x	Metric Define Variables for all Element Symbologies
UrbanPavementMetric.x	Pavement & Subgrade w/Widening for Urban Areas
UrbanShoulderMetric.x	Outside Shoulder used with Curbs and C&G in Urban Areas

Construction Criteria Files:

C:\Users\Public\Geopak Standards\ConstCriteria

These special criteria files were developed for use by construction personnel. Rather than tying slopes to the existing ground they set up fake slope points which are later shot in the field. To use these simply copy them into the standard criteria directory overwriting the regular criteria files of the same name.

Name	Description
Case1slopes.x	Construction Slopes
Case1slopesC&G.x	Construction Slopes for Urban Areas
Case1slopesmetric.x	Construction Slopes (metric)
Case1slopesC&Gmetric.x	Construction Slopes for Urban Areas (metric)
Case2slopes.x	Construction Slopes
Case2slopesC&G.x	Construction Slopes for Urban Areas
Case2slopesmetric.x	Construction Slopes (metric)
Case2slopesC&Gmetric.x	Construction Slopes for Urban Areas (metric)
RampCase1slopes.x	Construction Slopes for Ramps
RampCase1slopesmetric.x	Construction Slopes for Ramps (metric)

Special Ditch & Benching Control

In TDOT's criteria files which handle side slopes, the horizontal & vertical location of special ditches and benches is controlled by a combination of the following control variable types.

Questions…….Y or N answer for yes or no

Alignment Names……Values other than "NONE"

Numbers …….Values greater than 0

The following list describes the actual variables and what they control. Note that these options are prioritized from left to right. The first situation which is true will be used.

Special Ditches

Ditch Offset & Elevation:

Special Ditch Centerline & Profile	Special Ditch Profile & Foreslope	Minimum Depth & Foreslope
Centerline Name Entered Profile Name Entered	Profile Name Entered Centerline = "None" Special Ditch Foreslope Value or Optional for Toe of Fill Ditches Fill Slope at Toe = "Y"	Minimum Depth Entered Centerline = "None" Profile = "None" Special Ditch Foreslope Value or Optional for Toe of Fill Ditches Fill Slope at Toe = "Y"

Typical Section general location:

Along Roadway	At Toe of Fill	At Top of Cut
Ditch at Toe = "N" Ditch at Top = "N"	Ditch at Toe = "Y" Ditch at Top = "N"	Ditch at Top = "Y" Ditch at Toe = "N"

Shape of Special Ditch:

"V" Ditch	Trapezoidal Flat Bottom Ditch
Special Ditch Width = 0	Special Ditch Width > 0

Low Water Keyhole Placement:

No Low Water Keyhole	Place Low Water Keyhole
LW Keyhole depth = 0	LW Keyhole depth > 0

Low Water Keyhole Shape:

"V" Keyhole	Trapezoidal Flat Bottom Keyhole
LW Keyhole width = 0	LW Keyhole width > 0

Benching

Cut or Fill & Target Layer:

Rock Cut	Earth Cut	Earth Fill
Rock Cut Bench= "Y"	Earth Cut Bench = "Y"	Earth Fill Bench = "Y"
Earth Cut Bench = "N"	Rock Cut Bench= "N"	Rock Cut Bench= "N"
Earth Fill Bench = "N"	Earth Fill Bench = "N"	Earth Cut Bench = "N"

Bench Offset & Elevation for Rock:

Single Bench at Rock	Repeating Bench	Bench at Specific Elevations
One Bench at Rock = "Y"	Repeating Bench = "Y"	Bench Elevations #1 - #n > 0
Repeating Bench = "N"	One Bench at Rock = "N"	One Bench at Rock = "N"
Bench Elevations = 0	Bench Elevations = 0	Repeating Bench = "N"
Slope to Bench Value	Slope to Bench Value	Slope to Bench Value
	Bench Height Value	Optional-Secondary Rock Slope > 0 (applied after highest Elev. Value)

Geometry at Top of Rock:

Slope to Ground only	Bench at Rock Top	Trace at Rock Top
Bench at Rock Top = "N"	Bench at Rock Top = "Y"	Trace at Rock Top = "Y"
Trace at Rock Top = "N"	Trace at Rock Top = "N"	Bench at Rock Top = "N"
	Bench Slope Value	Width at Rock Top Value
	Width at Rock Top Value	

Bench Offset & Elevation for Earth:

Repeating Bench	Bench at Specific Elevations
Repeating Bench = "Y"	Bench Elevations #1 - #n > 0
Bench Elevations = 0	Repeating Bench = "N"
Slope to Bench Value	Slope to Bench Value
Bench Height Value	

Slope to the Bench for Earth or Rock:

Vertical slope face	Side Slope Value is applied
Slope to bench = 0	Slope to bench > 0

Notes:

To apply special ditches or benches as well as fixed slopes or alternate median slopes in guardrail areas to any specified station range it is necessary to edit the re-definable variables file (Var*.x) associated with the typical section in any given area.

Catchment ditches for areas with benching may be handled by regular ditch or special ditch controls. Regular ditches can be specified with a flat bottom but if the width or depth of the ditch varies it will be necessary to use special ditch controls to handle the catchment area. Special Ditch backslope settings are ignored when benching controls are set. Criteria file VarBenchCatchment.x can be used to vary catchment ditch areas on the fly during cross section processing. Follow the instructions in the file for its application.

The optional Secondary Rock Slope is set up to be used in areas of rock cut where at a specific elevation the rock becomes to un-stable to use the slope applied up to that point and a flatter slope is required the rest of the way up to the top of the rock layer.

3PC Files for D&C Manager

C:\Users\Public\Geopak Standards\3PC

These 3 port criteria files or 3PC files as they are commonly called work in conjunction with the D&C manager to produce special graphic displays or to calculate quantities. See PDF documentation file **TDOTRoadwayDesignDivisionPrograms.pdf** for complete workflows and methods of use for these programs.

Barrel_Computation.x Reads a D&C Manager set & then counts the flexible drum cells and reports the quantity back to D&C Manager.

Barrel_ComputationMetric.x Metric version of Barrel_Computation.x.

Berm_Computation.x Reads a D&C Manager set of EPSC earth, compost or mulch berms, prompts the user for the cross section area of each berm & then calculates the total volume and reports the quantity back to D&C Manager.

Berm_ComputationMetric.x Metric version of Berm_Computation.x.

bmonpro.x Plots benchmarks with annotation from plan view on to profile. Used by Survey personnel.

count_row_markers.x Reads a selection set of a given sheet area & then counts all R.O.W. markers and appends this info to a CSV file named ROWmarkers.csv.

Curb_Computation.x Reads a D&C Manager set of curb lines, prompts the user for the volume per linear foot rate for each curb line & then calculates the total volume and reports the quantity back to D&C Manager.

Curb_ComputationMetric.x Metric version of Curb _Computation.x.

CurbGutter_Computation.x Reads a D&C Manager set of curb & gutter lines, prompts the user for the volume per linear foot rate for each curb & gutter line & then calculates the total volume and reports the quantity back to D&C Manager.

CurbGutter_ComputationMetric.x Metric version of CurbGutter_Computation.x.

DoubleTurnArrow_Computation.x Reads a D&C Manager set & then counts the double turn arrow pavement marking cells and reports the quantity back to D&C Manager

DoubleTurnArrow_ComputationMetric.x Metric version of DoubleTurnArrow_Computation.x.

draw_cb.x Draws existing storm and sanitary sewer catch basins, drop inlets & manholes as well as connecting pipes on profile using plan view graphics. Includes annotation of structures and pipes. Produces error log for missing data, etc. Used by Survey personnel.

draw_contrl_pt_table.x Builds control point table for placement in plan view. Table data must be edited to show point numbers, coordinate decimals to 4 places and elevations for benchmarks. Used by Survey personnel.

EnhancedRockCheckDams_Computation.x Reads a D&C Manager set & then counts the EPSC enhanced rock check dam cells and reports the quantity back to D&C Manager.

EnhancedRockCheckDams_ComputationMetric.x Metric version of EnhancedRockCheckDams_Computation.x.

ExitOnlyArrow_Computation.x Reads a D&C Manager set & then counts the exit only lane arrow pavement marking cells and reports the quantity back to D&C Manager.

ExitOnlyArrow_ComputationMetric.x Metric version of ExitOnlyArrow_Computation.x.

LevelSpreaders_Computation.x Reads a D&C Manager set & then counts the EPSC level spreader cells and reports the quantity back to D&C Manager.

LevelSpreaders_ComputationMetric.x Metric version of LevelSpreaders_Computation.x.

ohonpro.x Plots overhead utility line crossings with standard annotation from plan view on to profile. Annotation must be edited to show actual wire types and numbers at each crossing. Used by Survey personnel.

PipeEndwall_Computation.x Reads a D&C Manager set & then pulls the quantities for concrete, reinforcing steel and safety erndwalls from pipe endwall graphics that had that data written to them as adhoc information when they were created and reports the quantity back to D&C Manager.

PipeEndwall_ComputationMetric.x Metric version of PipeEndwall_Computation.x.

place_row_flags.x This application reads a selection set of proposed R.O.W. lines and calculates & then places station and offset flags at each break and if desired R.O.W. markers are placed as well.

place_row_flags_metric.x Metric version of place_row_flags.x.

place_row_marker.x This application reads a selection set of 2 adjoining proposed R.O.W. lines, calculates the angles & then places the appropriate R.O.W. marker and labels it.

place_row_marker_metric.x Metric version of place_row_marker.x.

place_Br_end_GR.x This application plots the standard length of bridge end guardrail (26' 10 3/4").

place_12_terminal_EQ.x This application plots a type 12 guardrail terminal, the user defined taper based on design speed and curve to tie to the guardrail at the roadside. A type text label is also placed for the terminal as well as a point at the terminal location for later use in calculating quantities. The special slope limit lines used by cross section criteria to show pads and alter side slopes are plotted as well. The approach area of the slope limit line is defined by values provided by the user from the length of need equation.

place_13_terminal.x This application places a type 13 guardrail terminal cell, a type text label and a point at the terminal location for later use in calculating quantities.

place_21_terminal.x This application plots a type 21 guardrail terminal, a type text label and the special slope limit lines used by cross section criteria.

place_21_min_install.x This application plots a type 21 guardrail terminal with the minimum guardrail installation required at bridge ends, a type text label and the special slope limit lines used by cross section criteria.

place_21_400_min_install.x This application plots a type 21 guardrail terminal with the minimum guardrail installation required at bridge ends for roadways with ADT<=400 with a type text label.

place_38_terminal.x This application plots a type 38 guardrail terminal, a type text label and the special slope limit lines used by cross section criteria.

place_38_min_install.x This application plots a type 38 guardrail terminal with the minimum guardrail installation required at bridge ends, a type text label and the special slope limit lines used by cross section criteria.

place_InLine_terminal.x This application places a type In-Line guardrail terminal cell, a type text label and a point at the terminal location for later use in calculating quantities.

place_median_min_br_end.x This application plots in the minimum length of guardrail required in the median at tangent non-skewed bridges with a type 38 guardrail terminal, a type text label and the special slope limit lines used by cross section criteria.

place_median_br_end_prot.x This application places guardrail from the beginning of the taper through the terminal in the median at bridge ends with a type 38 guardrail terminal, a type text label and the special slope limit lines used by cross section criteria.

place_median_earth_berm.x This application plots in the proposed median earth berm required at the end of bridges. The quantity of earth required for the berm in cubic yards is appended to a CSV file named MedianEarthBerms.csv.

place_median_br_pier_prot.x This application places median barrier wall at the required distance based on design speed from the face of first pier at the shoulder and guardrail from the end of the wall through the terminal in the median for protection at bridge piers with bridge end guardrail and a type 38 guardrail terminal, a type text label and the special slope limit lines used by cross section criteria.

RockCheckDams_Computation.x Reads a D&C Manager set & then counts the EPSC rock check dam cells and reports the quantity back to D&C Manager.

RockCheckDams_ComputationMetric.x Metric version of RockCheckDams_Computation.x.

ROW_Markers_Computation.x Reads a D&C Manager set & then counts the row marker cells and reports the quantity back to D&C Manager.

ROW_Markers_ComputationMetric.x Metric version of ROW_Markers_Computation.x.

SignalLoop_Computation.x Reads a D&C Manager set & then counts the signal loop cells and reports the saw slot & loop wire quantities back to D&C Manager.

SignalLoop_ComputationMetric.x Metric version of SignalLoop_Computation.x.

SlopeDrain_Computation.x Reads a D&C Manager set & then takes the length of each slope drain pipe, adjusts for slope distance, using side slope adhoc information attached to them and reports the adjusted lengths back to D&C Manager with other pay item data stored as adhoc info. This program is used to tabulate either temporary or permanent slope drains for English or metric.

SlottedDrains_Computation.x Reads a D&C Manager set & then counts the slotted drain cells and reports the linear feet quantity back to D&C Manager.

SlottedDrains_ComputationMetric.x Metric version of SlottedDrains_Computation.x.

SnowPlwPvmtMarkers_Computation.x Reads a D&C Manager set & then counts the specified snowplowable pavement marker cells and reports the quantity back to D&C Manager.

StraightTurnArrow_Computation.x Reads a D&C Manager set & then counts the straight & turn arrow pavement marking cells and reports the quantity back to D&C Manager

StraightTurnArrow_ComputationMetric.x Metric version of StraightTurnArrow_Computation.x.

Striping_Paint_Computation.x Reads a D&C Manager set & then counts the length of pavement striping lines and reports the quantity back to D&C Manager. This program automatically adjusts for gaps & double lines and is specifically set up to tabulate pavement striping lines as the painted type.

Striping_Paint_ComputationMetric.x Metric version of Striping_Paint_Computation.x.

Striping_Painted_Channelization_Computation.x Reads a D&C Manager set & then counts the length of pavement channelization striping lines, calculates the area and reports the quantity back to D&C Manager. This program is specifically set up to tabulate pavement channelization striping lines as the painted type.

Striping_Painted_Channelization_ComputationMetric.x Metric version of Striping_Painted_Channelization_Computation.x.

Striping_Thermo_Channelization_Computation.x Reads a D&C Manager set & then counts the length of pavement channelization striping lines, calculates the area and reports the quantity back to D&C Manager. This program is specifically set up to tabulate pavement channelization striping lines as the thermoplastic type.

Striping_Thermo_Channelization_ComputationMetric.x Metric version of Striping_Thermo_Channelization_Computation.x.

Striping_Thermo_Flatline__Computation.x Reads a D&C Manager set & then counts the length of pavement striping lines and reports the quantity back to D&C Manager. This program automatically adjusts for gaps & double lines and is specifically set up to tabulate pavement striping lines as the thermoplastic flatline type.

Striping_Thermo_Flatline__ComputationMetric.x Metric version of Striping_Thermo_Flatline__Computation.x.

Striping_Thermo_Spray40_Computation.x Reads a D&C Manager set & then counts the length of pavement striping lines and reports the quantity back to D&C Manager. This program automatically adjusts for gaps & double lines and is specifically set up to tabulate pavement striping lines as the spray thermoplastic (40 mil) type.

Striping_Thermo_Spray40_ComputationMetric.x Metric version of Striping_Thermo_Spray40_Computation.x.

Striping_Thermo_Spray60_Computation.x Reads a D&C Manager set & then counts the length of pavement striping lines and reports the quantity back to D&C Manager. This program automatically adjusts for gaps & double lines and is specifically set up to tabulate pavement striping lines as the spray thermoplastic (60 mil) type.

Striping_Thermo_Spray60_ComputationMetric.x Metric version of Striping_Thermo_Spray60_Computation.x.

Striping_Thermo_Transverse_Computation.x Reads a D&C Manager set & then counts the length of pavement transverse shoulder striping lines and reports the quantity back to D&C Manager. This program is specifically set up to tabulate pavement transverse shoulder striping lines as the thermoplastic type.

Striping_Thermo_Transverse_ComputationMetric.x Metric version of Striping_Thermo_Transverse_Computation.x.

tdotsup1.x Adds user specified superelevation rates to horizontal alignment curves. Used by Construction personnel.

tdotsup2.x Draws pattern lines with station values at critical superelevation transition points as well as the begin & end and builds autoshape input file for superelevation using values entered with 3PC tdotsup1.x for undivided roadways. Used by Construction personnel.

tdotsup3.x	Draws pattern lines with station values at critical superelevation transition points as well as the begin & end and builds autoshape input file for superelevation using values entered with 3PC tdotsup1.x for divided roadways. Used by Construction personnel.
Tree_Computation.x	Reads a D&C Manager set & counts the proposed tree cells, reading pay item adhoc information attached to them and reporting the information back to D&C Manager.
TurnArrow_Computation.x	Reads a D&C Manager set & then counts the turn lane arrow pavement marking cells and reports the quantity back to D&C Manager.
TurnArrow_ComputationMetric.x	Metric version of TurnArrow_Computation.x.
VerticalPanel_Computation.x	Reads a D&C Manager set & then counts the vertical panel cells and reports the quantity back to D&C Manager.
VerticalPanel_ComputationMetric.x	Metric version of VerticalPanel_Computation.x.

Corridor Modeling Files

C:\Users\Public\Geopak Standards

These files have been developed for use with the Geopak V8i Roadway Designer tool in Corridor Modeling. They are not intended for final design at this time but are set up for use in developing display models of proposed designs for presentations at public hearings or other meetings.

TDOTDefault.itl	Roadway template library with roadway templates and other component features
TDOT_Styles.ddb	Data base file for use with roadway template library TDOTDefault.itl with display items used by our templates.

Templates:

Berm
Bridge 2 Lane - SS Bridge Rail, 6' shoulder, 5' sidewalk
Bridge 4 Lane Dual - SS bridge rail, 6' inside 12' outside shld,48' median, 0' SW
Bridge 4 Lane Median Barrier - SS Bridge Rail,51" SS MB,12' shoulder,20' median,5' SW
Bridge 4 Lane with Center Turn Lane - SS Bridge Rail, 12' shoulder, 12' median, 5' sidewalk
Driveway Aggregate
Driveway Asphalt
Ramp 1 Lane - 6' inside 8' outside shld, 6:1 ditch, Case 1 slopes
Ramp 2 Lane - 6' inside 12' outside shld, 6:1 ditch, Case 1 slopes
Relocated Stream\Special Ditch
Roundabout Intersecting Roadway-.002' shld, 6" NM C&G, 5' Grass Divider,10' SW, Case 1
Roundabout Roadway - .002' shld, 6" NM C&G, 5' Grass Divider,10' SW, Case 1
Roundabout Roadway at Rdwy Intersection - .002' shld, 6" NM C&G, 5' Grass Divider,10' SW, Case 1

Rural 2 Lane Aggregate <=400 ADT - 3' stone shoulder, 2:1 Ditch, 2:1 side slopes
Rural 2 Lane Aggregate Local Roads - 3' stone shoulder, 3:1 Ditch, Case 2 slopes
Rural 2 Lane Paved <=400 ADT - 4' stone shoulder, 2:1 ditch, 2:1 side slopes
Rural 2 Lane Paved Arterial Roads - 8' shoulder, 6:1 ditch, Case 1 slopes
Rural 2 Lane Paved Collector Roads - 4' stone shoulder, 4:1 ditch, Case 2 slopes
Rural 2 Lane Paved Local Roads - 4' stone shoulder, 3:1 ditch, Case 2 slopes
Rural 2 Lane Raised Grass Median - 6' shoulder, 18' median,4:1 ditch, Case 2 slopes
Rural 2 Lane with Center Turn Lane - 8' shoulder, 12' median, 4:1 ditch, Case 2 slopes
Rural 4 Lane Depressed Median - 6' inside 12' outside shld,48' median,6:1 ditch,Case 1
Rural 4 Lane Independent Roadway LT - 6' inside 12' outside shld,6:1 ditch,Case 1
Rural 4 Lane Independent Roadway RT - 6' inside 12' outside shld, 6:1 ditch, Case 1
Rural 4 Lane Median Barrier - 51" SS MB, 12' shoulder, 20' median, 6:1 ditch, Case 1
Rural 4 Lane Raised Grass Median - 12' shoulder, 18' median, 6:1 ditch, Case 1 slopes
Rural 4 Lane with Center Turn Lane - 12' shoulder, 12' median, 6:1 ditch, Case 1
Rural 6 Lane Depressed Median - 6' inside 12' outside shld,64' median,6:1 ditch,Case 1
Rural 6 Lane Independent Roadway LT - 12' inside 12' outside shld, 6:1 ditch, Case 1
Rural 6 Lane Independent Roadway RT - 12' inside 12' outside shld, 6:1 ditch, Case 1
Rural 6 Lane Median Barrier - 51" SS MB, 12' shoulder, 28' median, 6:1 ditch, Case 1
Rural 6 Lane with Center Turn Lane - 12' shoulder, 12' median, 6:1 ditch, Case 1
Shared Use Path - 10' path, 2' grass shoulder at 6:1 slope, 2:1 side slopes
Urban 2 Lane - 6' shoulder, 6" NM C&G, 5' sidewalk, Case 2 slopes
Urban 2 Lane No Shld - 0' shoulder, 6" NM C&G, 4'6" sidewalk, Case 2 slopes
Urban 2 Lane with Center Turn Lane - 6' shoulder,12' median,6" NM C&G,4'6" sidewalk,Case 2
Urban 4 Lane - 10' shoulder, 6" NM C&G, 5' SW, Case 2 slopes
Urban 4 Lane Depressed Median - 10' shoulder,36' median,6" NM C&G,5' SW, Case 1
Urban 4 Lane Raised Concrete Median - 10' shoulder,18' median,6" NM C&G,5' SW, Case 1
Urban 4 Lane Raised Grass Median - 10' shoulder, 18' median, 6" NM C&G, 5' SW, Case 1
Urban 4 Lane with Center Turn Lane - 10' shoulder, 12' median, 6" NM C&G, 5' sidewalk, Case 1

End Conditions:

1.5:1 Cut/Fill Rural
1.5:1 Cut/Fill Urban
2:1 Cut/Fill Driveway
2:1 Cut/Fill Rural
2:1 Cut/Fill Urban
3:1 Cut/Fill Rural
3:1 Cut/Fill Urban
4:1 Cut/Fill Rural
4:1 Cut/Fill Urban
6:1 Cut/Fill Rural
6:1 Cut/Fill Urban
Case 1 : 4:1 Foreslope
Case 1 : 6:1 Foreslope
Case 1 : Urban
Case 2 : 3:1 Foreslope

Case 2 : 4:1 Foreslope
Case 2 : Urban
Earth Cut Repeating Bench
Earth Fill Repeating Bench
Rock Cut Repeating Bench
Rock Cut Single Slope to Top
Toe of Fill Slope Special Ditch LT
Toe of Fill Slope Special Ditch RT
Top of Cut Slope Special Ditch LT
Top of Cut Slope Special Ditch RT

Components - Pavements:

1 Lane Crown Aggregate Pavement
1 Lane Crown Asphalt Pavement
1 Lane Ramp Asphalt Pavement
1.5 Lane Crown Asphalt Pavement
2 Lane Bridge Deck - Concrete roadway, shlds, sidewalks and outside lip
2 Lane Crown Asphalt Pavement
2 Lane Depressed Median Asphalt Pavement
2 Lane Median Barrier Asphalt Pavement
2 Lane Raised Median Asphalt Pavement
2 Lane Ramp Asphalt Pavement
2.5 Lane Crown Asphalt Pavement
3 Lane Crown Asphalt Pavement
3 Lane Depressed Median Asphalt Pavement
3 Lane Median Barrier Asphalt Pavement
3.5 Lane Crown Asphalt Pavement
Driveway Aggregate Pavement
Driveway Asphalt Pavement

Components - Shoulders:

10' Paved Shoulder
10' Urban Shoulder
12' Paved Inside Shoulder 6:1 Median
12' Paved Shoulder
12' Urban Shoulder
3' Aggregate Shoulder
4' Aggregate Shoulder
6' Aggregate Shoulder
6' Paved Inside Shoulder 4:1 Median
6' Paved Inside Shoulder 6:1 Median
6' Paved Shoulder
6' Urban Shoulder
8' Aggregate Shoulder
8' Paved Shoulder
8' Urban Shoulder

Components - Curb Gutter and Sidewalk:

6" M Type A - 30" Concrete Curb and Gutter
6" NM Type A - 30" Concrete Curb and Gutter
6-30 NM C&G - 30" Concrete Curb and Gutter
6-30 NM C&G with Subgrade - 30" Concrete Curb and Gutter
Sidewalk
Sidewalk Area Grass Divider
Sidewalk Area Grass Only
Sidewalk Area No Divider

Components - Medians:

Depressed Median 4:1
Depressed Median 6:1
Median Barrier 51" SS - 4 Lane - 10' offset to inside lane edge with subgrade
Median Barrier 51" SS - 6 Lane - 14' offset to inside lane edge with subgrade
Raised Median Concrete - 18' Wide, 2' inside shoulders, 6" M curbs with subgrade
Raised Median Grass - 18' Wide, 2' inside shoulders, 6" M curbs with subgrade

Components - Medians:

Bridge Parapet Rail SS
Median Barrier 51" SS
Retaining Wall Cut
Retaining wall Fill - Ties to edge of shoulder or back of curb

Standard Level Filters - TDOTmain.dgnlib

C:\Users\Public\MicroStation Standards\dgnlib

Level filters can be used to turn levels on and off in graphics for various work-flows or plan sheet layouts. As needed different combinations of level filters may be used at one time to view various groups together. They can also be used to control the levels shown in level lists such as the Level Display Dialog or the active level control on the Active Element Attributes tool bar.

Sheet level filters which specify use with “References” are for instances where the needed plot scale on the sheet make normal text in the plans the wrong size and the filter leaves out the text levels. Survey filters for various feature groups include point “locator” levels but not the point number and elevation levels by default. Filters which are shown as a list of level numbers are defined as a Level Group using the actual level names but are shown here by their numbers for brevity.

Level Filters - TDOTmain.dgnlib	Name or Level Group Definitions
All but Points	- Points - MH - Low
Centerlines - All	CENTERLINE
Centerlines - Existing Roads	Centerline - Preliminary - Proposed
Centerlines - Preliminary	Centerline - Proposed - Existing
Centerlines - Proposed	Centerline - Preliminary - Existing
Construction - All	CONSTRUCTION
Design - All	DESIGN
Design - Proposed without Sheets	DESIGN -SHEET | default
Design - ROW Work	CENTERLINE - Preliminary - Existing | ROW - Bearings - loss - Labels - Markers - Wetland - SURVEY - FUNCTIONAL | Parcels | Tract
Design - Working Cross Sections	0,15-16,30,45-46,52,61-62,340-370
Design and Survey - Plans Levels	((DESIGN - SCRATCH-CONTOURS-GPK-Limit)| (SURVEY - Points - DTM - Office - MH-Low-Centerline-contours-Project-Development-Parcels-temporary-Hydraulic)
DTM Graphics	DTM & GRAPHICS
Functional - All	FUNCTIONAL | CENTERLINE - Proposed - Existing-Development | Scratch | Natural - profile - points | Property - Development - points | Shoulder | Curb
Hydraulics - Plan	6,7,17,19,22,31-32,37,40,49-50,81,93,97,257,311
Hydraulics - Profile	61-63,133-137,141-142,262-263,267-269,320
Sheets - Culvert Cross Sections	0,15-16,45-46,52,340,345,348-349,351-359,361-366
Sheets - Drainage Map	4-8,17,19-20,31-32,49-50,61-62,81,93,97,257,259-260,311
Sheets - Drainage Maps - References	4-7,17,19,31,49,61-62,93,257,259-260
Sheets - EPSC Clearing and Grubbing	4-5,7-8,11,15,17-21,31-32,43,45,47,58,61-62, 93,125,189, 261,275,311
Sheets - EPSC Final Construction	15,17,31-32,34-35,37,39,43,45,47-51,58,61-62,257-261,275,285,289,311
Sheets - EPSC Intermediate Grading	7-8,11,15,17,19-20,31-32,34-35,37,43,45,47,49-51,58,61-62, 93,125,189,257-261,275,311
Sheets - Existing Contours	4-5,7,17,19,31-32,61-62,93
Sheets - Pavement Marking	31-32,37,39,49,56-57,61-62,285

Level Filters - TDOTmain.dgnlib	Name or Level Group Definitions
Sheets - Present Layout	3,7-21,23,25,31-33,39,43-47,49-50,61-62,73-74,93,97,101, 125,129,152,156,160,164,168,175-177,181,185,189,193-194, 198,208,212,216,220,224,228,236,240,244,248,252,257,270-272,274-275,281,290-291,311
Sheets - Present Layout no ROW PL Text	3,7-15,17-21,23,25,31-33,39,43-45,47,49-50,61-62,73-74,93, 97,101,125,129,152,160,168,175,177,181,185,189,193-194, 198,208,212,216,220,224,228,236,240,244,248,252,257,271-272,275,281,290-291,311
Sheets - Private Drive Profiles	0,52,61-63,340,345,348-351,364-365
Sheets - Profiles	PROFILE | (SHEET - Plot)
Sheets - Property Map	7-8,13-17,31-32,45-47,61-62,152,160,177,232,271,275,311
Sheets - Property Maps - References	7,13,15,17,31,45,61-62,152,160
Sheets - Proposed Contours	17,31-32,34-35,37,43,49,61-62,257
Sheets - Proposed Layout	17,31-32,36-39,41-42,48-52,56-57,60-62,257-260,281-283,285,287-289,311
Sheets - Roadway Cross Sections	0,15-16,45-46,52,340-343,345,348-349,351-359,361-366
Sheets - ROW Details	3,9-10,15-16,31-32,39,43-47,61-62,152,156,160,164,168 ,175-177,270-272,274-275
Sheets - Traffic Control	7-8,17,19,31-32,37-39,49-51,53,61-62,284,311
Sheets - Traffic Control - References	7,17,19,31,37,39,49,51,53,61-62
Sheets - Utilities	15,17,19,23,25,31-32,41-43,45,49,54-55,61-62,152,160, 208,212,216,220,224,236,240,244,248,252,257,281,287-288,292-300,312-313
Signalization - Existing Based	7-8,18-21,31-32,41-42,56-57,60-62,93,97,101,181,189, 193-194,198,281-283
Signalization - Proposed Based	31-32,36-39,41-42,48-52,56-57,60-62,257-260,281-283, 285,287-289
Survey - All	SURVEY
Survey - All but Points	SURVEY - Points - Check
Survey - All with Point Elevations	SURVEY - Numbers - Locators - Check
Survey - All with Point Locators	SURVEY - Elevations - Numbers - Check
Survey - All with Point Numbers	SURVEY - Elevations - Locators - Check
Survey - Drainage	((Survey & Drainage) - PROFILE | MH) - Elevations - Numbers
Survey - Drainage - Topo Control	1,7,125,189
Survey - DTM	DTM - GRAPHICS - Numbers - Elevations
Survey - DTM - Topo Control	7,11,17,27,28,76,91,93,95,112-120,125,127,183,187,189,191, 194,196,200,206,234,254
Survey - Field Topo	3,7,8,11,12,17-23,25,27-29,40,71,76,83,88,91,93,95,97,99, 101,103,106,121,125,127,129,166,168,173,175,179,181,183, 187,189,191,193,194,196,198,200,203,206,208,210, 212,214, 216,218,220,222,224,225,228,230,234,236,238,240,246,248, 250, 252,254,311,319
Survey - Non-Transportation	(SURVEY & NON) - Elevations - Numbers
Survey - Points	SURVEY & Points

Level Filters - TDOTmain.dgnlib	Name or Level Group Definitions
Survey - Profile	SURVEY & PROFILE | (Sheet - Plot)
Survey - Profile - Topo Control	1,3,21,25,30,76,93,95,99,121,194,216,220,224,225,228,238,240,248,252,269
Survey - Property	(SURVEY & PROPERTY) - Elevations - Numbers
Survey - Transportation	(SURVEY & TRANSPORTATION) - NON - Elevations - Numbers
Survey - Utilities	(SURVEY & UTILITIES) - PROFILE - Elevations - Numbers
Utilities - Plan without Points	UTILITIES - Points - PROFILE

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CONSTRUCTION - SLOPE QUANTITIES - Interior																		314
CONSTRUCTION - SLOPE QUANTITIES - Matting																		316
CONSTRUCTION - SLOPE QUANTITIES - Misc, rip-rap, headwalls, etc.																		317
CONSTRUCTION - SLOPE QUANTITIES - Seeding																		318
CONSTRUCTION - SLOPE QUANTITIES - Sodding																		315
DESIGN - CENTERLINE - Proposed	X	X	X	X			X		X	X	X	X	X	X	X		X	31
DESIGN - CENTERLINE - Proposed Curve Text		X																33
DESIGN - CENTERLINE - Proposed GPK Visualizations																		256
DESIGN - CENTERLINE - Proposed Text	W	X	X	X			W		X	X	X	W	X	W	W		X	32
DESIGN - CONTOURS - Index with Text										X	X				X			34
DESIGN - CONTOURS - Intermediate with optional Text										X	X				X			35
DESIGN - DRAINAGE - Bridges		X		X			X			X	X	X	X		X		X	49
DESIGN - DRAINAGE - Bridges and Cross Drains Size Text		X		X			W			X	X	W						50
DESIGN - DRAINAGE - Cross Drains		X		X			X			X	X				X		X	257
DESIGN - DRAINAGE - Ditch Bottom Point						X		X								X		365
DESIGN - DRAINAGE - Side Drains - 42 Inches and greater				X			X			X	X							259
DESIGN - DRAINAGE - Side Drains - less than 42 Inches				X						X	X							258
DESIGN - DRAINAGE - Special Ditch Width Text								X								X		366
DESIGN - DRAINAGE - Special Ditches				X			X			X	X							260
DESIGN - DRAINAGE - Storm Sewer				X						X	X	X						51
DESIGN - DRAINAGE - Structures Linework						X		X								X		364
DESIGN - DRAINAGE - Text				X		X		X								X		52
DESIGN - EARTHWORK - Excavation Limit Lines																		369
DESIGN - EARTHWORK - Shapes																		347
DESIGN - EARTHWORK - Special Tie to Ground																		368
DESIGN - EROSION CONTROL - Devices									X	X	X							58
DESIGN - EROSION CONTROL - Devices Text and Legends									X	X	X							261
DESIGN - LINE OF SIGHT - Location Graphics																		367
DESIGN - PROFILE - Drainage - Bridges Drains and Ditches					X													262
DESIGN - PROFILE - Drainage - Bridges Drains and Ditches Text					X													263
DESIGN - PROFILE - Drainage - Storm Sewer					X													264
DESIGN - PROFILE - Drainage - Storm Sewer Text					X													265
DESIGN - PROFILE - Patterning					X													266
DESIGN - PROFILE - Private Drive Vertical Curve Text						X												350
DESIGN - PROFILE - Proposed					X													267
DESIGN - PROFILE - Proposed Curve Text					X													268
DESIGN - PROFILE - Proposed Text					X													269
DESIGN - PUBLIC HEARING - Shapes																		59
DESIGN - MODEL - Aggregate																		371
DESIGN - MODEL - Asphalt																		372
DESIGN - MODEL - Concrete																		373
DESIGN - MODEL - Grass																		374
DESIGN - MODEL - Rip-Rap																		375
DESIGN - MODEL - Truck Apron Pavers																		376
DESIGN - ROW - Bearings and Distances		O	X															270

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DESIGN - ROW - Easement Linework and Patterning	W	X	X						X	X	X							47
DESIGN - ROW - Loss of Access Patterning	W	X	X															271
DESIGN - ROW - Right-of-Way and Easement Labels	W	O	X					X								X		46
DESIGN - ROW - Right-of-Way Linework	X	X	X					X	X	X	X					X	X	45
DESIGN - ROW - Right-of-Way Markers		X	X															272
DESIGN - ROW - ROW and Easement GPK Visualizations																		273
DESIGN - ROW - Slope Lines		X	X						X	X	X				X		X	43
DESIGN - ROW - Slope Lines Text		X	X															44
DESIGN - ROW - Stations and Offsets		O	X															274
DESIGN - ROW - Wetland Mitigation Patterning	W	X	X						X	X	X							275
DESIGN - SCRATCH - User 1																		30
DESIGN - SCRATCH - User 2																		276
DESIGN - SCRATCH - User 3																		277
DESIGN - SCRATCH - User 4																		278
DESIGN - SCRATCH - User 5																		279
DESIGN - SHEET - Corner Text	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	62
DESIGN - SHEET - Light Grid					X	X		X								X		63
DESIGN - SHEET - Linework	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	61
DESIGN - SHEET - Plot Shape																		280
DESIGN - SURFACE - Bridge Surface Construction Lines																		360
DESIGN - TRAFFIC CONTROL PERMANENT - Pavement Marking				X									X					56
DESIGN - TRAFFIC CONTROL PERMANENT - Pavement Marking Text				X									X					57
DESIGN - TRAFFIC CONTROL PERMANENT - Signal Poles		X		X													X	281
DESIGN - TRAFFIC CONTROL PERMANENT - Signalization				X													X	41
DESIGN - TRAFFIC CONTROL PERMANENT - Signalization Text				X													X	42
DESIGN - TRAFFIC CONTROL PERMANENT - Signs				X														282
DESIGN - TRAFFIC CONTROL PERMANENT - Signs Text				X														283
DESIGN - TRAFFIC CONTROL TEMPORARY - Devices												X						53
DESIGN - TRAFFIC CONTROL TEMPORARY - Sign Faces and Text												W						284
DESIGN - TRANSPORTATION - Curb Gutter and Sidewalk				X									X					285
DESIGN - TRANSPORTATION - Driveway Shading		X	X															9
DESIGN - TRANSPORTATION - Driveways		X	X	X								X	X					39
DESIGN - TRANSPORTATION - Edge of Traveled Way				X						X	X	X	X		X			37
DESIGN - TRANSPORTATION - GR Special Slope Limit Lines																		286
DESIGN - TRANSPORTATION - Intersection Lines																		338
DESIGN - TRANSPORTATION - Lighting				X													X	287
DESIGN - TRANSPORTATION - Lighting Text				X													X	288
DESIGN - TRANSPORTATION - Proposed Layout Patterning				X														60
DESIGN - TRANSPORTATION - Roadside Barriers				X							X							289
DESIGN - TRANSPORTATION - Scarification Patterning		X																290
DESIGN - TRANSPORTATION - Scarification Text		X																291
DESIGN - TRANSPORTATION - Shoulder Lines				X														36
DESIGN - TRANSPORTATION - Text				X								W						38
DESIGN - TYPICAL - Bench Elevation Text								X								X		352
DESIGN - TYPICAL - Bench Slope Text								X								X		354

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Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EPSC CLEAR. & GRUB.	EPSC INT, GRADING	EPSC FINAL CONST.	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAY XS	UTILITIES	Level #
DESIGN - TYPICAL - Bench Width Text								X								X		353
DESIGN - TYPICAL - Bridge Deck Median Barriers								X								X		359
DESIGN - TYPICAL - Finished Grade and Subgrade						X		X								X		348
DESIGN - TYPICAL - Finished Grade Slopes Text						X		X								X		351
DESIGN - TYPICAL - Guardrail								X								X		358
DESIGN - TYPICAL - Retaining Wall Text								X								X		363
DESIGN - TYPICAL - Side Slope to Bench Text								X								X		355
DESIGN - TYPICAL - Slope Tie Point								X								X		362
DESIGN - TYPICAL - Slope Tie Text								X								X		361
DESIGN - TYPICAL - Subgrade Cross Slope Text								X								X		356
DESIGN - TYPICAL - Subgrade Tie Text								X								X		357
DESIGN - TYPICAL - Text						X		X								X		349
DESIGN - TYPICAL - Warning Text																		370
DESIGN - UTILITIES - Cable (Overhead) with Text																	X	55
DESIGN - UTILITIES - Cable (Underground) with Text																	X	54
DESIGN - UTILITIES - Electric (Overhead) with Text																	X	292
DESIGN - UTILITIES - Electric (Underground) with Text																	X	293
DESIGN - UTILITIES - Electric and Cable (Overhead) with Text																	X	312
DESIGN - UTILITIES - Electric Telephone and Cable (Overhead) with Text																	X	313
DESIGN - UTILITIES - Fiber Optics (Overhead) with Text																	X	294
DESIGN - UTILITIES - Fiber Optics (Underground) with Text																	X	295
DESIGN - UTILITIES - Gas with Text																	X	296
DESIGN - UTILITIES - Sanitary Sewer with Text																	X	297
DESIGN - UTILITIES - Telephone (Overhead) with Text																	X	298
DESIGN - UTILITIES - Telephone (Underground) with Text																	X	299
DESIGN - UTILITIES - Water with Text																	X	300
DESIGN - VEGETATION - Features with Text				X							X							48
FUNCTIONAL - Bridge Patterning																		301
FUNCTIONAL - Bridges																		302
FUNCTIONAL - ROW - Right-of-Way																		303
FUNCTIONAL - ROW - Right-of-Way Patterning																		304
FUNCTIONAL - ROW - Right-of-Way Text																		305
FUNCTIONAL - ROW - Slope Lines																		306
FUNCTIONAL - TOPOGRAPHY - Business Names																		307
FUNCTIONAL - TRANSPORTATION - Pavement Marking and Traffic Control																		308
FUNCTIONAL - TRANSPORTATION - Pavement Patterning																		309
FUNCTIONAL - TRANSPORTATION - Preliminary Edge of Traveled Way																		310
FUNCTIONAL - TRANSPORTATION - Roads Text																		321
SURVEY - AERIAL SURVEY - Automatic - Grid Points																		322
SURVEY - AERIAL SURVEY - Automatic - Grid Pts Beyond - Ht Acc Threshold																		323
SURVEY - AERIAL SURVEY - Automatic - Grid Pts with - Low Redundancy																		324
SURVEY - AERIAL SURVEY - Collected Point																		325
SURVEY - AERIAL SURVEY - Contours - Major																		326
SURVEY - AERIAL SURVEY - Contours - Major Text																		327
SURVEY - AERIAL SURVEY - Contours - Minor																		328

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SURVEY - AERIAL SURVEY - Mapping Setup - MAPPING LIMITS																		329
SURVEY - AERIAL SURVEY - Mapping Setup - SET MAP SCALE																		330
SURVEY - AERIAL SURVEY - Mapping Setup - with Text																		331
SURVEY - AERIAL SURVEY - Obscured Area																		332
SURVEY - AERIAL SURVEY - Obscured Area Points																		333
SURVEY - AERIAL SURVEY - Out of collection Boundary Points																		334
SURVEY - AERIAL SURVEY - Photo Control - Points - Elevations																		64
SURVEY - AERIAL SURVEY - Photo Control - Points - Locators																		65
SURVEY - AERIAL SURVEY - Photo Control - Points - Numbers																		66
SURVEY - AERIAL SURVEY - Photo Control with Text																		67
SURVEY - AERIAL SURVEY - Skipped Points																		335
SURVEY - AERIAL SURVEY - Uncollected Point																		336
SURVEY - AERIAL SURVEY - Withheld Point																		337
SURVEY - CENTERLINE - Existing Roads																		24
SURVEY - CENTERLINE - Existing Roads - Development																		68
SURVEY - CENTERLINE - Existing Roads Curve Text																		69
SURVEY - CENTERLINE - Existing Roads Text																		70
SURVEY - CENTERLINE - Preliminary																		1
SURVEY - CENTERLINE - Preliminary - Development																		71
SURVEY - CENTERLINE - Preliminary Curve Text																		72
SURVEY - CENTERLINE - Preliminary Text																		2
SURVEY - CONTOURS - Index with Text							X		X					X				4
SURVEY - CONTOURS - Intermediate with optional Text							X		X					X				5
SURVEY - CONTROL - Check Points																		339
SURVEY - CONTROL - Grid		X																73
SURVEY - CONTROL - Grid Text		X																74
SURVEY - CONTROL - Points - Elevations																		75
SURVEY - CONTROL - Points - Locators																		76
SURVEY - CONTROL - Points - Numbers																		77
SURVEY - CONTROL - Temporary with Text																		319
SURVEY - CONTROL with Text		X	X															3
SURVEY - DRAINAGE - Area Shapes							X											6
SURVEY - DRAINAGE - Area Shapes - Points - Elevations																		78
SURVEY - DRAINAGE - Area Shapes - Points - Locators																		79
SURVEY - DRAINAGE - Area Shapes - Points - Numbers																		80
SURVEY - DRAINAGE - Area Shapes Text							X											81
SURVEY - DRAINAGE - Bridge Deck - Points - Elevations																		82
SURVEY - DRAINAGE - Bridge Deck - Points - Locators																		83
SURVEY - DRAINAGE - Bridge Deck - Points - Numbers																		84
SURVEY - DRAINAGE - Bridge Deck with Text																		22
SURVEY - DRAINAGE - Bridge Hydraulic Data - Points - Elevations																		85
SURVEY - DRAINAGE - Bridge Hydraulic Data - Points - Locators																		28
SURVEY - DRAINAGE - Bridge Hydraulic Data - Points - Numbers																		86
SURVEY - DRAINAGE - Bridge Hydraulic Data with Text																		40
SURVEY - DRAINAGE - Bridges		X					X		X	X		X		X			X	19

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SURVEY - DRAINAGE - Bridges - Points - Elevations																		87
SURVEY - DRAINAGE - Bridges - Points - Locators																		88
SURVEY - DRAINAGE - Bridges - Points - Numbers																		89
SURVEY - DRAINAGE - Bridges Text		X					W		X	X								20
SURVEY - DRAINAGE - Natural Features	X	X		X			X		X	X	X	X		X	X		X	17
SURVEY - DRAINAGE - Natural Features - Points - Elevations																		90
SURVEY - DRAINAGE - Natural Features - Points - Locators																		91
SURVEY - DRAINAGE - Natural Features - Points - Numbers																		92
SURVEY - DRAINAGE - Natural Features Text	W	X		X			W		X	X	X	W						311
SURVEY - DRAINAGE - Pipes and Culverts		X					X		X	X				X				93
SURVEY - DRAINAGE - Pipes and Culverts - Points - Elevations																		94
SURVEY - DRAINAGE - Pipes and Culverts - Points - Locators																		95
SURVEY - DRAINAGE - Pipes and Culverts - Points - Numbers																		96
SURVEY - DRAINAGE - Pipes and Culverts Text		X					W											97
SURVEY - DRAINAGE - Storm Sewer		X							X									21
SURVEY - DRAINAGE - Storm Sewer - Points - Elevations																		98
SURVEY - DRAINAGE - Storm Sewer - Points - Locators																		99
SURVEY - DRAINAGE - Storm Sewer - Points - Numbers																		100
SURVEY - DRAINAGE - Storm Sewer Text		X																101
SURVEY - DTM - Breaklines																		29
SURVEY - DTM - Breaklines - Points - Elevations																		102
SURVEY - DTM - Breaklines - Points - Locators																		103
SURVEY - DTM - Breaklines - Points - Numbers																		104
SURVEY - DTM - Spot Points - Elevations																		105
SURVEY - DTM - Spot Points - Locators																		106
SURVEY - DTM - Spot Points - Point Numbers																		107
SURVEY - DTM - Void Lines																		108
SURVEY - DTM - Void Lines - Points - Elevations																		109
SURVEY - DTM - Void Lines - Points - Locators																		110
SURVEY - DTM - Void Lines - Points - Numbers																		111
SURVEY - DTM GRAPHICS - Boundary Line																		112
SURVEY - DTM GRAPHICS - Break Voids																		113
SURVEY - DTM GRAPHICS - Breaklines																		114
SURVEY - DTM GRAPHICS - Contours																		115
SURVEY - DTM GRAPHICS - Drape Voids																		116
SURVEY - DTM GRAPHICS - Islands																		117
SURVEY - DTM GRAPHICS - Spot Points																		118
SURVEY - DTM GRAPHICS - Triangles																		119
SURVEY - DTM GRAPHICS - Voids																		120
SURVEY - GROUND - Bottom of Rock Layer																		344
SURVEY - GROUND - Bottom of Topsoil Layer																X		343
SURVEY - GROUND - Bottom of Unsuitable Material Layer																X		342
SURVEY - GROUND - Existing Pavement Layer						X		X								X		345
SURVEY - GROUND - Existing Pavement Text																		346
SURVEY - GROUND - Top of Ground						X		X								X		340

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SURVEY - GROUND - Top of Rock Layer																X		341
SURVEY - MISCELLANEOUS - Bottom of MH and CB																		121
SURVEY - MISCELLANEOUS - Bottom of MH and CB - Points - Elevations																		122
SURVEY - MISCELLANEOUS - Bottom of MH and CB - Points - Numbers																		123
SURVEY - MISCELLANEOUS - Office with Text																		124
SURVEY - NON-TRANSPORTATION - Buildings		X							X	X								125
SURVEY - NON-TRANSPORTATION - Buildings - Points - Elevations																		126
SURVEY - NON-TRANSPORTATION - Buildings - Points - Locators																		127
SURVEY - NON-TRANSPORTATION - Buildings - Points - Numbers																		128
SURVEY - NON-TRANSPORTATION - Buildings Text		X																129
SURVEY - NON-TRANSPORTATION - Features		X							X	X								11
SURVEY - NON-TRANSPORTATION - Features - Points - Elevations																		130
SURVEY - NON-TRANSPORTATION - Features - Points - Locators																		27
SURVEY - NON-TRANSPORTATION - Features - Points - Numbers																		131
SURVEY - NON-TRANSPORTATION - Features Text		X																12
SURVEY - PROFILE - Control with Text					X													132
SURVEY - PROFILE - Drainage - Bridge Hydraulic Data with Text					X													320
SURVEY - PROFILE - Drainage - Bridges					X													133
SURVEY - PROFILE - Drainage - Bridges Text					X													134
SURVEY - PROFILE - Drainage - Natural Features with Text					X													135
SURVEY - PROFILE - Drainage - Pipes and Culverts					X													136
SURVEY - PROFILE - Drainage - Pipes and Culverts Text					X													137
SURVEY - PROFILE - Drainage - Storm Sewer					X													138
SURVEY - PROFILE - Drainage - Storm Sewer Text					X													139
SURVEY - PROFILE - Existing Roads with Text					X													140
SURVEY - PROFILE - Ground Line with Text					X													141
SURVEY - PROFILE - Project Information and Notes					X													142
SURVEY - PROFILE - Utilities - Cable with Text					X													143
SURVEY - PROFILE - Utilities - Electric with Text					X													144
SURVEY - PROFILE - Utilities - Gas with Text					X													145
SURVEY - PROFILE - Utilities - Overhead Wire Crossings					X													146
SURVEY - PROFILE - Utilities - Sanitary Sewer with Text					X													147
SURVEY - PROFILE - Utilities - Telephone with Text					X													148
SURVEY - PROFILE - Utilities - Water with Text					X													149
SURVEY - PROJECT INFORMATION and NOTES																		150
SURVEY - PROPERTY - Development																		151
SURVEY - PROPERTY - Easement Lines	X	X	X														X	152
SURVEY - PROPERTY - Easement Lines - Points - Elevations																		153
SURVEY - PROPERTY - Easement Lines - Points - Locators																		154
SURVEY - PROPERTY - Easement Lines - Points - Numbers																		155
SURVEY - PROPERTY - Easement Lines Text		O	X															156
SURVEY - PROPERTY - Owners		X	X															10
SURVEY - PROPERTY - Parcels																		26
SURVEY - PROPERTY - Political Boundaries	X	X																13
SURVEY - PROPERTY - Political Boundaries - Points - Elevations																		157

Sheet Level Structure Summary and Cross Reference - TDOTmain.dgnlib

X = Level Required for Sheet
W = Level Plotted from main Working DGN, but not included from Alternate Scale References
O = Optional when used with ROW Details

Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EPSC CLEAR. & GRUB.	EPSC INT, GRADING	EPSC FINAL CONST.	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAY XS	UTILITIES	Level #
SURVEY - PROPERTY - Political Boundaries - Points - Locators																		158
SURVEY - PROPERTY - Political Boundaries - Points - Numbers																		159
SURVEY - PROPERTY - Political Boundaries Text	W	X																14
SURVEY - PROPERTY - Property Lines	X	X	X														X	160
SURVEY - PROPERTY - Property Lines - Points - Elevations																		161
SURVEY - PROPERTY - Property Lines - Points - Locators																		162
SURVEY - PROPERTY - Property Lines - Points - Numbers																		163
SURVEY - PROPERTY - Property Lines Text		O	X															164
SURVEY - PROPERTY - Property Markers - Points - Elevations																		165
SURVEY - PROPERTY - Property Markers - Points - Locators																		166
SURVEY - PROPERTY - Property Markers - Points - Numbers																		167
SURVEY - PROPERTY - Property Markers with Text		X	X															168
SURVEY - PROPERTY - ROW Lines	X	X	X					X	X	X	X					X	X	15
SURVEY - PROPERTY - ROW Lines - Points - Elevations																		169
SURVEY - PROPERTY - ROW Lines - Points - Locators																		170
SURVEY - PROPERTY - ROW Lines - Points - Numbers																		171
SURVEY - PROPERTY - ROW Lines Text	W	O	X					X								X		16
SURVEY - PROPERTY - ROW Markers - Points - Elevations																		172
SURVEY - PROPERTY - ROW Markers - Points - Locators																		173
SURVEY - PROPERTY - ROW Markers - Points - Numbers																		174
SURVEY - PROPERTY - ROW Markers with Text		X	X															175
SURVEY - PROPERTY - Station and Offset Flags		O	X															176
SURVEY - PROPERTY - Tract Numbers	W	X	X															177
SURVEY - ROADSIDE BARRIERS - Points - Elevations																		178
SURVEY - ROADSIDE BARRIERS - Points - Locators																		179
SURVEY - ROADSIDE BARRIERS - Points - Numbers																		180
SURVEY - ROADSIDE BARRIERS with Text		X																181
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Elevations																		182
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Locators																		183
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Numbers																		184
SURVEY - TRAFFIC CONTROL - Pavement Marking with Text		X																185
SURVEY - TRAFFIC CONTROL - Signs - Points - Elevations																		186
SURVEY - TRAFFIC CONTROL - Signs - Points - Locators																		187
SURVEY - TRAFFIC CONTROL - Signs - Points - Numbers																		188
SURVEY - TRAFFIC CONTROL - Signs and Devices with Text		X															X	23
SURVEY - TRANSPORTATION - Features		X							X	X								189
SURVEY - TRANSPORTATION - Features - Points - Elevations																		190
SURVEY - TRANSPORTATION - Features - Points - Locators																		191
SURVEY - TRANSPORTATION - Features - Points - Numbers																		192
SURVEY - TRANSPORTATION - Features Text		X																193
SURVEY - TRANSPORTATION - Railroads		X																194
SURVEY - TRANSPORTATION - Railroads - Points - Elevations																		195
SURVEY - TRANSPORTATION - Railroads - Points - Locators																		196
SURVEY - TRANSPORTATION - Railroads - Points - Numbers																		197
SURVEY - TRANSPORTATION - Railroads Text		X																198

Sheet Level Structure Summary and Cross Reference - TDOTmain.dgnlib

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Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EPSC CLEAR. & GRUB.	EPSC INT, GRADING	EPSC FINAL CONST.	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAY XS	UTILITIES	Level #
SURVEY - TRANSPORTATION - Roads	X	X					X		X	X		X		X				7
SURVEY - TRANSPORTATION - Roads - Points - Elevations																		199
SURVEY - TRANSPORTATION - Roads - Points - Locators																		200
SURVEY - TRANSPORTATION - Roads - Points - Numbers																		201
SURVEY - TRANSPORTATION - Roads Text	W	X					W		X	X		W						8
SURVEY - UTILITIES - Cable (Underground) - Points - Elevations																		202
SURVEY - UTILITIES - Cable (Underground) - Points - Locators																		203
SURVEY - UTILITIES - Cable (Underground) - Points - Numbers																		204
SURVEY - UTILITIES - Cable (Underground) with Text		X															X	25
SURVEY - UTILITIES - Electric (Lighting) - Points - Elevations																		205
SURVEY - UTILITIES - Electric (Lighting) - Points - Locators																		206
SURVEY - UTILITIES - Electric (Lighting) - Points - Numbers																		207
SURVEY - UTILITIES - Electric (Lighting) with Text		X															X	208
SURVEY - UTILITIES - Electric (Overhead) - Points - Elevations																		209
SURVEY - UTILITIES - Electric (Overhead) - Points - Locators																		210
SURVEY - UTILITIES - Electric (Overhead) - Points - Numbers																		211
SURVEY - UTILITIES - Electric (Overhead) with Text		X															X	212
SURVEY - UTILITIES - Electric (Underground) - Points - Elevations																		213
SURVEY - UTILITIES - Electric (Underground) - Points - Locators																		214
SURVEY - UTILITIES - Electric (Underground) - Points - Numbers																		215
SURVEY - UTILITIES - Electric (Underground) with Text		X															X	216
SURVEY - UTILITIES - Fiber Optic Cable (Underground) - Points - Elevations																		217
SURVEY - UTILITIES - Fiber Optic Cable (Underground) - Points - Locators																		218
SURVEY - UTILITIES - Fiber Optic Cable (Underground) - Points - Numbers																		219
SURVEY - UTILITIES - Fiber Optic Cable (Underground) with Text		X															X	220
SURVEY - UTILITIES - Gas - Points - Elevations																		221
SURVEY - UTILITIES - Gas - Points - Locators																		222
SURVEY - UTILITIES - Gas - Points - Numbers																		223
SURVEY - UTILITIES - Gas with Text		X															X	224
SURVEY - UTILITIES - Low Wire Crossings																		225
SURVEY - UTILITIES - Low Wire Crossings - Points - Elevations																		226
SURVEY - UTILITIES - Low Wire Crossings - Points - Numbers																		227
SURVEY - UTILITIES - Overhead Wire Crossings		X																228
SURVEY - UTILITIES - Overhead Wire Crossings - Points - Elevations																		229
SURVEY - UTILITIES - Overhead Wire Crossings - Points - Locators																		230
SURVEY - UTILITIES - Overhead Wire Crossings - Points - Numbers																		231
SURVEY - UTILITIES - Owners	W																	232
SURVEY - UTILITIES - Poles and Miscellaneous - Points - Elevations																		233
SURVEY - UTILITIES - Poles and Miscellaneous - Points - Locators																		234
SURVEY - UTILITIES - Poles and Miscellaneous - Points - Numbers																		235
SURVEY - UTILITIES - Poles and Miscellaneous with Text		X															X	236
SURVEY - UTILITIES - Sanitary Sewer - Points - Elevations																		237
SURVEY - UTILITIES - Sanitary Sewer - Points - Locators																		238
SURVEY - UTILITIES - Sanitary Sewer - Points - Numbers																		239
SURVEY - UTILITIES - Sanitary Sewer with Text		X															X	240

Sheet Level Structure Summary and Cross Reference - TDOTmain.dgnlib

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Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EPSC CLEAR. & GRUB.	EPSC INT, GRADING	EPSC FINAL CONST.	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAY XS	UTILITIES	Level #
SURVEY - UTILITIES - Telephone (Overhead) - Points - Elevations																		241
SURVEY - UTILITIES - Telephone (Overhead) - Points - Locators																		242
SURVEY - UTILITIES - Telephone (Overhead) - Points - Numbers																		243
SURVEY - UTILITIES - Telephone (Overhead) with Text		X															X	244
SURVEY - UTILITIES - Telephone (Underground) - Points - Elevations																		245
SURVEY - UTILITIES - Telephone (Underground) - Points - Locators																		246
SURVEY - UTILITIES - Telephone (Underground) - Points - Numbers																		247
SURVEY - UTILITIES - Telephone (Underground) with Text		X															X	248
SURVEY - UTILITIES - Water - Points - Elevations																		249
SURVEY - UTILITIES - Water - Points - Locators																		250
SURVEY - UTILITIES - Water - Points - Numbers																		251
SURVEY - UTILITIES - Water with Text		X															X	252
SURVEY - VEGETATION - Features - Points - Elevations																		253
SURVEY - VEGETATION - Features - Points - Locators																		254
SURVEY - VEGETATION - Features - Points - Numbers																		255
SURVEY - VEGETATION - Features with Text		X							X									18

Standard Levels and Element Parameters - TDOTmain.dgnlib

The CADD system allows the designer to place graphics on separate independent levels and to distinguish elements on each level by color, by weight, by line code and by text size. The Tennessee Department of Transportation Roadway Design Division has standardized its level and element parameters according to the following sections.

Level Structure Abbreviations:

LS	=	Custom Line Style; scale factor must be set prior to placement.
C	=	Cell Placement.
S	=	Symbol (in symbol font)
AP	=	Cell Area Pattern
CO	=	Color
WT	=	Weight
LC	=	Line Code
TX	=	Text Size
?	=	Size Number in Feature Code Names. Feature code is entered with number indicating size.

Text sizes refer to final plot sizes. In the DGN file text size is set based on this value multiplied by the desired plot scale.

TDOTmain.dgnlib > Construction					08/01/2004
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
CONSTRUCTION - SLOPE QUANTITIES - Interior					**314**
Interior Shot	I	7	0	C	
Text Name		7	0	0	0.02
Text Elevation		7	0	0	0.075
CONSTRUCTION - SLOPE QUANTITIES - Matting					**316**
Mat Symbol		14	0	C	
Text Name		14	0	0	0.01
Text Elevation		14	0	0	0.01
Matted Boundary	MA	14	0	0	
CONSTRUCTION - SLOPE QUANTITIES - Misc, rip-rap, headwalls, etc.					**317**
Misc Symbol		149	0	C	
Text Name		149	0	0	0.01
Text Elevation		149	0	0	0.01
Misc Boundary	MI	149	0	0	
CONSTRUCTION - SLOPE QUANTITIES - Seeding					**318**
Seed Symbol		4	0	C	
Text Name		4	0	0	0.01
Text Elevation		4	0	0	0.01
Seeding Boundary	SE	4	0	0	
CONSTRUCTION - SLOPE QUANTITIES - Sodding					**315**
Sod Symbol		1	0	C	
Text Name		1	0	0	0.01
Text Elevation		1	0	0	0.01
Sodded Boundary	SO	1	0	0	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - CENTERLINE - Proposed					**31**
Proposed Centerline: mainline, side roads, detours					
Geometry: tangents & curves		6	10	0	
DESIGN - CENTERLINE - Proposed Curve Text					**33**
Curve information text		6	2	0	.100
Point Text (PC, PI, PT, TS, SC, POT, etc.)		6	2	0	.100
DESIGN - CENTERLINE - Proposed GPK Visualizations					**256**
Mainline, side roads, & detours	D_POINT	0	0	0	
DESIGN - CENTERLINE - Proposed Text					**32**
Mainline, side roads, & detours		6	2	0	.120
Station ticks		6	7	0	
Station text (500-ft / 100-m labels)		6	10	0	.200
Bearings		6	4	0	.120
Equations		6	4	0	.120
Geometry: curve tangents		6	7	0	
Points (PC, PI, PT, TS, SC, POT, etc.)		6	7	S	.150
Equation Points		6	7	S	.150
Project limits		6	10	0	.200
North arrow		6	7	C	
Match lines		6	10	0	.120
Match line text		6	2	0	.120
Centerline intersections		6	4	0	.140
Centerline ends		6	4	0	.140
Limits of paving (mainline & side roads)		6	2	0	.120
Limits of construction (mainline & side roads)		6	2	0	.120
DESIGN - CONTOURS - Index with Text					**34**
Index Contours		2	2	0	
Spot Elevations		2	2	0	.100
Text		2	2	0	.100
DESIGN - CONTOURS - Intermediate with optional Text					**35**
Intermediate Contours		12	0	0	
Text		12	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - DRAINAGE - Bridges					**49**
Bridges (including non-drainage bridges)		3	4	0	
DESIGN - DRAINAGE - Bridges and Cross Drains Size Text					**50**
Bridge description/size text		3	2	0	.100
Cross drain pipe & box culvert description/size text		3	2	0	.100
DESIGN - DRAINAGE - Cross Drains					**257**
Pipes & box culverts		3	2	0	
End treatment: endwalls, concrete aprons		3	2	0	
End treatment: rip-rap		47	2	AP	
DESIGN - DRAINAGE - Ditch Bottom Point					**365**
Cross section point symbol		3	2	0	.120
DESIGN - DRAINAGE - Side Drains - 42 Inches and greater					**259**
Pipes & box culverts		3	2	0	
End treatment: endwalls, concrete aprons		3	2	0	
End treatment: rip-rap		47	2	AP	
DESIGN - DRAINAGE - Side Drains - less than 42 Inches					**258**
Pipes		3	2	0	
End treatment: endwalls		3	2	0	
End treatment: rip-rap		47	2	AP	
DESIGN - DRAINAGE - Special Ditch Width Text					**366**
Cross section text		3	2	0	.100
DESIGN - DRAINAGE - Special Ditches					**260**
Special ditches or channel changes		3	2	LS	
Prop. environmental features for wetland mitigation areas, etc.:					
Dams & Spillways		3	2	0	
Dikes & Levees		3	2	0	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - DRAINAGE - Storm Sewer					**51**
Storm sewer pipes & box culverts		3	2	LS	
Structures (catchbasins, drop inlets, manholes)		3	2	C	
DESIGN - DRAINAGE - Structures Linework					**364**
Cross section linework for proposed structures:					
Pipes & box culverts		3	4	0	
End treatment: endwalls, concrete aprons, etc.		3	4	0	
End treatment: rip-rap		47	2	AP	
Storm sewer catchbasins, drop inlets, manholes, etc.		3	4	0	
Existing structures on cross sections		3	2	3	
DESIGN - DRAINAGE - Text					**52**
Plan view text:					
Pipe & box culvert invert elevations		3	2	0	.100
Special ditch labels		3	2	0	.100
Storm sewer drainage codes & labels		3	2	C	.100
Cross section text:					
Bridge limits		3	10	0	.200
Pipe & box culvert drainage data		3	2	C	.100
Pipe & box culvert grades		3	2	0	.100
Inlet & outlet elevations		3	2	0	.100
Special ditch limits		3	2	0	.100
Special ditch flow direction		3	2	0	
Ditch elevations		3	2	0	.100
DESIGN - EARTHWORK - Excavation Limit Lines					**369**
For cross section earthwork calculation, not included on sheets		0	0	0	
DESIGN - EARTHWORK - Shapes					**347**
For cross section earthwork calculation, not included on sheets		*	*	*	
*Varies depending on material type					
DESIGN - EARTHWORK - Special Tie to Ground					**368**
For cross section earthwork calculation, not included on sheets		13	0	0	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - EROSION CONTROL - Devices					**58**
Devices		13		C	
Rip-Rap (temporary application)		47	2	AP	
DESIGN - EROSION CONTROL - Devices Text and Legends					**261**
Text		13	2	0	.100
Legends		13		C	
DESIGN - LINE OF SIGHT - Location Graphics					**367**
Plan view:					
Intersection Sight Lines		5	4	2	
To be shown on present and proposed layout sheets if R.O.W.					
is purchased to maintain intersection sight distance.					
Cross Sections:					
Text (Chain name, station, offset, elevation)		5	4	0	.140
Point Symbol		5	4	0	.200
Leader Line		5	4	0	
DESIGN - MODEL - Aggregate					**371**
For proposed model creation with “gravel_1“ material mapping		18	0	0	
DESIGN - MODEL - Asphalt					**372**
For proposed model creation with “tire“ material mapping		69	0	0	
DESIGN - MODEL - Concrete					**373**
For proposed model creation with “concrete_3“ material mapping		54	0	0	
DESIGN - MODEL - Grass					**374**
For proposed model creation with “grass field“ material mapping		8	0	0	
DESIGN - MODEL - Rip-Rap					**375**
For proposed model creation with “stone_1“ material mapping		1	0	0	
DESIGN - MODEL - Truck Apron Pavers					**376**
For proposed model creation with “paver brick herringbone“ material mapping		15	0	0	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - PROFILE - Drainage - Bridges Drains and Ditches					**262**
Bridges (including non-drainage bridges)		3	6	0	
Pipes & box culverts (side drains & cross drains)		3	6	0	
End treatment (endwalls, concrete aprons, etc.)		3	2	0	
Special ditches for roadways		3	2	LS	
DESIGN - PROFILE - Drainage - Bridges Drains and Ditches Text					**263**
Text		3	2	0	.120
DESIGN - PROFILE - Drainage - Storm Sewer					**264**
Storm sewer pipes & box culverts		3	2	0	
Structures (catchbasins, drop inlets, manholes)		3	2	0	
DESIGN - PROFILE - Drainage - Storm Sewer Text					**265**
Storm sewer drainage codes & labels		3	2	C	.100
DESIGN - PROFILE - Patterning					**266**
Rip-Rap		47	2	AP	
DESIGN - PROFILE - Private Drive Vertical Curve Text					**350**
Proposed private drives:					
Proposed point text (VPI)		6	2	0	.100
Vertical curve lengths		6	2	0	.100
DESIGN - PROFILE - Proposed					**267**
Proposed Profile: mainline, side roads, detours					
Geometry: tangents & curves		6	10	0	
Proposed Profile: private drives					
Geometry: tangents & curves		6	7	0	
Concrete on urban private drives		1	7	0	
DESIGN - PROFILE - Proposed Curve Text					**268**
Proposed roadway curve information text:					
Proposed point text (VPC, VPI, VPT, etc.)		6	2	0	.120
Vertical curve lengths		6	2	0	.120
K value		6	2	0	.120
Design speed		6	2	0	.120
Superelevation(transition stations, rates)		0	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - PROFILE - Proposed Text					**269**
Proposed roadways:					
Grades		6	2	0	.120
Equation data		6	2	0	.120
Geometry: curve tangents		6	4	0	
Curve points (VPC, VPI, VPT, etc.)		6	4	S	.150
Equation points		6	4	S	.150
Balance limits & quantities (mainline)		6	2	0	.120
Project limits		6	10	0	.200
Limits of paving (side roads)		0	2	0	.120
Limits of construction (side roads)		0	2	0	.120
Proposed private drives:					
Grades		6	2	0	.100
Curve points (VPC, VPI, VPT)		6	4	S	.150
Limits of construction		6	2	0	.100
Stationing (bottom of sheet)		6	4	0	.140
Elevation (sides of sheet)		6	10	0	.200
DESIGN - PUBLIC HEARING - Shapes					**59**
Shapes for color fill *CO=desired plot color		*	0	0	
DESIGN - ROW - Bearings and Distances					**270**
Bearing and Distance Text		6	2	0	.100
DESIGN - ROW - Easement Linework and Patterning					**47**
Linework:					
Drainage easement lines		6	4	0	
Construction easement lines		6	4	7	
Patterning:					
Drainage easement		6	4	AP	
Slope easement		47	2	AP	
Construction easement (for large areas)		47	2	AP	
DESIGN - ROW - Loss of Access Patterning					**271**
Loss-of-access area		6	4	AP	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - ROW - Right-of-Way and Easement Labels					**46**
Text		6	2	0	.100
R.O.W. limit label text on cross sections		6	4	0	.140
R.O.W. limit offset text on cross sections		6	2	0	.100
DESIGN - ROW - Right-of-Way Linework					**45**
R.O.W. lines		6	13	0	
Access control R.O.W. lines (with fence)		6	13	LS	
Access control R.O.W. lines (w/o fence)		6	13	LS	
Access control fence (non-R.O.W. line)		6	4	LS	
R.O.W. limit lines on cross sections		6	4	0	
DESIGN - ROW - Right-of-Way Markers					**272**
Proposed R.O.W. Markers		6	2	C	
DESIGN - ROW - ROW and Easement GPK Visualizations					**273**
R.O.W.	PROW	6	13	0	
Drainage easement	DEASMT	6	4	0	
Slope easement	SEASMT	6	0	0	
Construction easement	CEASMT	6	4	7	
DESIGN - ROW - Slope Lines					**43**
Cut Slopes		6	6	0	
Fill Slopes		6	6	3	
DESIGN - ROW - Slope Lines Text					**44**
Text		6	2	0	.100
DESIGN - ROW - Stations and Offsets					**274**
Station and Offset Text		6	2	0	.100
DESIGN - ROW - Wetland Mitigation Patterning					**275**
Wetland Mitigation area		47	2	AP	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - SCRATCH - User 1					**30**
Miscellaneous text location points in cells		3	0	C	
Geopak drainage control points in node cells		3		C	
Global Origin Coordinate note		0	0	0	.100
DESIGN - SCRATCH - User 2					**276**
DESIGN - SCRATCH - User 3					**277**
DESIGN - SCRATCH - User 4					**278**
DESIGN - SCRATCH - User 5					**279**
DESIGN - SHEET - Corner Text					**62**
Sheet cell text:					
Titles, project data, file room stamp, date & DGN file				C	
Elevations, working cross sections		6	10	0	.200
Offsets, working cross sections		6	4	0	.140
DESIGN - SHEET - Light Grid					**63**
Light grid for profile & cross section sheets		1		C	
Geopak profile & cross section control cells		2		C	
DESIGN - SHEET - Linework					**61**
Sheet borders and linework		4		C	
Heavy grid for profile & cross section sheets		4		C	
Temporary grid lines, working cross sections		0,2		C	
DESIGN - SHEET - Plot Shape					**280**
Sheet plot shape for prints		254	0	0	
Sheet plot shape for PDF generation		253	0	0	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - SURFACE - Bridge Surface Construction Lines					**360**
For TIN surface generation from cross sections, not included on		1	4	0	
Sheets					
DESIGN - TRAFFIC CONTROL PERMANENT - Pavement Marking					**56**
Striping *WT: 4”/6”=4 , 8”=7 , 12”=10 , 24”=15		0,7	*	LS	
Pavement Words or Arrows		0		C	
Parallel Crosswalks		0	7	LS	
Longitudinal Crosswalks (filled shapes)		0	2	0	
Longitudinal Crosswalks (lines for quantities)		0	2	LS	
Stop Bars (filled shape)		0	2	0	
Stop Bars (lines for quantities)		0	2	LS	
Raised directional pavement markers		0	2	C	
DESIGN - TRAFFIC CONTROL PERMANENT - Pavement Marking Text					**57**
Text		7	2	0	.100
DESIGN - TRAFFIC CONTROL PERMANENT - Signal Poles					**281**
Wood or Strain Signal Poles		7	2	C	
DESIGN - TRAFFIC CONTROL PERMANENT - Signalization					**41**
Controller cabinets		7	2	C	
Detector loops or areas		7	2	C	
Signal Heads		7	2	C	
Video Detection Cameras		7	2	C	
Emergency Vehicle Pre-empt Detectors		7	2	C	
Mast Arms (filled shape)		7		C	
Signal span wire		7	2	LS	
Loop wire		7	2	LS	
Pedestrian Push Buttons		7	2	C	
Pedestrian Poles for Push Buttons		7	2	C	
Guy wire and anchors		7	2	C	
Pull boxes		7	2	C	
1" Conduit		3	2	3	
2" Conduit		8	2	3	
3" Conduit		10	2	3	
Overhead Fiber Optic Cable		8	2	LS	
Underground Fiber Optic Cable		8	2	LS	
Signal Head Faces				C	
Left Turn Signal Sign Face				C	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - TRAFFIC CONTROL PERMANENT - Signalization Text					**42**
Text		7	2	0	.100
DESIGN - TRAFFIC CONTROL PERMANENT - Signs					**282**
Sign Symbols		7	2	C	
Sign Faces				C	
Construction and installation detail linework				C	
DESIGN - TRAFFIC CONTROL PERMANENT - Signs Text					**283**
Sign No. Text		7	2	0	.100
Construction and installation detail text				C	
DESIGN - TRAFFIC CONTROL TEMPORARY - Devices					**53**
Temporary traffic control devices		5,0	2	C	
Signal poles		7	2	C	
Traffic signals		7	2	C	
Temporary Striping		5	2	LS	
Sign symbols		5	2	C	
DESIGN - TRAFFIC CONTROL TEMPORARY - Sign Faces and Text					**284**
Text		5	2	0	.100
Legends				C	
Sign Faces				C	
Temporary traffic control device details with text				C	
DESIGN - TRANSPORTATION - Proposed Layout Patterning					**60**
Rip-Rap (permanent other than drainage structure application)		47	2	AP	
Reinforced Concrete Slabs		0	2	AP	
DESIGN - TRANSPORTATION - Curb Gutter and Sidewalk					**285**
Curb		64	2	LS	
Curb & gutter		64	2	LS	
Curb ramps (Boundary drawn w/LS for area quantity calculation)		64	2	0	
Sidewalks		64	2	0	
DESIGN - TRANSPORTATION - Driveway Shading					**9**
Driveway area shading		47	0	AP	

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - TRANSPORTATION - Driveways					**39**
Edge of traveled way		0	2	0	
DESIGN - TRANSPORTATION - Edge of Traveled Way					**37**
Roadways		0	4	0	
Airport runways		0	4	0	
Bikeways		7	2	0	
Parking lots		7	2	0	
Railroads		7	2	LS	
Trails		7	2	0	
Tunnels (highway, pedestrian, railroad, etc.)		7	2	0	
DESIGN - TRANSPORTATION - GR Special Slope Limit Lines					**286**
Guardrail pad limits		7	0	LS	
Guardrail alternate slope limits		7	0	LS	
Median guardrail alternate slope limits		7	0	LS	
DESIGN - TRANSPORTATION - Intersection Lines					**338**
Lines between roadways to limit prop. cross section processing:					
Outside edge of mainline travel lane within side road Intersection		0	0	1	
Edge of side road travel lanes at Intersection with large radii		0	0	1	
Freeways at Ramp departures		0	0	1	
DESIGN - TRANSPORTATION - Lighting					**287**
Light poles		2	2	C	
Luminaires		7	2	C	
Wall mounted underpass lights		7	2	C	
Lighting control center		7	2	C	
Pull boxes		7	2	C	
1" Conduit		3	2	3	
2" Conduit		8	2	3	
3" Conduit		10	2	3	
DESIGN - TRANSPORTATION - Lighting Text					**288**
Text		7	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - TRANSPORTATION - Roadside Barriers					**289**
Guardrail		7	2	LS	
Guardrail terminals		7	2	C	
Impact attenuators		7	2	0	
Median barrier walls		7	2	0	
Median earth berms		7	2	0	
Retaining walls (roadway & noise)		7	2	LS	
Cable Barrier		7	2	LS	
DESIGN - TRANSPORTATION - Scarification Patterning					**290**
Scarification area (removal of exist. pvmt.)		0	0	AP	
DESIGN - TRANSPORTATION - Scarification Text					**291**
Scarification legend		0	2	C	.100
DESIGN - TRANSPORTATION - Shoulder Lines					**36**
Outside edge of graded shoulders		7	2	0	
DESIGN - TRANSPORTATION - Text					**38**
Roadway text		0	2	0	.120
Private drive centerline & text		0	2	0	.100
Curb, gutter & sidewalk text		64	2	0	.100
Guardrail text		7	2	0	.100
Shoulder text		7	2	0	.100
DESIGN - TYPICAL - Bench Elevation Text					**352**
Cross section text		0	2	0	.100
DESIGN - TYPICAL - Bench Slope Text					**354**
Cross section text		0	2	0	.100
Back of bench point symbol on cross sections		0	2	0	.120
DESIGN - TYPICAL - Bench Width Text					**353**
Cross section text		0	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - TYPICAL - Bridge Deck Median Barriers					**359**
Cross section linework		1	4	0	
DESIGN - TYPICAL - Finished Grade and Subgrade					**348**
Cross section linework:					
Pavement		6	4	0	
Subgrade		2	4	0	
Shoulder (graded)		7	4	0	
Stone		18	4	0	
Side Slopes & other grass areas		8	4	0	
Finished Grade Concrete:					
Curb,Gutter,Sidewalk,Retaining Wall,Median Barrier (non-bridge)		1	4	0	
Subgrade Concrete:					
Curb,Gutter,Sidewalk,Retaining Wall,Median Barrier (non-bridge)		161	4	0	
Top of Bridge Deck		1	4	0	
Bottom of Bridge Deck		161	4	0	
DESIGN - TYPICAL - Finished Grade Slopes Text					**351**
Regular cross slope & side slope cross section text		0	2	0	.100
DESIGN - TYPICAL - Guardrail					**358**
Cross section linework		0	4	0	
DESIGN - TYPICAL - Retaining Wall Text					**363**
Cross section text		1	2	0	.100
DESIGN - TYPICAL - Side Slope to Bench Text					**355**
Cross section text		0	2	0	.100
DESIGN - TYPICAL - Slope Tie Point					**362**
Point symbol on cross sections		0	2	0	.120
DESIGN - TYPICAL - Slope Tie Text					**361**
Offset & Elevation at Tie cross section text		0	2	0	.100
DESIGN - TYPICAL - Subgrade Cross Slope Text					**356**
Cross section text		2	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - TYPICAL - Subgrade Tie Text					**357**
Offset & Elevation at Tie cross section text		2	2	0	.100
DESIGN - TYPICAL - Text					**349**
Cross section text:					
Finished grade elevation		6	2	0	.120
Finished Grade Point Symbol		6	2	0	.120
Superelevation limits		0	10	0	.200
Stations, final cross sections		6	10	0	.200
Elevations, final cross sections		6	10	0	.200
Offsets , final cross sections		6	4	0	.140
DESIGN - TYPICAL - Warning Text					**370**
Warning Information text, working cross sections		0	2	0	.200
Chain name & station text, working cross sections		6	10	0	.200
DESIGN - UTILITIES - Cable (Overhead) with Text					**55**
Linework		8	2	LS	
Text		8	2	0	.100
DESIGN - UTILITIES - Cable (Underground) with Text					**54**
Linework		8	2	LS	
Text		8	2	0	.100
DESIGN - UTILITIES - Electric (Overhead) with Text					**292**
Linework		5	2	LS	
DESIGN - UTILITIES - Electric (Underground) with Text					**293**
Linework		5	2	LS	
Manhole		5	2	C	
Text		5	2	0	.100
DESIGN - UTILITIES - Electric and Cable (Overhead) with Text					**312**
Linework		5	2	LS	
Text		5	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - UTILITIES - Electric Telephone and Cable (Overhead) with Text					**313**
Linework		5	2	LS	
Text		5	2	0	.100
DESIGN - UTILITIES - Fiber Optics (Overhead) with Text					**294**
Linework		8	2	LS	
Text		8	2	0	.100
DESIGN - UTILITIES - Fiber Optics (Underground) with Text					**295**
Linework		8	2	LS	
Text		8	2	0	.100
DESIGN - UTILITIES - Gas with Text					**296**
Linework		7	2	LS	
Meter		7	2	C	
Valve		7	2	C	
Manhole		7	2	C	
Text		7	2	0	.100
DESIGN - UTILITIES - Sanitary Sewer with Text					**297**
Linework (includes force mains)		13	2	LS	
Meter		13	2	C	
Valve		13	2	C	
Manhole		13	2	C	
Text		13	2	0	.100
DESIGN - UTILITIES - Telephone (Overhead) with Text					**298**
Linework		8	2	LS	
Pole with or w/o light		8	2	C	
Text		8	2	0	.100
DESIGN - UTILITIES - Telephone (Underground) with Text					**299**
Linework		8	2	LS	
Booth		8	2	C	
Pedestal		8	2	C	
Manhole		8	2	C	
Text		8	2	0	.100

TDOTmain.dgnlib > Design					01/22/2013
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
DESIGN - UTILITIES - Water with Text					**300**
Linework		4	2	LS	
Meter		4	2	C	
Valve		4	2	C	
Manhole		4	2	C	
Fire hydrant		6	2	C	
Text		4	2	0	.100
DESIGN - VEGETATION - Features with Text					**48**
Trees, etc.		8	2	C, LS	.100

TDOTmain.dgnlib > Functional					08/01/2004
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
FUNCTIONAL - Bridge Patterning					**301**
Bridge Area		3	2	AP	
FUNCTIONAL - Bridges					**302**
Bridges		3	4	0	
FUNCTIONAL - ROW - Right-of-Way					**303**
Right-of-Way lines		5	13	0	
Right-of-Way lines with CA fence		5	13	LS	
FUNCTIONAL - ROW - Right-of-Way Patterning					**304**
R.O.W. Area		5	0	AP	
FUNCTIONAL - ROW - Right-of-Way Text					**305**
Text		5	4	0	.140
FUNCTIONAL - ROW - Slope Lines					**306**
Cut Slopes		13	4	0	
Fill Slopes		13	4	3	
FUNCTIONAL - TOPOGRAPHY - Business Names					**307**
Text		51	4	0	.160
FUNCTIONAL - TRANSPORTATION - Pavement Marking and Traffic Control					**308**
Striping *WT: 4”/6”=4 , 8”=7 , 12”=10 , 24”=15		0,7	*	LS	
Pavement Words or Arrows		0		C	
Parallel Crosswalks		0	7	0	
Longitudinal Crosswalks (filled shapes)		0	2	0	
Stop Bars (filled shape)		0	2	0	
Road Closing Barricade				C	
FUNCTIONAL - TRANSPORTATION - Pavement Patterning					**309**
Pavement Area		7	2	AP	

TDOTmain.dgnlib > Functional					08/01/2004
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
FUNCTIONAL - TRANSPORTATION - Preliminary Edge of Traveled Way					**310**
Edge of Roadway Lanes		44	4	0	
FUNCTIONAL - TRANSPORTATION - Roads Text					**321**
Text		15	2	0	.100

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - AERIAL SURVEY - Automatic - Grid Points					**322**
Automatic Grid Points		6	4	0	
SURVEY - AERIAL SURVEY - Automatic - Grid Pts Beyond - Ht Acc Threshold					**323**
Automatic Grid Points beyond Height Accept Threshold		7	4	0	
SURVEY - AERIAL SURVEY - Automatic - Grid Pts with - Low Redundancy					**324**
Automatic Grid Points with Low Redundancy		10	0	0	
SURVEY - AERIAL SURVEY - Collected Point					**325**
Collected Grid Points for DTM		3	5	0	
Spot Elevation		3	5	0	
SURVEY - AERIAL SURVEY - Contours - Major					**326**
Major Contour Lines		5	3	0	
SURVEY - AERIAL SURVEY - Contours - Major Text					**327**
Major Contour Text		5	0	0	.100
SURVEY - AERIAL SURVEY - Contours - Minor					**328**
Minor Contour Lines		4	1	0	
SURVEY - AERIAL SURVEY - Mapping Setup - MAPPING LIMITS					**329**
Mapping Limit Lines		1	2	0	
SURVEY - AERIAL SURVEY - Mapping Setup - SET MAP SCALE					**330**
Map Scale		0	0	0	1.000
SURVEY - AERIAL SURVEY - Mapping Setup - with Text					**331**
Text		1	2	0	.100
SURVEY - AERIAL SURVEY - Obscured Area					**332**
Obscured Area Lines		6	2	0	

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - AERIAL SURVEY - Obscured Area Points					**333**
Obscured Area Points		8	2	0	
SURVEY - AERIAL SURVEY - Out of collection Boundary Points					**334**
Out of Collection Boundary Points		9	0	0	
SURVEY - AERIAL SURVEY - Photo Control - Points - Elevations					**64**
Text		1	0	0	.080
SURVEY - AERIAL SURVEY - Photo Control - Points - Locators					**65**
Point "+" Tic		1	0	0	
SURVEY - AERIAL SURVEY - Photo Control - Points - Numbers					**66**
Text		1	0	0	.080
SURVEY - AERIAL SURVEY - Photo Control with Text					**67**
Horizontal photo points	XH	1	2	C	
Vertical photo points	XV	1	2	C	
Horizontal/Vertical photo points	XHV	1	2	C	
Text		1	2	0	.100
SURVEY - AERIAL SURVEY - Skipped Points					**335**
Skipped Points		6	2	0	
SURVEY - AERIAL SURVEY - Uncollected Point					**336**
Uncollected Points		4	2	0	
SURVEY - AERIAL SURVEY - Withheld Point					**337**
Withheld Points		7	2	0	
SURVEY - CENTERLINE - Existing Roads					**24**
Existing centerlines, mainline & side roads	EXCL	25	4	0	

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - CENTERLINE - Existing Roads - Development					**68**
Centerline geometry studies & development	X_EX-CL	7	2	0	.100
SURVEY - CENTERLINE - Existing Roads Curve Text					**69**
Curve information text		25	2	0	.100
Point Text (PC, PI, PT, TS, SC, POT, etc.)		25	2	0	.100
SURVEY - CENTERLINE - Existing Roads Text					**70**
Main line, side roads, & detours		25	2	0	.120
Station ticks		25	7	0	
Station text (500-ft / 100-m labels)		25	10	0	.200
Bearings		25	4	0	.120
Equations		25	4	0	.120
Geometry: curve tangents		25	7	0	
Points (PC, PI, PT, TS, SC, POT, etc.)		25	7	S	.150
Equation Points		25	7	S	.150
Centerline intersections		25	4	0	.140
Centerline ends		25	4	0	.140
SURVEY - CENTERLINE - Preliminary					**1**
Proposed centerline	CL	6	10	0	
Main line, side roads, & detours		6	10	0	
Geometry: tangents & curves		6	10	0	
SURVEY - CENTERLINE - Preliminary - Development					**71**
Centerline geometry studies & development	X_PROP-CL	7	2	0	.100
SURVEY - CENTERLINE - Preliminary Curve Text					**72**
Curve information text		6	2	0	.100
Point Text (PC, PI, PT, TS, SC, POT, etc.)		6	2	0	.100

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - CENTERLINE - Preliminary Text					**2**
Main line, side roads, & detours		6	2	0	.120
Station ticks		6	7	0	
Station text (500-ft / 100-m labels)		6	10	0	.200
Bearings		6	4	0	.120
Equations		6	4	0	.120
Geometry: curve tangents		6	7	0	
Points (PC, PI, PT, TS, SC, POT, etc.)		6	7	S	.150
Equation Points		6	7	S	.150
Centerline intersections		6	4	0	.140
Centerline ends		6	4	0	.140
SURVEY - CONTOURS - Index with Text					**4**
Index Contours		2	2	3	
Spot Elevations		2	2	0	.100
Text		2	2	0	.100
SURVEY - CONTOURS - Intermediate with optional Text					**5**
Intermediate Contours		12	0	3	
Text		12	2	0	.100
SURVEY - CONTROL - Check Points					**339**
GPS RTK Check Points		7	2	0	
SURVEY - CONTROL - Grid					**73**
State plane coordinate grid		1	2	0	
SURVEY - CONTROL - Grid Text					**74**
Text		1	2	0	.100
SURVEY - CONTROL - Points - Elevations					**75**
Text		1	2	0	.080
SURVEY - CONTROL - Points - Locators					**76**
Point "+" Tic		1	2	0	

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - CONTROL - Points - Numbers					**77**
Text		1	2	0	.080
SURVEY - CONTROL - Temporary with Text					**319**
Temporary Survey Point	XSPUR	1	2	C	.100
Text		1	2	0	.100
SURVEY - CONTROL with Text					**3**
GPS Points	XCP	1	2	C	.100
Benchmarks	XBM	1	2	C	.100
Horizontal Control Points	XTRAV	1	2	C	.100
Control Points Table		1	2	0	.100
Datum Adjustment Factor note		1	2	0	.100
Text		1	2	0	.100
SURVEY - DRAINAGE - Area Shapes					**6**
Area Shapes (Boundaries)	DBDRY	3	4	0	
SURVEY - DRAINAGE - Area Shapes - Points - Elevations					**78**
Text		3	2	0	.080
SURVEY - DRAINAGE - Area Shapes - Points - Locators					**79**
Point "+" Tic		3	0	0	
SURVEY - DRAINAGE - Area Shapes - Points - Numbers					**80**
Text		3	2	0	.080
SURVEY - DRAINAGE - Area Shapes Text					**81**
Text		3	2	0	.100
"Drainage Data For Pipe" Cell		3	2	C	.100
SURVEY - DRAINAGE - Bridge Deck - Points - Elevations					**82**
Text		3	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - DRAINAGE - Bridge Deck - Points - Locators					**83**
Point "+" Tic		3	0	0	
SURVEY - DRAINAGE - Bridge Deck - Points - Numbers					**84**
Text		3	2	0	.080
SURVEY - DRAINAGE - Bridge Deck with Text					**22**
Bridge deck lines	DECK	3	2	0	
Bridge deck spot points	XDECK	3	2	C	
Text		3	2	0	.100
SURVEY - DRAINAGE - Bridge Hydraulic Data - Points - Elevations					**85**
Text		3	2	0	.080
SURVEY - DRAINAGE - Bridge Hydraulic Data - Points - Locators					**28**
Point "+" Tic		3	0	0	
SURVEY - DRAINAGE - Bridge Hydraulic Data - Points - Numbers					**86**
Text		3	2	0	.080
SURVEY - DRAINAGE - Bridge Hydraulic Data with Text					**40**
Plan view graphics:					
Up Stream Flood Plain section lines	UP	3	6	0	
Down Stream Flood Plain section lines	DOWN	3	6	0	
Stream profile lines	CRKB	3	1	0	
Top of Bank lines	TB	3	2	0	
Normal water elevation point	XNW	3	2	LS	.100
High water elevation point	XHW	3	2	LS	.100
Bridge bottom beam	BEAM	3	4	3	
Stream baseline	STRCL	3	6	0	
Centerline intersections		3	2	0	.100
Centerline ends		3	2	0	.100
Text		3	2	0	.100

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - DRAINAGE - Bridges					**19**
Bridges (including non-drainage bridges)	BRI	3	4	3	
Bridge pier	PIER	3	4	3	
SURVEY - DRAINAGE - Bridges - Points - Elevations					**87**
Text		3	2	0	.080
SURVEY - DRAINAGE - Bridges - Points - Locators					**88**
Point "+" Tic		3	0	0	
SURVEY - DRAINAGE - Bridges - Points - Numbers					**89**
Text		3	2	0	.080
SURVEY - DRAINAGE - Bridges Text					**20**
Text		3	2	0	.100
SURVEY - DRAINAGE - Natural Features					**17**
Creeks	CRK	4	2	LS	
Rivers	RIVER	4	2	LS	
Ponds	POND	4	2	LS	
Lake	LAKE	4	2	LS	
Rapids, waterfall	RPDS	4	2	LS	
Sink hole	SINK	4	2	LS	
Wetland boundary	WET	4	2	LS	
Spring	XSPRING	4	2	C	
Irrigation ditches	CRK	4	2	LS	
SURVEY - DRAINAGE - Natural Features - Points - Elevations					**90**
Text		4	2	0	.080
SURVEY - DRAINAGE - Natural Features - Points - Locators					**91**
Point "+" Tic		4	0	0	
SURVEY - DRAINAGE - Natural Features - Points - Numbers					**92**
Text		4	2	0	.080

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - DRAINAGE - Natural Features Text					**311**
Text, current names or special environmental designations for		4	2	0	.100
unnamed features					
SURVEY - DRAINAGE - Pipes and Culverts					**93**
Pipes (side drains & cross drains)	PIPE	3	2	3	
Box culverts (side drains & cross drains)	CV	3	2	3	
End treatment (endwalls)	EW	3	2	3	
End treatment (concrete aprons)	APRON	3	2	3	
Special ditches for roadways	DIT	3	2	3	
Stream gauges	GAGE	3	2	3	
Rip-rap	RRAP	3	2	3	
Dams	DAM	3	2	LS	
Dikes	DIKE	3	2	3	
Levees & docks	LEVEE	3	2	3	
Spillways	SPILL	3	2	3	
SURVEY - DRAINAGE - Pipes and Culverts - Points - Elevations					**94**
Text		3	2	0	.080
SURVEY - DRAINAGE - Pipes and Culverts - Points - Locators					**95**
Point "+" Tic		3	0	0	
SURVEY - DRAINAGE - Pipes and Culverts - Points - Numbers					**96**
Text		3	2	0	.080
SURVEY - DRAINAGE - Pipes and Culverts Text					**97**
Text		3	2	0	.100
SURVEY - DRAINAGE - Storm Sewer					**21**
Storm sewer pipes	?STS	3	2	LS	
Catchbasins	XCB	3	2	C	
Drop inlets	XDI	3	2	C	
Storm sewer manholes, etc.	XMHSTS	3	2	C	
Storm sewer box culverts		3	2	3	
Safety grates		3	2	C	

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - DRAINAGE - Storm Sewer - Points - Elevations					**98**
Text		3	2	0	.080
SURVEY - DRAINAGE - Storm Sewer - Points - Locators					**99**
Point "+" Tic		3	2	0	
SURVEY - DRAINAGE - Storm Sewer - Points - Numbers					**100**
Text		3	2	0	.080
SURVEY - DRAINAGE - Storm Sewer Text					**101**
Text		3	2	0	.100
SURVEY - DTM - Breaklines					**29**
Survey Breaklines	BL	3	0	0	
Aerial Survey Breaklines		3	2	0	
SURVEY - DTM - Breaklines - Points - Elevations					**102**
Text		2	2	0	.080
SURVEY - DTM - Breaklines - Points - Locators					**103**
Point "+" Tic		2	0	0	
SURVEY - DTM - Breaklines - Points - Numbers					**104**
Text		2	2	0	.080
SURVEY - DTM - Spot Points - Elevations					**105**
Text		2	2	0	.080
SURVEY - DTM - Spot Points - Locators					**106**
Point (circle)	XP	2	0	C	
SURVEY - DTM - Spot Points - Point Numbers					**107**
Text		2	2	0	.080

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - DTM - Void Lines					**108**
Void lines	OL	6	7	0	
SURVEY - DTM - Void Lines - Points - Elevations					**109**
Text		6	2	0	.080
SURVEY - DTM - Void Lines - Points - Locators					**110**
Point "+" Tic		6	0	0	
SURVEY - DTM - Void Lines - Points - Numbers					**111**
Text		6	2	0	.080
SURVEY - DTM GRAPHICS - Boundary Line					**112**
DTM boundary line		0	0	0	
SURVEY - DTM GRAPHICS - Break Voids					**113**
DTM break voids		10	0	0	
SURVEY - DTM GRAPHICS - Breaklines					**114**
DTM break lines		3	0	0	
SURVEY - DTM GRAPHICS - Contours					**115**
DTM contours		2	0	0	
SURVEY - DTM GRAPHICS - Drape Voids					**116**
DTM drape voids		11	0	0	
SURVEY - DTM GRAPHICS - Islands					**117**
DTM islands		0	0	0	
SURVEY - DTM GRAPHICS - Spot Points					**118**
DTM spot points		0	0	0	

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - DTM GRAPHICS - Triangles					**119**
DTM triangles		8	0	0	
SURVEY - DTM GRAPHICS - Voids					**120**
DTM void lines		6	0	0	
SURVEY - GROUND - Bottom of Rock Layer					**344**
For cross section earthwork calculation, not included on sheets		1	0	0	
SURVEY - GROUND - Bottom of Topsoil Layer					**343**
Cross section linework		2	2	2	
SURVEY - GROUND - Bottom of Unsuitable Material Layer					**342**
Cross section linework: muck removal, etc.		11	2	2	
SURVEY - GROUND - Existing Pavement Layer					**345**
Cross section linework		0	2	2	
SURVEY - GROUND - Existing Pavement Text					**346**
Cross section text		0	2	0	.100
SURVEY - GROUND - Top of Ground					**340**
Cross section ground lines		0	2	3	
Cross section void area lines		6	2	3	
SURVEY - GROUND - Top of Rock Layer					**341**
Cross section linework		1	2	2	
SURVEY - MISCELLANEOUS - Bottom of MH and CB					**121**
Bottom of manholes, catchbasins, etc.	XBOT	3	2	C	
SURVEY - MISCELLANEOUS - Bottom of MH and CB - Points - Elevations					**122**
Text		3	2	0	.080

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - MISCELLANEOUS - Bottom of MH and CB - Points - Numbers					**123**
Text		3	2	0	.080
SURVEY - MISCELLANEOUS - Office with Text					**124**
Miscellaneous COGO points & lines					
Hi Visibility office point	XPOINT	7	2		
Default Point	DEFAULT_POINT	48	2		
Default Line	DEFAULT_LINE	48	2		
Default Chain	DEFAULT_CHAIN	48	2		
Default Parcel	DEFAULT_PARCEL	48	2		
Default Curve	DEFAULT_CURVE	48	2		
Default Spiral	DEFAULT_SPIRAL	48	2		
Text		48	2	0	.100
SURVEY - NON-TRANSPORTATION - Buildings					**125**
Steps	BC	1	2	0	
Barns	BC	1	2	0	
Patios & decks	BC	1	2	0	
Sheds	BC	1	2	0	
Silos	BC	1	2	0	
Swimming pools	BC	1	2	0	
Well houses	BC	1	2	0	
Chimneys & smokestacks	BC	1	2	0	
Buildings	BC	1	2	0	
SURVEY - NON-TRANSPORTATION - Buildings - Points - Elevations					**126**
Text		1	2	0	.080
SURVEY - NON-TRANSPORTATION - Buildings - Points - Locators					**127**
Point "+" Tic		1	0	0	
SURVEY - NON-TRANSPORTATION - Buildings - Points - Numbers					**128**
Text		1	2	0	.080
SURVEY - NON-TRANSPORTATION - Buildings Text					**129**
Text		1	2	0	.100

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - NON-TRANSPORTATION - Features					**11**
Debris & Storage Piles	MISC	1	2	0	
Areas under construction	MISC	1	2	0	
Rip-rap (Non-Drainage)	MISC	47	2	AP	
Athletic fields	AFLD	1	2	0	
Cemeteries	CEM	1	2	7	
Cattle Guard	CG	1	2	0	
Fence lines	FN	1	2	LS	
Gates	GATE	1	2	1	
Graves	GRAVE	1	2	1	
Quarries & pits	PIT	1	2	3	
Retaining walls (residential & commercial)	RWP	1	2	3	
Retaining walls (residential & commercial) w/fence	RWPWF	1	2	LS	
Miscellaneous Pad	PAD	1	2	0	
Sidewalks (private)	SWP	1	2	0	
Stone fences & rock walls	ROCKW	1	2	LS	
Tanks (fixed) (UG or above ground)	TANK	1	2	3	
Towers	TOWER	1	2	0	
Septic field line	SEP	1	2	3	
Septic Tank	XSEP	1	2	C	
Sign (private)	SIGNP	1	2	0	
Miscellaneous line	MISC	1	2	0	
Miscellaneous point	XMISC	1	2	C	
Solid line	SOLID	1	2	0	
Dash line	DASH	1	2	3	
Dotted line	DOT	1	2	1	
Long dashed line	LD	1	2	LS	
Boulder	XBLDR	1	0	C	
Flag poles	XFLAG	1	2	C	
Fence post	XFP	1	2	C	
Mailbox	XMB	1	2	C	
Satellite dish	XSATLIT	1	2	C	
Wells	XWELL	1	2	C	
SURVEY - NON-TRANSPORTATION - Features - Points - Elevations					**130**
Text		1	2	0	.080
SURVEY - NON-TRANSPORTATION - Features - Points - Locators					**27**
Point "+" Tic		1	0	0	
SURVEY - NON-TRANSPORTATION - Features - Points - Numbers					**131**
Text		1	2	0	.080

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - NON-TRANSPORTATION - Features Text					**12**
Text		1	2	0	.100
Floor elevation	XFE	1	2		.100
SURVEY - PROFILE - Control with Text					**132**
Benchmarks		1	2	0	.120
SURVEY - PROFILE - Drainage - Bridge Hydraulic Data with Text					**320**
Flood Plain sections		3	2	0	
Stream profiles		3	2	0	
Top of Bank profiles		0	2	0	
Normal water elevation		3	2	0	.100
High water elevation		3	2	0	.100
Bridge Sketch		3	4	0	.100
Text		3	2	0	.120
"Drainage/ Hydraulic Data For Bridge" Cell		3	2	C	.120
SURVEY - PROFILE - Drainage - Bridges					**133**
Bridge profile		0	2	3	
SURVEY - PROFILE - Drainage - Bridges Text					**134**
Text		0	2	0	.100
SURVEY - PROFILE - Drainage - Natural Features with Text					**135**
HW50		3	2	0	.120
HW100		3	2	0	.120
Normal high water		3	2	0	.120
Extreme high water		3	2	0	.120
Q50		3	2	0	.120
Q100		3	2	0	.120
Text		3	2	0	.120
SURVEY - PROFILE - Drainage - Pipes and Culverts					**136**
Pipes & box culverts (side drains & cross drains)		3	2	3	
End treatment (endwalls, concrete aprons, etc.)		3	2	3	
Special ditches for roadways		3	2	3	

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - PROFILE - Drainage - Pipes and Culverts Text					**137**
Text		3	2	0	.120
SURVEY - PROFILE - Drainage - Storm Sewer					**138**
Storm sewer pipes & box culverts		3	2	3	
Structures (catchbasins, drop inlets, manholes, etc.)		3	2	3	
SURVEY - PROFILE - Drainage - Storm Sewer Text					**139**
Text		3	2	0	.100
SURVEY - PROFILE - Existing Roads with Text					**140**
Ground profile of existing roads or railroads		0	2	3	
Text		0	2	0	.120
SURVEY - PROFILE - Ground Line with Text					**141**
Ground profile		0	2	3	
Centerline intersections		0	2	0	.120
Text		0	2	0	.120
SURVEY - PROFILE - Project Information and Notes					**142**
Name labels for each profile		0	2	0	.500
Text		0	2	0	.100
SURVEY - PROFILE - Utilities - Cable with Text					**143**
Cable Lines		8	2	LS	
Cable Manholes		8	2	0	
Text		8	2	0	.100
SURVEY - PROFILE - Utilities - Electric with Text					**144**
Electric Lines		5	2	LS	
Electric Manholes		5	2	0	
Text		5	2	0	.100

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - PROFILE - Utilities - Gas with Text					**145**
Gas Lines		7	2	LS	
Gas Manholes		7	2	0	
Text		7	2	0	.100
SURVEY - PROFILE - Utilities - Overhead Wire Crossings					**146**
Circle		2	2	0	
Text		2	2	0	.100
SURVEY - PROFILE - Utilities - Sanitary Sewer with Text					**147**
Sanitary Sewer Lines		13	2	LS	
Sanitary Sewer Manholes		13	2	0	
Text		13	2	0	.100
SURVEY - PROFILE - Utilities - Telephone with Text					**148**
Telephone Lines		8	2	LS	
Telephone Manholes		8	2	0	
SURVEY - PROFILE - Utilities - Water with Text					**149**
Water Lines		4	2	LS	
Water Manholes		4	2	0	
SURVEY - PROJECT INFORMATION and NOTES					**150**
Project Description note		0	2	0	.100
Petroleum Storage Tanks note		0	2	0	.100
North Arrow		6	2	C	
text		0	2	0	.100
SURVEY - PROPERTY - Development					**151**
Property geometry studies & development	X_PROPERTY	7	2	0	.100
SURVEY - PROPERTY - Easement Lines					**152**
Easement lines	ESMT	10	4	3	
Drainage easements	ESMTD	10	4	3	
Misc. easement areas		10	2	AP	

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - PROPERTY - Easement Lines - Points - Elevations					**153**
Text		10	2	0	.080
SURVEY - PROPERTY - Easement Lines - Points - Locators					**154**
Point "+" Tic		10	0	0	
SURVEY - PROPERTY - Easement Lines - Points - Numbers					**155**
Text		10	2	0	.080
SURVEY - PROPERTY - Easement Lines Text					**156**
Text		10	2	0	.100
SURVEY - PROPERTY - Owners					**10**
Property owners' names		10	7	0	.175
SURVEY - PROPERTY - Parcels					**26**
Parcels	PARCEL	10	2	0	
SURVEY - PROPERTY - Political Boundaries					**13**
City & village lines	CITY	1	2	LS	
County lines	COUNTY	1	13	7	
State lines	STATE	1	15	7	
SURVEY - PROPERTY - Political Boundaries - Points - Elevations					**157**
Text		1	2	0	.080
SURVEY - PROPERTY - Political Boundaries - Points - Locators					**158**
Point "+" Tic		1	0	0	
SURVEY - PROPERTY - Political Boundaries - Points - Numbers					**159**
Text		1	2	0	.080

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - PROPERTY - Political Boundaries Text					**14**
Text		1	4	0	.140
SURVEY - PROPERTY - Property Lines					**160**
Property Lines	PL	10	2	LS	
Property Lines with fence	PLWF	10	2	LS	
SURVEY - PROPERTY - Property Lines - Points - Elevations					**161**
Text		10	2	0	.080
SURVEY - PROPERTY - Property Lines - Points - Locators					**162**
Point "+" Tic		10	0	0	
SURVEY - PROPERTY - Property Lines - Points - Numbers					**163**
Text		10	2	0	.080
SURVEY - PROPERTY - Property Lines Text					**164**
Bearings & Distances		10	2	0	.100
Text		10	2	0	.100
SURVEY - PROPERTY - Property Markers - Points - Elevations					**165**
Text		10	2	0	.080
SURVEY - PROPERTY - Property Markers - Points - Locators					**166**
Point "+" Tic		10	0	0	
SURVEY - PROPERTY - Property Markers - Points - Numbers					**167**
Text		10	2	0	.080
SURVEY - PROPERTY - Property Markers with Text					**168**
Iron Pin (existing)	XIP	10	2	C	
Concrete marker	XMON	10	2	C	
Property corner	XPL	10	2	C	
Text		10	2	0	.100

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - PROPERTY - ROW Lines					**15**
Right-of-Way lines	ROW	10	4	LS	
Right-of-Way lines with fence	ROWWF	10	4	LS	
ROW limit lines on cross sections		10	4	0	
SURVEY - PROPERTY - ROW Lines - Points - Elevations					**169**
Text		10	2	0	.080
SURVEY - PROPERTY - ROW Lines - Points - Locators					**170**
Point "+" Tic		10	0	0	
SURVEY - PROPERTY - ROW Lines - Points - Numbers					**171**
Text		10	2	0	.080
SURVEY - PROPERTY - ROW Lines Text					**16**
Text		10	2	0	.100
ROW limit label text on cross sections		10	4	0	.140
ROW limit offset text on cross sections		10	2	0	.100
SURVEY - PROPERTY - ROW Markers - Points - Elevations					**172**
Text		10	2	0	.080
SURVEY - PROPERTY - ROW Markers - Points - Locators					**173**
Point "+" Tic		10	0	0	
SURVEY - PROPERTY - ROW Markers - Points - Numbers					**174**
Text		10	2	0	.080
SURVEY - PROPERTY - ROW Markers with Text					**175**
ROW monument	XROW	10	2	C	
ROW monument (inline)	XROWA	10	2	C	
ROW monument (corner)	XROWB	10	2	C	
Text		10	2	0	.100

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - PROPERTY - Station and Offset Flags					**176**
Text		10	2	0	.100
SURVEY - PROPERTY - Tract Numbers					**177**
Tract numbers		10	4	0	.140
Tract no. ellipse		10	4	0	
SURVEY - ROADSIDE BARRIERS - Points - Elevations					**178**
Text		11	2	0	.080
SURVEY - ROADSIDE BARRIERS - Points - Locators					**179**
Point "+" Tic		11	0	0	
SURVEY - ROADSIDE BARRIERS - Points - Numbers					**180**
Text		11	2	0	.080
SURVEY - ROADSIDE BARRIERS with Text					**181**
Guardrail left	GRL	11	2	LS	
Guardrail right	GRR	11	2	LS	
Guardrail median	GRM	11	2	LS	
Guardrail terminals		11	2	C	
Impact attenuators	IMP	11	2	3	
Jersey barrier	JB	11	2	3	
Retaining walls (roadway & noise)	RWT	11	2	3	
Retaining walls (roadway & noise) w/fence	RWTWF	11	2	LS	
Cable Barrier	GRCB	11	2	LS	
Text		11	2	0	.100
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Elevations					**182**
Text		0	2	0	.080
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Locators					**183**
Point "+" Tic		0	0	0	

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Numbers					**184**
Text		0	2	0	.080
SURVEY - TRAFFIC CONTROL - Pavement Marking with Text					**185**
Stop Bar	STOP	0	15	0	
Crosswalk	CWALK	0	6	0	
Lane Line (dashed)	LLD	0	0	LS	
Lane Line (Solid)	LLS	0	0	0	
Left arrow	XLAR	0	2	C	
Right arrow	XRAR	0	2	C	
Left & Right arrow	XLRAR	0	2	C	
Straight arrow	XSAR	0	2	C	
Straight & Left turn arrow	XSLAR	0	2	C	
Straight & Right arrow	XSRAR	0	2	C	
Straight & Left & Right turn arrow	XSLRAR	0	2	C	
Pavement marking word "ONLY"	XONLY	0	2	C	
Pavement marking words	XPVTXT	0	2	C	
Right arrow interstate	XRARI	0	2	C	
Straight arrow interstate	XSARI	0	2	C	
Straight & Right arrow interstate	XSRARI	0	2	C	
Railroad crossing pavement marking	XRRPAV	0	2	C	
HOV diamond	XHOV	0	2	C	
Text		0	2	0	.100
SURVEY - TRAFFIC CONTROL - Signs - Points - Elevations					**186**
Text		7	2	0	.080
SURVEY - TRAFFIC CONTROL - Signs - Points - Locators					**187**
Point "+" Tic		7	0	0	
SURVEY - TRAFFIC CONTROL - Signs - Points - Numbers					**188**
Text		7	2	0	.080

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Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - TRAFFIC CONTROL - Signs and Devices with Text					**23**
Billboards	SIGNT	7	2	C	
Historical markers	SIGNT	7	2	C	
Signs	SIGNT	7	2	0	
Loop detector	LDECT	7	0	LS	
Barricades & barrels	BARR	7	2	LS	
Overhead signs	XOHS	7	8	0	
Pad mounted controller	XPDMC	7	2	C	
Pole mounted controller	XPLMC	7	2	C	
Pedestrian signal	XPDSHN	7	0	C	
Pedestrian pushbutton	XPPH	7	2	C	
Pull box	XPULLB	7	2	C	
Railroad flashing signal crossing	XRRFS	7	2	C	
Railroad flashing signal crossing w/gate	XRRFSG	7	2	C	
Railroad signal	XRRSIG	7	2	C	
Traffic signal head	XSHNB	7	2	C	
Traffic signal head w/backplate	XSHNB	7	2	C	
Small 1-post sign	XSIGN1	7	2	C	
Small 2-post sign	XSIGN2	7	2	C	
Small 2-faced sign	X2SIGN	7	2	C	
Strain pole for signal support	XSPSS	7	2	C	
Wood strain pole for signal support	XWPSS	7	2	C	
Text		7	2	0	.100
SURVEY - TRANSPORTATION - Features					**189**
Airport runways	RWAY	11	2	3	
Bikeways	BIKE	11	2	3	
Parking lots	PK	11	2	3	
Driveways	DR	11	2	3	
Field entrances	FE	11	2	3	
Business entrances	BE	11	2	3	
Curb	CU	64	2	3	
Curb & gutter	CU	64	2	3	
Medians	MED	11	2	3	
Shoulders (outside edge of stabilized shoulders)	SH	11	2	3	
Sidewalks	SWT	64	2	3	
Trails	TRAIL	11	2	2	
Tunnels (highway, pedestrian, railroad, etc.)	TUN	11	2	3	
Curb ramp opening	XHRAMP	64	2	C	
SURVEY - TRANSPORTATION - Features - Points - Elevations					**190**
Text		11	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - TRANSPORTATION - Features - Points - Locators					**191**
Point "+" Tic		11	0	0	
SURVEY - TRANSPORTATION - Features - Points - Numbers					**192**
Text		11	2	0	.080
SURVEY - TRANSPORTATION - Features Text					**193**
Text		11	2	0	.100
SURVEY - TRANSPORTATION - Railroads					**194**
Railroad rails	RR	11	2	LS	
Railroad switch stands	RRSS	11	0	2	
Railroad switch	XRRSW	11	2	C	
SURVEY - TRANSPORTATION - Railroads - Points - Elevations					**195**
Text		11	2	0	.080
SURVEY - TRANSPORTATION - Railroads - Points - Locators					**196**
Point "+" Tic		11	0	0	
SURVEY - TRANSPORTATION - Railroads - Points - Numbers					**197**
Text		11	2	0	.080
SURVEY - TRANSPORTATION - Railroads Text					**198**
Text		11	2	0	.100
SURVEY - TRANSPORTATION - Roads					**7**
Edges of traveled way	RD or EP	0	4	3	
SURVEY - TRANSPORTATION - Roads - Points - Elevations					**199**
Text		0	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - TRANSPORTATION - Roads - Points - Locators					**200**
Point "+" Tic		0	0	0	
SURVEY - TRANSPORTATION - Roads - Points - Numbers					**201**
Text		0	2	0	.080
SURVEY - TRANSPORTATION - Roads Text					**8**
Text		0	2	0	.120
SURVEY - UTILITIES - Cable (Underground) - Points - Elevations					**202**
Text		8	2	0	.080
SURVEY - UTILITIES - Cable (Underground) - Points - Locators					**203**
Point "+" Tic		8	0	0	
SURVEY - UTILITIES - Cable (Underground) - Points - Numbers					**204**
Text		8	2	0	.080
SURVEY - UTILITIES - Cable (Underground) with Text					**25**
Cable lines (Underground)	UGC	8	2	LS	
Cable manholes	XMHC	8	0	C	
Cable pedestal	XCPED	8	0	C	
Text		8	2	0	.100
SURVEY - UTILITIES - Electric (Lighting) - Points - Elevations					**205**
Text		2	2	0	.080
SURVEY - UTILITIES - Electric (Lighting) - Points - Locators					**206**
Point "+" Tic		2	0	0	
SURVEY - UTILITIES - Electric (Lighting) - Points - Numbers					**207**
Text		2	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - UTILITIES - Electric (Lighting) with Text					**208**
Light pole (1 light)	XLP1	2	2	C	
Light pole (2 lights)	XLP2	2	2	C	
Light pole (3 lights)	XLP3	2	2	C	
Light pole (4 lights)	XLP4	2	2	C	
High mast light (half)	XHMPLH	2	2	C	
High mast light (full)	XHMPLF	2	2	C	
Offset type luminaire & pole	XOFTLP	2	2	C	
Lighting control center	XLCC	2	2	C	
Text		2	2	0	.100
SURVEY - UTILITIES - Electric (Overhead) - Points - Elevations					**209**
Text		5	2	0	.080
SURVEY - UTILITIES - Electric (Overhead) - Points - Locators					**210**
Point "+" Tic		5	0	0	
SURVEY - UTILITIES - Electric (Overhead) - Points - Numbers					**211**
Text		5	2	0	.080
SURVEY - UTILITIES - Electric (Overhead) with Text					**212**
Substation		5	2	3	
Transmission towers	PTOW	5	2	0	
Text		5	2	0	.100
SURVEY - UTILITIES - Electric (Underground) - Points - Elevations					**213**
Text		5	2	0	.080
SURVEY - UTILITIES - Electric (Underground) - Points - Locators					**214**
Point "+" Tic		5	0	0	
SURVEY - UTILITIES - Electric (Underground) - Points - Numbers					**215**
Text		5	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - UTILITIES - Electric (Underground) with Text					**216**
Electric lines (Underground)	UGP	5	2	LS	
Manholes	XMHP	5	2	C	
Text		5	2	0	.100
SURVEY - UTILITIES - Fiber Optic Cable (Underground) - Points - Elevations					**217**
Text		8	2	0	.080
SURVEY - UTILITIES - Fiber Optic Cable (Underground) - Points - Locators					**218**
Point "+" Tic		8	0	0	
SURVEY - UTILITIES - Fiber Optic Cable (Underground) - Points - Numbers					**219**
Text		8	2	0	.080
SURVEY - UTILITIES - Fiber Optic Cable (Underground) with Text					**220**
Fiber Optic lines (Underground)	UGF	8	2	LS	
Fiber Optic manholes	XMHF	8	2	C	
Text		8	2	0	.100
SURVEY - UTILITIES - Gas - Points - Elevations					**221**
Text		7	2	0	.080
SURVEY - UTILITIES - Gas - Points - Locators					**222**
Point "+" Tic		7	0	0	
SURVEY - UTILITIES - Gas - Points - Numbers					**223**
Text		7	2	0	.080
SURVEY - UTILITIES - Gas with Text					**224**
Gas lines	?GL	7	2	LS	
Manholes	XMHG	7	2	C	
Gas meter	XGM	7	2	C	
Gas valve	XGV	7	2	C	
Text		7	2	0	.100

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - UTILITIES - Low Wire Crossings					**225**
Low wire crossings, for profile annotation	XLW	2	2	C	
SURVEY - UTILITIES - Low Wire Crossings - Points - Elevations					**226**
Text		2	2	0	.080
SURVEY - UTILITIES - Low Wire Crossings - Points - Numbers					**227**
Text		2	2	0	.080
SURVEY - UTILITIES - Overhead Wire Crossings					**228**
Overhead wires crossing preliminary centerline, for plan view	OHW	2	2	LS	
Text					
SURVEY - UTILITIES - Overhead Wire Crossings - Points - Elevations					**229**
Text		2	2	0	.080
SURVEY - UTILITIES - Overhead Wire Crossings - Points - Locators					**230**
Point "+" Tic		2	0	0	
SURVEY - UTILITIES - Overhead Wire Crossings - Points - Numbers					**231**
Text		2	2	0	.080
SURVEY - UTILITIES - Owners					**232**
Utility Disclaimer note		0	2	0	.100
Text		2	2	0	.100
SURVEY - UTILITIES - Poles and Miscellaneous - Points - Elevations					**233**
Text		2	2	0	.080
SURVEY - UTILITIES - Poles and Miscellaneous - Points - Locators					**234**
Point "+" Tic		2	0	0	

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - UTILITIES - Poles and Miscellaneous - Points - Numbers					**235**
Text		2	2	0	.080
SURVEY - UTILITIES - Poles and Miscellaneous with Text					**236**
Utility poles	XUP	2	2	C	
Utility poles with lights	XUPL	2	2	C	
Utility boxes	XUM	2	2	C	
Guy wires	XGW	2	2	C	
Guy device angle anchor	XGAA	2	2	C	
Guy device vertical anchor	XGVA	2	0	C	
Manholes (type unknown)	XMH	2	0	C	
Telegraph pole	XTGP	2	0	C	
Radio, TV, or Cell Tower	XTOWER	2	2	C	
Power/Telephone (Underground)	UGPT	2	2	LS	
Miscellaneous utility features (line)	UM	2	2	2	
Miscellaneous utility features (point)	XUM	2	2	C	
Text		2	2	0	.100
SURVEY - UTILITIES - Sanitary Sewer - Points - Elevations					**237**
Text		13	2	0	.080
SURVEY - UTILITIES - Sanitary Sewer - Points - Locators					**238**
Point "+" Tic		13	0	0	
SURVEY - UTILITIES - Sanitary Sewer - Points - Numbers					**239**
Text		13	2	0	.080
SURVEY - UTILITIES - Sanitary Sewer with Text					**240**
Sanitary sewer lines	?SAS	13	2	LS	
Force main sanitary sewer lines	?FMS	13	2	LS	
Sanitary sewer manholes	XMHSAS	13	2	C	
Sewer meter	XSM	13	2	C	
Sewer valve	XSV	13	2	C	
Text		13	2	0	.100
SURVEY - UTILITIES - Telephone (Overhead) - Points - Elevations					**241**
Text		8	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - UTILITIES - Telephone (Overhead) - Points - Locators					**242**
Point "+" Tic		8	0	0	
SURVEY - UTILITIES - Telephone (Overhead) - Points - Numbers					**243**
Text		8	2	0	.080
SURVEY - UTILITIES - Telephone (Overhead) with Text					**244**
Telephone booth	XTBOOTH	8	2	C	
Telephone box	XTBOX	8	2	C	
Text		8	2	0	.100
SURVEY - UTILITIES - Telephone (Underground) - Points - Elevations					**245**
Text		8	2	0	.080
SURVEY - UTILITIES - Telephone (Underground) - Points - Locators					**246**
Point "+" Tic		8	0	0	
SURVEY - UTILITIES - Telephone (Underground) - Points - Numbers					**247**
Text		8	2	0	.080
SURVEY - UTILITIES - Telephone (Underground) with Text					**248**
Telephone lines (Underground)	UGT	8	2	LS	
Telephone manholes	XMHT	8	2	C	
Telephone pedestal	XTPED	8	2	C	
Text		8	2	0	.100
SURVEY - UTILITIES - Water - Points - Elevations					**249**
Text		4	2	0	.080
SURVEY - UTILITIES - Water - Points - Locators					**250**
Point "+" Tic		4	0	0	
SURVEY - UTILITIES - Water - Points - Numbers					**251**
Text		4	2	0	.080

TDOTmain.dgnlib > Survey					06/12/2009
Level Name					**Level Number**
Item Description	**Feature Code**	**CO**	**WT**	**LC**	**TX**
SURVEY - UTILITIES - Water with Text					**252**
Water lines	?WL	4	2	LS	
Fire Hydrants	XFH	6	2	C	
Water manholes	XMHW	4	2	C	
Water meter	XWM	4	2	C	
Water valve	XWV	4	2	C	
Text		4	2	0	.100
SURVEY - VEGETATION - Features - Points - Elevations					**253**
Text		8	2	0	.080
SURVEY - VEGETATION - Features - Points - Locators					**254**
Point "+" Tic		8	0	0	
SURVEY - VEGETATION - Features - Points - Numbers					**255**
Text		8	2	0	.080
SURVEY - VEGETATION - Features with Text					**18**
Tree drip lines	TREE	8	2	LS	
Hedge rows	HEDGE	8	2	LS	
Bushes	XBUSH	8	2	C	
Trees	XTREE	8	2	C	
Text		8	2	0	.100

Standard Cell Library Index

C:\Users\Public\MicroStation Standards\cell

Many cells are placed automatically by various MicroStation or Geopak functions. Others can be accessed through customized MicroStation VBA programs which divide the cells up into groups as is done in this index and are available through the TDOT drop down menu on the MicroStation menu bar, the TDOT Roadway Design Division Toolbox or Geopak's D&C Manager. These programs also provide access to various MicroStation functions to control cell angle and placement.

STDS.CEL & METRIC.CEL

Area Patterns - Design	**Cell Name**
Base Stone	BSTONE
Small Base Stone (0.5X)	BSTONE0.5X
Concrete	CONC16
Small Dot	DDOT
Dot for Easements, Wetland Mitigation Areas or Shading (2X)	DDOT2X
Extra Large Dot (6X)	DDOT6X
Earth	DEARTH
Erosion Control Dewatering Structure	DEWATR
Dumped Rock	DMPRK
Small Dumped Rock (0.5X)	DMPRK0.5X
Erosion Control Blanket	ECBLANKET
Erosion Control Turf Reinforcement Mat	TURFRM
Erosion Control Slope Surface Roughening	ECROUGHEN
Functional Division - Bridge	FUNBR
Functional Division - Pavement	FUNPVM
Functional Division - ROW	FUNROW
Line, Typical Section Layers	LINE
Drainage Easements or Loss of Access	LINEE
Traffic Control Work Zone	LINEWZ
Crown Vetch or Metal	METAL
Reinforced Concrete	HATCH
Rip Rap	RIPRAP
Swamp, Marsh or Wetland	WETLND
Scarify	ZZ

Area Pattern Examples - Design (Used only in VBA Dialog)	**Cell Name**
135 Degree Lines	135DEGEXAMPLE
45 Degree Lines	45DEGEXAMPLE
Base Stone	BASESTONEEXAMPLE
Base Stone Small	BASESTONESMEXAMPLE
Concrete	CONCEXAMPLE
Construction Easement	CONSTEASEMENTEXAMPLE
Crown Vetch	CROWNVETCHEXAMPLE
Dewatering Structure	DEWATREXAMPLE
Drainage Easement	DRNEASEEXAMPLE
Dumped Rock	DUMPEDROCKEXAMPLE
Dumped Rock Small	DUMPEDROCKSMALLEXAMPLE

Area Pattern Examples - Design (Used only in VBA Dialog)	**Cell Name**
Earth	EARTHEXAMPLE
Erosion Control Blanket	ECBLANKETEXAMPLE
Extra Large Dots	EXLARDOTSEXAMPLE
Functional Bridge	FUNBREXAMPLE
Functional Pavement	FUNPVMEXAMPLE
Functional ROW	FUNROWEXAMPLE
Horizontal Lines	HORZLINESEXAMPLE
Loss of Access	LOSSACCEXAMPLE
Pvt. Drive Shading	PVTDRIVESHADINGEXAMPLE
Reinforced Concrete	REINFCONEXAMPLE
Rip Rap	RIPRAPEXAMPLE
Scarify	SCARIFYEXAMPLE
Slope Easement	SLOPEEASEEXAMPLE
Slope Surface Roughening	SLOPESURFEXAMPLE
Traffic Control Work Zone	TRAFFCONTWZEXAMPLE
Turf Reinforcement Mat	TURFRMEXAMPLE
Vertical Lines	VERTICALLINESEXAMPLE
Wetlands Mitigation Area	WETLANMITIGEXAMPLE
Small Dots 45 Degrees .07” Spacing	DOTSSM45DEG07EXAMPLE
Small Dots 45 Degrees .05” Spacing	DOTSSM45DEG05EXAMPLE
Small Dots 60 Degrees .08” Spacing	DOTSSM60DEG08EXAMPLE
Small Dots 60 Degrees .06” Spacing	DOTSSM60DEG06EXAMPLE
Small Dots 90 Degrees .07” Spacing	DOTSSM90DEG07EXAMPLE
Small Dots 90 Degrees .06” Spacing	DOTSSM90DEG06EXAMPLE
Small Dots 90 Degrees .05” Spacing	DOTSSM90DEG05EXAMPLE
Small Dots 90 Degrees .04” Spacing	DOTSSM90DEG04EXAMPLE
Small Dots 90 Degrees .03” Spacing	DOTSSM90DEG03EXAMPLE
Small Dots 90 Degrees .02” Spacing	DOTSSM90DEG02EXAMPLE

Area Patterns - Geotechnical	**Cell Name**
Aluminum	ALUM
ANS #131	ANS131
ANS #132	ANS132
ANS #133	ANS133
ANS #134	ANS134
ANS #135	ANS135
ANS #138	ANS138
Brackets	BRACK
Bricks	BRICK
Cedar	CEDAR
Cherty Clay	CHCLAY
Chert	CHERT
Cinder Block	CINDR
Clay	CLAY
Concrete	CONC
Separated Cross	CROSS2
Coarse Rubble	CRSRBL

Area Patterns - Geotechnical	**Cell Name**
Dash	DASH
Diamond	DIAM
Dolomite	DOLMIT
Earth	EARTH
Grass	GRASS
Gravel	GRAVEL
Isometric	ISO
Rock	ROCK
Rip Rap	RIPRAP
Sand	SAND
Shale	SHALE
Alternate Shale	SHAL2
Silt	SILT

Area Pattern Examples - Geotechnical (Used only in VBA Dialog)	**Cell Name**
Aluminum 45 Degree	ALUMEXAMPLE
ANS #131 45 Degree	ANS131EXAMPLE
ANS #132 45 Degree	ANS132EXAMPLE
ANS #133 45 Degree	ANS133EXAMPLE
ANS #134 45 Degree	ANS134EXAMPLE
ANS #135 45 Degree	ANS135EXAMPLE
ANS #138 45 Degree	ANS138EXAMPLE
Brackets 0 Degree	BRACKEXAMPLE
Bricks 0 Degree	BRICKEXAMPLE
Cedar 0 Degree	CEDAREXAMPLE
Cherty Clay 0 Degree	CHCLAYEXAMPLE
Chert 0 Degree	CHERTEXAMPLE
Cinder Block 0 Degree	CINDREXAMPLE
Clay 0 Degree	CLAY45DEGEXAMPLE
Concrete 0 Degree	CONCGEOEXAMPLE
Separated Cross 45 Degree	CROSS245DEGEXAMPLE
Coarse Rubble 0 Degree	CRSRBLEXAMPLE
Dash 0 Degree	DASHEXAMPLE
Diamond 0 Degree	DIAMEXAMPLE
Dolomite 0 Degree	DOLMITEXAMPLE
Earth 0 Degree	EARTHGEOEXAMPLE
Grass 0 Degree	GRASSEXAMPLE
Gravel 0 Degree	GRAVELEXAMPLE
Isometric 0 Degree	ISOEXAMPLE
Rock 0 Degree	ROCKEXAMPLE
Rip Rap 0 Degree	RIPRAPEXAMPLE
Sand 0 Degree	SANDEXAMPLE
Shale 0 Degree	SHALEEXAMPLE
Alternate Shale 0 Degree	SHAL2EXAMPLE
Silt 0 Degree	SILTEXAMPLE

Existing Contours	Cell Name
Spot Elevation	SPTELV

Existing Drainage	Cell Name
Catchbasin	XCTB
Drop Inlets	XDI
Catchbasin & Manhole Structure Bottom	XBOT
Pipe Inverts	XINV
Pipe Information	XPIPE
Bridge Information	XBRIDG

Existing Natural Features	Cell Name
Boulder	BOULDR
Bush or Small Tree	BUSH
Rapids or Waterfall	RAPIDS
Spring	SPR
Aerial Surveys Tree Symbol	ASTREE
Tree	TREE
Water Elevation	WELV

Existing Non-Transportation Features	Cell Name
Cemetery (Topography)	CEMTOP
Flagpole	FLGPOL
L.P. Tank	LPTANK
Aerial Surveys L.P. Tank	ASLPTANK
Mailbox	MB
Satellite Dish	SATLIT
Aerial Surveys Satellite Dish	ASSATLIT
Small Satellite Dish	SATLTS
Septic Tank	SEPTIC
Direction Angle & Dip of Strata	STRDR
Tower (Radio / TV)	TOWER
Well	WELL
Fence Post	XFP
Miscellaneous Pole	XMPOLE

Existing R.O.W. & Property Line Information	Cell Name
Concrete Marker	CONCMK
Existing Iron Pin	XEIP
Property Line Label	PL
Same Property Owner Symbol	SMOWN
R.O.W. Marker - origin center of left side	XROWA
R.O.W. Marker - origin upper left corner	XROWB

Existing Signs & Traffic Control	Cell Name
Large Barricade	LGBARR
Railroad Signal	RRSIG
Loop Detector - single 50’	XLDS
Loop Detector - single 20’	XLDS20
Loop Detector - double 50’	XLDD
Loop Detector - Quadrapole	XLDQUAD
Loop Detector - single volume density	XLDVD
Loop Detector - double volume density	XLDVDS
Loop Detector - square series	XLDSQSE
Emergency Vehicle Preempt Detector	XEVPD
Video Detection Camera	XVDCAM
Pad-Mounted Controller	XPDMC
Pedestrian Signal Head	XPDSHN
Pedestrian Push-button	XPPH
Pull Box - Signals	XPLB
Fiber Optic Pull Box - Signals	XPLBFO
2 Inch Conduit Label	X2CON
Pole-Mounted Controller	XPLMC
Pedestrian Pole for Push Button	XPPPB
Pavement Arrows	
Straight	XPVAS
Left Turn	XPVAL
Right Turn	XPVAR
Straight & Left Turn	XPVASL
Straight & Right Turn	XPVASR
Left Turn & Right Turn	XPVALR
Straight, Left Turn, & Right Turn	XPVASB
Straight (Interstate)	XPVASI
Right (Interstate)	XPVARI
Straight & Right (Interstate)	XPASRI
HOV Diamond Pavement Marking	XPVDMD
Railroad Pavement Marking	XPVRR
“Only” Pavement Marking	XPVONL
Railroad Crossing Flasher (no gate)	XRRFS
Railroad Crossing Flasher with gate	XRRFSG
Signal Head	XSHN
Signal Head with Backplate	XSHNB
Sign	XSIGN
2-Post Sign	XSIGN2
2-Sided Sign	X2SIGN
Billboard or Overhead Sign Post	BBPOST
Strain Pole for Signal Support	XSPSS
Wood Pole for Signal Support	XWPSS

Existing Transportation Features	Cell Name
Interstate Route Shield	INTRT
Railroad Switch	SWITCH
US Route Shield, 1 or 2 digits	USRT12

Existing Transportation Features	Cell Name
US Route Shield, 3 digits	USRT3
Curb Ramp	XHCR
Aerial Surveys Curb Ramp	ASHCRAMP

Existing Utilities	Cell Name
Generic Utility Box (at ground)	XUTIL
Water Valve	XWV
Water Meter	XWM
Fireplug	XFPLG
Sanitary Sewer Valve	XSV
Sanitary Sewer Meter	XSM
Manhole (un-specified utility)	XMANH
Storm Sewer Manhole	XMHSTS
Sanitary Sewer Manhole	XMHSAS
Gas Meter	XGM
Gas Valve	XGV
Transmission Tower	TRANST
Guy Wire Anchor	XGUY
Guying Device Angle Anchor	XGDAA
Guying Device Vertical Anchor	XGDVA
Telephone Booth	XTBTH
Telephone Box	XTPBX
Telephone Pedestal	XTPED
Cable TV Pedestal	XCAPED
Light Pole 1 Light	XLP
Light Pole 2 Lights	XLP2
Light Pole 3 Lights	XLP3
Light Pole 4 Lights	XLP4
High Mast Pole Luminaire - full	XHMPLF
High Mast Pole Luminaire - half	XHMPLH
Offset Luminaire Pole	XOFTLP
Lighting Control Center	XLCC
Pull Box - Lighting	XPLBL
Low Wire Spot Elevation	XSPOT
Utility Pole	XUP
Utility Pole with Light	XUPL

Miscellaneous Cells	Cell Name
Small Arrowhead	DARR
Medium Arrowhead	TERM1
Large Arrowhead	TERM2
Extra-Large Arrowhead	TERM3
Points	
CO=0 (white)	P
CO=1 (gray)	P1
CO=2 (manila)	P2
CO=3 (light blue)	P3

Miscellaneous Cells	Cell Name
CO=4 (blue)	P4
CO=5 (orange)	P5
CO=6 (red)	P6
CO=7 (yellow)	P7
CO=8 (green)	P8
CO=9 (purple)	P9
CO=10 (violet)	P10
CO=11 (light purple)	P11
CO=12 (dark brown)	P12
CO=13 (light brown)	P13
CO=14 (olive)	P14
CO=15 (dark red)	P15
CO=16 (pink)	P16
CO=17 (dark blue)	P17
Leisch Turning Movement, 42’ R.T.	LTM42
Leisch Turning Movement, 45’ R.T.	LTM45
Leisch Turning Movement, 60’ R.T.	LTM60
Leisch Turning Movement, 75’ R.T.	LTM75
Truck for Leisch Turning Movements	TRUCK
Scarify Legend	ZZL

Permits & Forms	Cell Name
Blank Page, Front	PAGEF
Blank Page, Back	PAGEB
Blank General Location Map (Portrait)	GNLOCP
Blank General Location Map (Landscape)	GNLOCL
Blank Hydraulic Permit Location Map (Portrait)	PMLOCP
Blank Hydraulic Permit Location Map (Landscape)	PMLOCL
Blank Hydraulic Permit Sketch (Portrait)	PMSK
Blank Hydraulic Permit Sketch (Landscape with Profile Grid)	PMSKGR
Blank Vicinity Location Map (Portrait)	NOIP
Blank Vicinity Location Map (Landscape)	NOIL

Proposed Centerlines	Cell Name
Centerline Label	CL
Curve Endpoints	PCPT
Point of Intersection	PI
Curve Data Table (no spiral)	SECUDA
Curve Data Table (spiral)	SLCUDA
Simple Deflection Data	SEDEDA
Simple P.I. Data	SEPIDA
Match Line - Left	MLL
Match Line - Right	MLR
Functional Division - Match Line - Left	FUNMLL
Functional Division - Match Line - Right	FUNMLR
North Arrow	NARR

Proposed Cross Sections	Cell Name
Guardrail, Single with origin at rail face on left	GRLT
Guardrail, Single with origin at rail face on right	GRRT
Guardrail, Median with origin at rail face on left	GRMLT
Guardrail, Median with origin at rail face on right	GRMRT
Temporary working cross section grid	XSGRID

Proposed Drainage	Cell Name
Box Bridge or Culvert Detail	BCLDET
Box Bridge or Culvert Elevation Block	BXBCBL
Inlet Elevation	INELV
Outlet Elevation	OUTELV
Box Culvert or Bridge Data (Profile)	DRPRO
Pipe Culvert Data (Profile)	DRPROPIPE
Pipe Culvert Data (Culvert Section)	DRCLV1
Box Culvert Data (Culvert Section)	DRCLV2
Flow Line Symbol	FL
Cells for Geopak drainage nodes in plan view	
Origin at parapet face	
Bridge Deck Drain, parapet rail inlet	BDPRPT
Bridge Deck Drain, 9"X2' grate inlet	BD9X2
Origin at edge of roadway approach	
Bridge End Drain, 2'X8' grate inlet	BD2X8
Bridge End Drain, 4'X8' grate inlet	BD4X8
Origin at curb face, cell centered on gutter	
Catch basin, pipe connection points 32" by 26",type 10 CB only	CB32X26S
Catch basin, pipe connection points 4' by 3',type 10 CB only	CB4X3S
Catch basin, pipe connection points 4' diameter,type 10 CB only	CB4DIAS
Catch basin, pipe connection points 4' by 4',type 10 CB only	CB4X4S
Catch basin, pipe connection points 32" by 32"	CB32X32
Catch basin, pipe connection points 4' by 3'	CB4X3
Catch basin, pipe connection points 4' diameter	CB4DIA
Catch basin, pipe connection points 4' by 4'	CB4X4
Catch basin, pipe connection points 5' diameter	CB5DIA
Catch basin, pipe connection points 5'2" by 5'2"	CB62X62
Catch basin, pipe connection points 6' diameter	CB6DIA
Catch basin, pipe connection points 7' diameter	CB7DIA
Catch basin, pipe connection points 7' by 7'	CB7X7
Catch basin, pipe connection points 8' diameter	CB8DIA
Catch basin, pipe connection points 8' by 3'	CB8X3
Catch basin, pipe connection points 8' by 4'	CB8X4
Catch basin, pipe connection points 8' by 5'2"	CB8X62
Catch basin, pipe connection points 9' diameter	CB9DIA
Catch basin, pipe connection points 9' by 9'	CB9X9
Catch basin, pipe connection points 10' diameter	CB10DIA
Origin at center of median ditch, cell centered on median ditch	
Catch Basin, pipe connection points 32" by 32"	CB32X32M
Catch Basin, pipe connection points 4' by 4'	CB4X4M
Catch Basin, pipe connection points 5' diameter	CB5DIAM

Proposed Drainage	Cell Name
Catch basin, pipe connection points 5'2" by 5'2"	CB62X62M
Catch Basin, pipe connection points 6' diameter	CB6DIAM
Catch Basin, pipe connection points 7' diameter	CB7DIAM
Catch Basin, pipe connection points 7' by 7'	CB7X7M
Catch Basin, pipe connection points 8' by 4'	CB8X4M
Catch Basin, pipe connection points 8' diameter	CB8DIAM
Catch Basin, pipe connection points 9' by 9'	CB9X9M
Origin at face of median barrier, cell beside median barrier	
Catch Basin, pipe connection points 32" by 32"	CB32X32B
Catch Basin, pipe connection points 4' by 3'	CB4X3B
Catch Basin, pipe connection points 4' by 4'	CB4X4B
Catch Basin, pipe connection points 5' diameter	CB5DIAB
Catch Basin, pipe connection points 5'2" by 5'2"	CB62X62B
Catch Basin, pipe connection points 6' diameter	CB6DIAB
Catch Basin, pipe connection points 7' diameter	CB7DIAB
Catch Basin, pipe connection points 7' by 7'	CB7X7B
Catch Basin, pipe connection points 8' by 4'	CB8X4B
Catch Basin, pipe connection points 8' diameter	CB8DIAB
Catch basin, pipe connection points 9' by 9'	CB9X9B
Origin at center of median barrier, centered on median barrier	
Catch Basin, pipe connection points 32” by 80”	CB32X80C
Catch Basin, pipe connection points 7' diameter	CB7DIAC
Catch Basin, pipe connection points 7' by 7'	CB7X7C
Catch Basin, pipe connection points 9' by 9'	CB9X9C
Origin at face of retaining wall, cell beside retaining wall	
Catch Basin, pipe connection points 5'2" by 5'2"	CB62X62R
Catch Basin, pipe connection points 7' by 7'	CB7X7R
Catch Basin, pipe connection points 9' by 9'	CB9X9R
Origin at center of structure, cell centered	
Drop Inlet, pipe connection points 32" by 32"	DI32X32
Drop Inlet, pipe connection points 4' by 4'	DI4X4
Drop Inlet, pipe connection points 5' diameter	DI5DIA
Drop Inlet, pipe connection points 5'2" by 5'2"	DI62X62
Drop Inlet, pipe connection points 6' diameter	DI6DIA
Drop Inlet, pipe connection points 7' diameter	DI7DIA
Drop Inlet, pipe connection points 7' by 7'	DI7X7
Drop Inlet, pipe connection points 8' by 4'	DI8X4
Drop Inlet, pipe connection points 8' diameter	DI8DIA
Drop Inlet, pipe connection points 8' by 5'2"	DI8X62
Drop Inlet, pipe connection points 9' by 9'	DI9X9
Manhole, pipe connection points 5' diameter	MH5DIA
Manhole, pipe connection points 5'2" by 5'2"	MH62X62
Manhole, pipe connection points 6' diameter	MH6DIA
Manhole, pipe connection points 7' diameter	MH7DIA
Manhole, pipe connection points 7' by 7'	MH7X7
Manhole, pipe connection points 8' diameter	MH8DIA
Manhole, pipe connection points 9' diameter	MH9DIA

Proposed Drainage	Cell Name
Manhole, pipe connection points 9' by 9'	MH9X9
Manhole, pipe connection points 10' diameter	MH10DIA
Junction Box, pipe connection points 32" by 32"	JB32X32
Junction Box, pipe connection points 4' by 4'	JB4X4
Junction Box, pipe connection points 4' diameter	JB4DIA
Junction Box, pipe connection points 5' diameter	JB5DIA
Junction Box, pipe connection points 5'2" by 5'2"	JB62X62
Junction Box, pipe connection points 6' diameter	JB6DIA
Junction Box, pipe connection points 7' diameter	JB7DIA
Junction Box, pipe connection points 7' by 7'	JB7X7
Junction Box, pipe connection points 8' diameter	JB8DIA
Junction Box, pipe connection points 9' diameter	JB9DIA
Junction Box, pipe connection points 9' by 9'	JB9X9
Junction Box, pipe connection points 10' diameter	JB10DIA
Slotted Drain 12” Diameter, 20’ Length	SLOT12
Slotted Drain 15” Diameter, 20’ Length	SLOT15
Slotted Drain 18” Diameter, 20’ Length	SLOT18
Slotted Drain 24” Diameter, 20’ Length	SLOT24
Slotted Drain 30” Diameter, 20’ Length	SLOT30
Slotted Drain 36” Diameter, 20’ Length	SLOT36
Origin at pipe connection point	
Endwall inlet or outlet node	EW
Stub into existing pipe or box, ditch begin, change or end	STUB
Catch Basin Code Label	DRCODE
Catchbasin Code Label with Elevations, no inlet pipe	CBLB1
Catchbasin Code Label with Elevations, 1 inlet pipe	CBLB2
Catchbasin Code Label with Elevations, 2 inlet pipes	CBLB3
Blank Drainage Code Label	DRBLNK
Endwall Code Label	EWCODE
Endwall Code Label with Invert Elevation	EWLB
Junction Box Code Label	JBCODE
Junction Box Code Label with Elevations, 2 inlet pipes	JBLB
Manhole Code Label	MHCODE
Manhole Code Label with Elevations, 1 inlet pipe	MHLBD2
Manhole - Unspecified Size	DMAN
Catchbasin (Median\Center Origin) - Unspecified Size	CTBC
Catchbasin (Gutter Origin) - Unspecified Size	CTBG
Drainage Arrowhead	DARR1
Single Slope Median Barrier 32” (Culvert Section)	SSMEDBAR32
Single Slope Median Barrier 51” (Culvert Section)	SSMEDBAR51
Median Barrier (Culvert Section)	MEDBAR
Median Barrier with Glare Screen (Culvert Section)	MDBRGS
Short Median Barrier (Culvert Section)	MDBRS
Single Slope Bridge Parapet, Left (Culvert Section)	SSBRPRPL
Single Slope Bridge Parapet, Right (Culvert Section)	SSBRPRPR
Bridge Parapet, Left (Culvert Section)	BRPRPL
Bridge Parapet, Right (Culvert Section)	BRPRPR

Proposed Drainage	Cell Name
Special Flat-Bottom Ditch - left - shoulder	SPFDL
Special Flat-Bottom Ditch - left - line	SPFDL2
Special Flat-Bottom Ditch - right - shoulder	SPFDR
Special Flat-Bottom Ditch - right - line	SPFDR2
Special “V”-Bottom Ditch - left	SPVDL
Special “V”-Bottom Ditch - right	SPVDR

Proposed Erosion Prevention and Sediment Control	Cell Name
Erosion Control Legend Header	EROLEG
Catch Basin Protection (Type A)	CBPTYPEA
Catch Basin Protection (Type A) Legend	CBPTYPEAL
Catch Basin Protection (Type B)	CBPTYPEB
Catch Basin Protection (Type B) Legend	CBPTYPEBL
Catch Basin Protection (Type C)	CBPTYPEC
Catch Basin Protection (Type C) Legend	CBPTYPECL
Catch Basin Protection (Type D)	CBPTYPED
Catch Basin Protection Type D Legend	CBPTYPEDL
Catch Basin Protection (Type E)	CBPTYPEE
Catch Basin Protection (Type E) Legend	CBPTYPEEL
Catch Basin Filter Assembly (Type 1)	CBTY1FA
Catch Basin Filter Assembly (Type 1) Legend	CBTY1FAL
Catch Basin Filter Assembly (Type 2)	CBTY2FA
Catch Basin Filter Assembly (Type 2) Legend	CBTY2FAL
Catch Basin Filter Assembly (Type 3)	CBTY3FA
Catch Basin Filter Assembly (Type 3) Legend	CBTY3FAL
Catch Basin Filter Assembly (Type 4)	CBTY4FA
Catch Basin Filter Assembly (Type 4) Legend	CBTY4FAL
Catch Basin Filter Assembly (Type 5)	CBTY5FA
Catch Basin Filter Assembly (Type 5) Legend	CBTY5FAL
Catch Basin Filter Assembly (Type 6)	CBTY6FA
Catch Basin Filter Assembly (Type 6) Legend	CBTY6FAL
Catch Basin Filter Assembly (Type 7)	CBTY7FA
Catch Basin Filter Assembly (Type 7) Legend	CBTY7FAL
Catch Basin Filter Assembly (Type 8)	CBTY8FA
Catch Basin Filter Assembly (Type 8) Legend	CBTY8FAL
Catch Basin Filter Assembly (Type 9)	CBTY9FA
Catch Basin Filter Assembly (Type 9) Legend	CBTY9FAL
Catch Basin Filter Assembly (Type 10)	CBTY10FA
Catch Basin Filter Assembly (Type 10) Legend	CBTY10FAL
Catch Basin Filter Assembly (Type 11)	CBTY11FA
Catch Basin Filter Assembly (Type 11) Legend	CBTY11FAL
Curb Inlet Protection (Type 1)	CIPTY1
Curb Inlet Protection (Type 1) Legend	CIPTY1L
Curb Inlet Protection (Type 2)	CIPTY2
Curb Inlet Protection (Type 2) Legend	CIPTY2L
Curb Inlet Protection (Type 3)	CIPTY3
Curb Inlet Protection (Type 3) Legend	CIPTY3L
Curb Inlet Protection (Type 4)	CIPTY4
Curb Inlet Protection (Type 4) Legend	CIPTY4L

Proposed Erosion Prevention and Sediment Control	Cell Name
Permanent Riprap Energy Dissipater	PRRED
Permanent Riprap Energy Dissipater Legend	PRREDL
Sediment Basin	SB
Sediment Basin Legend	SBL
Silt Fence Legend	SILTFL
Silt Fence with Wire Backing Legend	SILTBL
Enhanced Silt Fence Legend	SILTEL
Filter Sock Legend	FSL
Sediment Tube Legend	SEDTUBEL
Temporary Culvert Crossing	TCC
Temporary Culvert Crossing Legend	TCCL
Temporary Construction Exit	TCE
Temporary Construction Exit Legend	TCEL
Dewatering Structure Legend	TDWSL
Erosion Control Blanket Legend	ECBLANKETL
Slope Surface Roughening Legend	ECROUGHENL
High Visibility Fence Legend (for use with buffer zones)	HVFL
Turf Reinforcement Mat Legend	TURFRML
Temporary Berm Legend	TPBL
Compost Filter Berm Legend	COMPOSTFBL
Mulch Filter Berm Legend	MULCHFBL
Temporary Diversion Channel Legend	TPDCL
Instream Diversion Legend	INSTRDIVL
Temporary Diversion Culvert Legend	TDIVCULVERTL
Floating Turbidity Curtain Legend	FTCURTAINL
Suspended Pipe Diversion	SPDIV
Suspended Pipe Diversion Legend	SPDIVL
Culvert Protection (Type 1)	CPTYPE1
Culvert Protection (Type 1) Legend	CPTYPE1L
Culvert Protection (Type 2)	CPTYPE2
Culvert Protection (Type 2) Legend	CPTYPE2L
Rock And Earth Sediment Embankment	RESE
Rock And Earth Sediment Embankment Legend	RESEL
Temporary Slope Drain Inlet	TPSDI
Temporary Slope Drain Legend	TPSDL
Temporary Slope Drain With Temporary Berm Legend	TPSDTBL
Permanent Slope Drain Inlet	PERMSDI
Permanent Slope Drain Outlet Pad	PERMSDO
Permanent Slope Drain Legend	PSDRAINL
Sediment Filter Bag 15 Ft X 10 Ft	SFB15X10
Sediment Filter Bag 15 Ft X 15 Ft	SFB15X15
Sediment Filter Bag Legend	SFBL
Enhanced Silt Fence Check (Trapezoidal Ditch)	ESFCT
Enhanced Silt Fence Check (Trapezoidal Ditch) Legend	ESFCTL
Enhanced Silt Fence Check (V- Ditch)	ESFCV
Enhanced Silt Fence Check (V- Ditch) Legend	ESFCVL
Rock Check Dam (Trapezoidal Ditch)	RCDT
Rock Check Dam (Trapezoidal Ditch) Legend	RCDTL
Rock Check Dam (V- Ditch)	RCDV

Proposed Erosion Prevention and Sediment Control	Cell Name
Rock Check Dam (V- Ditch) Legend	RCDVL
Enhanced Rock Check Dam (Trapezoidal Ditch)	ERCDT
Enhanced Rock Check Dam (Trapezoidal Ditch) Legend	ERCDTL
Enhanced Rock Check Dam (V-Ditch)	ERCDV
Enhanced Rock Check Dam (V-Ditch) Legend	ERCDVL
Sediment Trap with Gabion Check Dam	STGCD
Sediment Trap with Gabion Check Dam Legend	STGCDL
Sediment Trap with Enhanced Rock Check Dam	STERCD
Sediment Trap with Enhanced Rock Check Dam Legend	STERCDL
Filter Sock Check Dam	FSCD
Gabion Check Dam	CDG
Gabion Check Dam Legend	CDGL
Level Spreader Dual Direction	LEVELSPD
Level Spreader Dual Direction Legend	LEVELSPDL
Level Spreader Single Direction	LEVELSPS
Level Spreader Single Direction Legend	LEVELSPSL
Enhanced Rock Check Dam (Channel)	ERCDCH
Enhanced Rock Check Dam (Channel) Legend	ERCDCHL
Rock Sediment Dam	RSD
Rock Sediment Dam Legend	RSDL
Temporary Construction Ford	TCF
Temporary Construction Ford Legend	TCFL
Sand Bag Berm Legend (bags stacked end to end)	SANDHL
Sand Bag Berm Legend (bags stacked side by side)	SANDVL
RipRap	DMPR
RipRap Legend	DMPRL
Proposed Tree	TREEPROPOSED

Proposed Lighting	Cell Name
High Mast Pole Luminaire - full	HMPLF
High Mast Pole Luminaire - half	HMPLH
Offset Luminaire Pole	OFTLP
Offset Luminaire Pole with Dual Arm	OFTLPD
Light Pole 1 Light	LPOL
Light Pole 2 Lights	LPOL2
Light Pole 3 Lights	LPOL3
Light Pole 4 Lights	LPOL4
Wall Mounted Underpass Light	WMUL
Lighting Control Center	LCC
Pull Box Type A - Lighting	PLBAL
Pull Box Type B - Lighting	PLBAL
Pull Box Type C - Lighting	PLBAL

Proposed R.O.W.	Cell Name
R.O.W. Marker - Type A	PROWA
R.O.W. Marker - Type B	PROWB
R.O.W. Marker - Type C	PROWC

Proposed Traffic Control - Permanent	Cell Name
Emergency Vehicle Preempt Detector	EVPD
Fiber Optic Aerial Splice	FOASPLICE
Fiber Optic Aerial Storage Loop	FOASLOOP
Loop Detector - single 50’	LDS
Loop Detector - single 20’	LDS20
Loop Detector - double 50’	LDD
Loop Detector - Quadrapole	LDQUAD
Loop Detector - single volume density	LDVDS
Loop Detector - double volume density	LDVD
Loop Detector - square series	LDSQSE
Strain Pole for Signal Support	SPSS
Wood Pole for Signal Support	WPSS
Signal Mast Arm	MAST
Pad-Mounted Controller	PDMC
Pole-Mounted Controller	PLMC
Signal Head	SHN
Signal Head with Backplate	SHNB
Pedestrian Signal Head	PDSHN
Pedestrian Push-button	PPH
Pole for Pedestrian Push-button	PPPB
Pull Box - Signals Type A	PLBA
Pull Box - Signals Type B	PLBB
Fiber Optic Pull Box - Signals Type A	PLBFOA
Fiber Optic Pull Box - Signals Type B	PLBFOB
Video Detection Camera	VDCAM
Video Detection Area 20 Feet	VDA20
Video Detection Area 25 Feet	VDA25
Video Detection Area 45 Feet	VDA45
Video Detection Area 50 Feet	VDA50
Video Detection Area - Double Volume Density	VDADVD
Video Detection Area - Single Volume Density	VDASVD
Guying Device Angle Anchor	GDAA
Guying Device Pole	GDPSS
Guying Device Vertical Anchor	GDVA
Railroad Crossing Flasher (no gate)	RRFS
Railroad Crossing Flasher with gate	RRFSG
Traffic Signal Heads	
Flashing Beacon - Red	FBHR
Flashing Beacon - Yellow	FBHY
Pedestrian Signal (Words)	PED
Pedestrian Signal (Symbols)	PEDSYM
Pedestrian Signal (LED Symbols)	PEDLED
Pedestrian Signal with Countdown (LED Symbols)	PEDLEDC
Type 123A2V	123A2V
Type 130	130
Type 130A3 Left	130A3L
Type 130A3 Right	130A3R

Proposed Traffic Control - Permanent	Cell Name
Type 140A1 Left	140A1L
Type 140A1 Right	140A1R
Type 150A2 Left	150A2L
Type 150A2 Right	150A2R
Type 150A2V	150A2V
Type 150A4H	150A4H
Sign symbol	PSIGN
2-Post Sign symbol	PSIGN2
2-Sided Sign symbol	P2SIGN
Pavement Directional Markers (Left Origin)	PVMRKL
Pavement Directional Markers (Right Origin)	PVMRKR
Pavement Directional Markers (Center Origin)	PVMRKC
Pavement Arrows	
Straight	PVAS
Left Turn	PVAL
Left Turn Pair (turn lane)	PVA2L
Right Turn	PVAR
Straight & Left Turn	PVASL
Straight & Right Turn	PVASR
Left Turn & Right Turn	PVALR
Straight, Left Turn, & Right Turn	PVASB
Lane Reduction	PVALRED
Left Turn (Fish-hook for Roundabouts)	PVFHAL
Straight & Left Turn (Fish-hook for Roundabouts)	PVFHALS
Straight & Right Turn (Fish-hook for Roundabouts)	PVFHARS
Left Turn & Right Turn (Fish-hook for Roundabouts)	PVFHARL
Straight, Left Turn, & Right Turn (Fish-hook for Roundabouts)	PVFHARSL
Straight (Interstate Exit)	PVASI
Right (Interstate Exit)	PVARI
Straight & Right (Interstate Exit Option)	PVASRI
Wrong Way (Interstate Exit)	PVAWWI
Bike Lane Arrow Pavement Marking	PVBARW
Bike Lane Bike Symbol & Arrow Pavement Marking	PVBLANESYM
Bike Lane Bike Rider Symbol Pavement Marking	PVBRDR
Bike Lane Bike Symbol Pavement Marking	PVBSYM
“Bike Lane” Pavement Marking	PVBWRD
Bike Crossing Symbol & Word Pavement Marking	PVBXING
“Stop Ahead” Word Pavement Marking (shared use paths)	PVSASU
Bike Rider Symbol with Arrow Pavement Marking (shared roadway lane)	PVBSHARE
HOV Diamond Pavement Marking	PVDMD
Handicap Parking Pavement Marking	PVHCAP
Railroad Pavement Marking	PVRR
“Stop Ahead” Pavement Marking	PVSA
“Signal Ahead” Pavement Marking	PVSIGA
“Only” Pavement Marking	PVONLY
“Yield” Pavement Marking	PVYIELD

Proposed Traffic Control - Temporary	Cell Name
Barrel - Center Placement	BARREL
Barrel - Left Placement	BARRLT
Barrel - Right Placement	BARRRT
Barrel Legend	BARRLL
Barrel w/light typical section	BARLTS
Flagger	FLGR
Flagger Legend	FLGRL
Supplemental Flags	FLAGS
Supplemental Flags Legend	FLAGSL
Flashing Arrow Board (Device Symbol)	FLAB
Flashing Arrow Board Legend	FLABL
Flashing Single Arrow (Device Face)	FLABA
Flashing Single Arrow Legend	FLABAL
Flashing Double Arrow (Device Face)	FLABB
Flashing Double Arrow Legend	FLABBL
Flashing Caution (Device Face)	FLABC
Flashing Caution Legend	FLABCL
Changeable Message (Device Face)	MESSG
Changeable Message Legend	MESSGL
Changeable Message Sign (Device Symbol)	MESSGS
Changeable Message Sign Legend	MESGSL
Portable Barrier	PBAR
Portable Barrier Legend	PBARL
Portable Barrier with Single Faced Vertical Panel Legend	PBRVSL
Portable Barrier with Double Faced Vertical Panel Legend	PBRVDL
Remove Pavement Marking Legend	RPSTL
Traffic Flow Arrow	TARROW
Traffic Flow Arrow Legend	TARROL
Temporary Guardrail Attenuator	TATTN
Temporary Guardrail Attenuator Legend	TATTNL
Temporary Sign symbol	TSIGN
Temporary Sign Legend	TSIGNL
Temporary 2-Post Sign symbol	TSIGN2
Temporary 2-Post Sign Legend	TSIN2L
Temporary 2-Sided Sign symbol	T2SIGN
Temporary 2-Sided Sign Legend	T2SINL
Vertical Panel, Single Face	TVP
Vertical Panel, Single Face (For use on the left side of the roadway)	TVPLT
Vertical Panel, Single Face Legend	TVPL
Vertical Panel, Two Faced	T2VP
Vertical Panel, Two Faced Legend	T2VPL
Temporary Barrier Wall Delineator	TBWD
Temporary Barrier Wall Delineator Legend	TBWDL
Temporary Flexible Delineator, Ground Mounted	TFDGM
Temporary Flexible Delineator, Ground Mounted Legend	TFDGML
Temporary High Visibility Construction Fence Legend	THVFENCEL
Traffic Control Legend Header	TRFLEG

Proposed Traffic Control - Temporary	Cell Name
Work Zone Legend	WZL
Type “A” Light	LTA
Type “A” Light Legend	LTAL
Type “B” Light	LTB
Type “B” Light Legend	LTBL
Type “C” Light	LTC
Type “C” Light Legend	LTCL
Type 1 Barricade Detail - left	1BARDL
Type 1 Barricade Detail - right	1BARDR
Type 2 Barricade	2BAR
Type 2 Barricade Legend	2BARL
Type 2 Barricade Detail - left	2BARDL
Type 2 Barricade Detail - right	2BARDR
Type 3 Barricade	3BAR
Type 3 Barricade Legend	3BARL
Type 3 Barricade Detail - left	3BARDL
Type 3 Barricade Detail - right	3BARDR
Type 3 Barricade Detail - double (road closure)	3BARDC

Proposed Transportation Features	Cell Name
Cable Barrier Terminal	CBT
Plastic Drum w/Sand Crash Cushion (200 lb.)	CCBARREL200
Plastic Drum w/Sand Crash Cushion (400 lb.)	CCBARREL400
Plastic Drum w/Sand Crash Cushion (700 lb.)	CCBARREL700
Plastic Drum w/Sand Crash Cushion (1400 lb.)	CCBARREL1400
Plastic Drum w/Sand Crash Cushion (2100 lb.)	CCBARREL2100
Type 12 Terminal End Element - Left	TY12LT
Type 12 Terminal End Element - Right	TY12RT
Type 13 Terminal End Element - Left	TY13LT
Type 13 Terminal End Element - Right	TY13RT
Type 21 Terminal End Element - Left	TY21LT
Type 21 Terminal End Element - Right	TY21RT
Type 38 Terminal End Element	TY38
Type In-Line Terminal	TYINLN
Single Guardrail Post for 50 or 500 scale sheets	5GPST
Traffic Flow Diagrams	
“+” Intersection	TFD1
“T” Intersection (Down)	TFD2
“T” Intersection (Up)	TFD3
“T” Intersection (Right)	TFD4
“T” Intersection (Left)	TFD5
“+” Intersection, One Way Left	TFD6
“+” Intersection, One Way Left with Ramp Connections	TFD6RAMPS
“+” Intersection, One Way Right	TFD7
Interchange	TMINT
Bridge Overpass	TMWBO
Bridge Underpass	TMWBU
Semi-direct Interchange (Both Sides)	TMINTSD

Proposed Transportation Features	Cell Name
Semi-direct Interchange (Left)	TMINTSDL
Semi-direct Interchange (Right)	TMINTSDR
Semi-direct “T” Interchange (Left)	TMINTSDTL
Semi-direct “T” Interchange (Right)	TMINTSDTR

Proposed Utilities	Cell Name
Electric Manhole	PMAN
Electric Power Pole	PWRP
Light Pole with Power	LWPP
Electric Power Transmission Tower	TRANSP
Gas Meter	GM
Gas Valve	GV
Gas Manhole	GMAN
Sanitary Sewer Meter	SM
Sanitary Sewer Valve	SV
Sanitary Sewer Manhole	MANH
Sanitary Sewer Manhole Label	MHLBS
Telephone Manhole	TMAN
Telephone Booth	TBTH
Telephone Pedestal	TPED
Telephone Pole	TELP
Light Pole with Telephone	LWTP
Telegraph Pole	TGP
Water Meter	WM
Water Valve	WV
Water Manhole	WMAN
Fireplug	FPLG
CATV Pedestal	CAPED
Guying Device Pole	GDP

Public Hearing	Cell Name
TDOT Logo	TL
Name Tag	TLNAME
Comment Card Box Lid	TLCOMM
Comment Card Box Side	TLTHAN
Court Reporter Sign	TLCOUT
Sign In Sign	TLSIGN
Welcome Sign	TLWELC
Welcome Sign	TLWELC

Sheets	Cell Name
Sheet Borders	
Title Sheet	TITLE
Standard Plan (with coordinate note)	BDRSHT
Standard Plan (no note)	BDR2ND
Standard Full Profile	MGRID
Standard Plan / Profile	PROSHT
Standard Culvert Cross Section	GRDSHT

Sheets	Cell Name
Standard Roadway Cross Section	XSTSHT
Standard Sign Schedule	SS1
Standard Sign Schedule with U-Post Substitution Table	SS2
Standard Sign Structure	SSHEET
Standard Drawing (not for use in plans production)	STDBDR
Standard Geotechnical (Soils & Geology)	BDRSG
Plan (with 7 decimal coordinate note)	BDR7DC
Border Coordinate Note	NTCORD
Border Coordinate Note with 7 decimal coordinate datum adjustment	NTCO7D
Engineer Seal Box	SHTSEALBOX
Metric Symbol (in METRIC.CEL only)	MLOGO
Sheet Title Blocks	
1 Blank Line	STB00
2 Blank Lines	STB01
3 Blank Lines	STB02
4 Blank Lines	STB03
Drainage Map	STB04
3 Blank Lines - Station - Scale	STB05
Erosion Prevention and Sediment Control Plan - Station - Scale	STB06
Traffic Control Plan - Phase - Station - Scale	STB07
Traffic Control Notes	STB08
Traffic Control Plan - Station - Scale	STB09
ROW Acquisition Table	STB10
Property Map - Station - Scale	STB11
Traffic Control Plan	STB12
Proposed Signal Layout	STB13
Sign Schedule	STB14
Natural Stream Design Plan	STB15
Utilities - Station - Scale	STB16
Natural Stream Design Plan Sta. to Sta. Scale	STB17
Environmental Mitigation Plan	STB18
Side Road Profiles	STB19
Ramp Profiles	STB20
Profiles of Private Drives - Scale - Scale	STB21
Side Road & Street Profiles - Scale - Scale	STB22
Profile - Station - Scale - Scale	STB23
Interchange Grading Plan	STB24
Final Contours - Station - Scale	STB28
Existing Contours - Station - Scale	STB29
Present Layout - Station - Scale	STB30
R.O.W. Details - Station - Scale	STB31
Present & Proposed Layout - Station - Scale	STB34
Proposed Layout - Station - Scale - Scale	STB40
Proposed Layout - Station - Scale	STB41
Proposed Layout & Profile - Station - Scale - Scale	STB42
Culvert Cross-Sections - Scale - Scale	STB44
Roadway Cross- Sections - Scale - Scale	STB45

Sheets	Cell Name
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Pavement Striping Details - Station - Scale	STB55
Right-of-Way Details	STB56
Typical Sections	STB60
Typical Section & Pavement Schedule	STB61
Typical Section of Improvements	STB62
Typical Paving Sections	STB63
Typical Section, Estimated Quantities, & General Notes	STB65
Estimated Roadway Quantities - sheet of	STB69
Estimated Roadway Quantities	STB70
Estimated Utilities Quantities	STB71
Estimated Roadway & Bridge Quantities	STB72
Estimated Quantities, General Notes, & Special Notes	STB73
Estimated Quantities & General Notes	STB74
Estimated Roadway Quantities & Tabulated Quantities	STB75
Estimated Bridge Quantities	STB76
Estimated Roadway Quantities & General Notes	STB79
General Notes	STB81
General Notes & Special Notes	STB83
Special Notes	STB84
Index & Standard Drawings	STB90
Index	STB91
Standard Drawings	STB92
Index of Standard Drawings	STB93
Not to Scale (supplemental)	STB99
Aerial Survey Title Block	AESTB
Plotter Date-&-Time Label	DATER
Title Sheet Tennessee Map Outline	TNMAP
Title Sheet Index	TSINDX
Title Sheet Project Lengths (Construction)	PROLNC
Title Sheet Project Lengths (Resurfacing)	PROTLML
Title Sheet Project Length (Resurfacing) (Project & Lane Miles Lengths only)	PROTLMR
Title Sheet Design Traffic Data Block	BLKDES
Title Sheet Equations Block Header	EQUHDR
Title Sheet Equations Block Line	EQUBLK
Title Sheet Equations Block Total	EQUTTL
Title Sheet Exclusions Block	EXCBLK
Title Sheet No Exclusions/No Equations Block	NOEXEQ
Title Sheet Road To Be Closed During Construction Block	RCDC
Title Sheet Scale Bars	
English	SBAR
Metric, 4 Divisions	SBAR4
Metric, 4 Divisions, with Subdivisions	SBAR4S
Metric, 5 Divisions	SBAR5

Sheets	Cell Name
Metric, 5 Divisions, with Subdivisions	SBAR5S
Title Sheet Signatures	
Commissioner John Schroer	SIGJS
Chief Engineer Paul Degges	SIGPDD
Plan Phase Sheet Stamps	
Hydraulic Grade Approval	SPHGA
For Title Search Only	SPTITL
For Incidentals Only	SPINCO
Preliminary Field Review	SPPFR
Preliminary Plans	SPPP
Caution Preliminary Plans Subject to Change	SPCPP
ROW Field Review	SPRFR
ROW Plans	SPROW
ROW Plans Permit Application Plan Set	SPRPAP
ROW Field Review (Utilities Only)	SPRFRUO
ROW Plans (Utilities Only)	SPRPUO
Constructability Field Review	SPCFR
P. S. & E. Review	SPPSER
Unofficial Set Not For Bidding	SPUOSNFB

Standard Drawings	Cell Name
Large Break Line	BLLG
Small Break Line	BLSML
Hexagonal Bolt Head	BOLT
Cut Line, Pointing Down	CUTDWN
Cut Line, Pointing Up	CUTUP
Minor Revision Note Block	MNRNOT
Minor Revision Note Symbol	MNRSYM
Hexagonal Nut, with bolt	NUT
Cylinder Break, Facing Down	SCDWN
Cylinder Break, Facing Up	SCUP
Small Hexagonal Bolt Head	SMBOLT
Small Hexagonal Nut, with bolt	SMNUT

Survey Control Data	Cell Name
Benchmark - Plan Placement	BM
Benchmark - Profile Placement	PROBM
Baseline Label	BL
Coordinate Grid Tick	CROSS
Full Control Point	FULLP
Horizontal Control Point	HORPT
Horizontal Control Point (Aerial Surveys)	HORZAP
Pass Point	PASSP
Traverse Point	XTR
Spur Traverse Point	TRAVSP
Vertical Control Point	VERTP
Vertical Control Point (Aerial Surveys)	VERTAP
Control Point	XCP

Typical Sections	Cell Name
Curb & Gutter	CGTYP
Mountable Curb & Gutter	MCGTYP
Curb & Gutter Superelevation Detail	CGSDS
Curb & Gutter Superelevation Detail - Future Lane	CGSDSL
6” Mountable Curb Detail	6MTCRB
Median Barrier Single Slope (Typical Section)	MBTYPSS
Median Barrier Multiple Slope (Typical Section)	MBTYP
Guardrail	GRTYP
Underdrain	UDTYP
Superelevation Rollover Note	SRNOTE
Pavement Schedule Block Title	PVSCHT
Pavement Schedule Block Item	PVSCHI
Typical Sections	
RD01-TS-1 Tangent	TS1T
RD01-TS-1 Superelevated	TS1S
RD01-TS-1A Tangent	TS1AT
RD01-TS-1A Superelevated	TS1AS
RD01-TS-2 Tangent	TS2T
RD01-TS-2 Superelevated	TS2S
RD01-TS-2A Tangent 4-Lane	TS2A4T
RD01-TS-2A Tangent 6-Lane	TS2A6T
RD01-TS-2A Superelevated 4-Lane	TS2A4S
RD01-TS-2A Superelevated 6-Lane	TS2A6S
RD01-TS-2B Tangent 4-Lane	TS2B4T
RD01-TS-2B Tangent 6-Lane	TS2B6T
RD01-TS-2B Superelevated 4-Lane	TS2B4S
RD01-TS-2B Superelevated 6-Lane	TS2B6S
RD01-TS-3 Tangent	TS3T
RD01-TS-3 Superelevated	TS3S
RD01-TS-3A Tangent 4-Lane	TS3A4T
RD01-TS-3A Tangent 6-Lane	TS3A6T
RD01-TS-3A Superelevated 4-Lane	TS3A4S
RD01-TS-3A Superelevated 6-Lane	TS3A6S
RD01-TS-3B Tangent 4-Lane	TS3B4T
RD01-TS-3B Tangent 6-Lane	TS3B6T
RD01-TS-3B Superelevated 4-Lane	TS3B4S
RD01-TS-3B Superelevated 6-Lane	TS3B6S
RD01-TS-3C Tangent 4-Lane	TS3C4T
RD01-TS-3C Tangent 6-Lane	TS3C6T
RD01-TS-3C Superelevated 4-Lane	TS3C4S
RD01-TS-3C Superelevated 6-Lane	TS3C6S
Rural Raised Median Tangent 4-Lane	TS3CRM4T
Rural Raised Median Superelevated 4-Lane	TS3CRM4S
Urban Median Barrier Tangent 4-Lane	TS3CMB4UT
Urban Median Barrier Superelevated 4-Lane	TS3CMB4UT
RD01-TS-4 Tangent 1-Lane	TS41T
RD01-TS-4 Tangent 1-Lane, all at superelevation	TS41SET

Typical Sections	Cell Name
RD01-TS-4 Tangent 2-Lane	TS42T
RD01-TS-4 Superelevated 1-Lane	TS41S
RD01-TS-4 Superelevated 1-Lane, all at superelevation	TS41SES
RD01-TS-4 Superelevated 2-Lane	TS42S
Urban Ramp Tangent 1-Lane	TS41UT
Urban Ramp Tangent 2-Lane	TS42UT
Urban Ramp Superelevated 1-Lane	TS41US
Urban Ramp Superelevated 2-Lane	TS42US
RD01-TS-5 Tangent 4-Lane	TS54T
RD01-TS-5 Tangent 6-Lane	TS56T
RD01-TS-5 Superelevated 4-Lane	TS54S
RD01-TS-5 Superelevated 6-Lane	TS56S
RD01-TS-5A Tangent 4-Lane	TS5A4T
RD01-TS-5A Tangent 6-Lane	TS5A6T
RD01-TS-5A Superelevated 4-Lane	TS5A4S
RD01-TS-5A Superelevated 6-Lane	TS5A6S
RD01-TS-5B Tangent 4-Lane	TS5B4T
RD01-TS-5B Tangent 6-Lane	TS5B6T
RD01-TS-5B Superelevated 4-Lane	TS5B4S
RD01-TS-5B Superelevated 6-Lane	TS5B6S
RD01-TS-6 36’ (10.8 m) Depressed Median	TS61T
RD01-TS-6 18’ (5.5 m) Raised Median	TS62T
RD01-TS-6 12’-16’ (3.6 m) Median	TS63T
RD01-TS-6 0’-4’ (1.2 m) Median	TS64T
RD01-TS-6 No Median	TS65T
RD01-TS-6A 18’ (5.5 m) Raised Median	TS6A1T
RD01-TS-6A 12’-16’ (3.6 m) Median	TS6A2T
RD01-TS-6A 0’-4’ (1.2 m) Median	TS6A3T
RD01-TS-6A No Median	TS6A4T
RD01-TS-7 Tangent	TS7T
RD01-TS-7 Superelevated	TS7S
RD01-TS-7A Tangent	TS7AT
RD01-TS-7A Superelevated	TS7AS
RD-TS-9 Single Lane Roundabout	TS9RT
RD-TS-9 Single Lane Roundabout Intersecting Roadway	TS9IRT
RD-TS-10 Multi-Lane Roundabout	TS10RT
RD-TS-10 Multi-Lane Roundabout Intersecting Roadway	TS10IRT
Private Drive	PVTT

SIGN.CEL & MSIGN.CEL

Some cells are not available in MSIGN.CEL. Due to this fact all MicroStation VBA programs which access sign face cells automatically use SIGN.CEL in metric files and adjust the active scale based on the given plot scale for correct placement size. For the users' convenience in finding cells some sign face cells are given in more than one group.

Blank Signs, Etc.	**Cell Name**
Blank Diamond Sign	DIAMND
Blank Rectangle Sign 1	RCTNG1
Blank Rectangle Sign 2	RCTNG2
Blank Rectangle Sign 3	RCTNG3
Blank Supplemental Sign	RCTSUP
Arrow for Sign Face	SARROW
Loop Arrow Detail - 180 Degrees	LOOP180
Loop Arrow Detail - 270 Degrees	LOOP270
4-Lane to 2-Lane - 2-Lane Split Arrow	DAR4
Secondary State Route Shield - 1 Digit	SSR1D
Secondary State Route Shield - 2 Digits	SSR2D
Secondary State Route Shield - 3 Digits	SSR30
US Highway Shield - 2 Digits	USR2D
US Highway Shield - 3 Digits	USR3D
Proposed Sign symbol	PSIGN
Proposed 2-Post Sign symbol	PSIGN2
Proposed 2-Sided Sign symbol	P2SIGN
Temporary Sign symbol	TSIGN
Temporary 2-Post Sign symbol	TSIGN2
Temporary 2-Sided Sign symbol	T2SIGN
Delineator - White	DEL.1
Delineator - Yellow	DEL.2
Supplemental Flags	FLAGS
Type "A" Light	LTA
Type "B" Light	LTB
Type "C" Light	LTC
Amber solar flashing assembly warning beacon	LTSFAA
Red solar flashing assembly warning beacon	LTSFAR
Changeable Message Sign	MESSG
Metric Seal	METRIC

Details	**Cell Name**
Small Arrowhead	DARR
Medium Arrowhead	TERM1
Large Arrowhead	TERM2
Extra Large Arrowhead	TERM3
Cantilever Support Details	CANTSUP
Ramp Cantilever X-Section Detail	CS1
Roadway Cantilever X-Section Detail	CS2
Overhead X-Section Detail	CS3
Overhead School Flasher Detail	CS4
Overhead School Flasher Detail 2	CS5
Overhead School Flasher Detail 3	CS5.5
Overhead School Flasher Detail 4	CS6
Span Pole Sign Detail	CS7
3-Lane to 2-Lane - 2-Lane Split Diagrammatic	DAROW
4-Lane to 3-Lane - 2-Lane Split Diagrammatic	DAROWG

Details	Cell Name
4-Lane to 2-Lane - 2-Lane Split Diagrammatic	DARRO4
3-Lane to 2-Lane - 2-Lane Split Diagrammatic	DARROW
Davidson County Line (Sign Schedule Sheet Item)	DAVCON
Loop Arrow Detail - 180 Degrees	DLOOP
Loop Arrow Detail - 270 Degrees	DLOOP2
Existing Overhead Structure Label	EXTOS
“G” Arrow and Tabulated Dimensions	G.ARRW
Median Barrier Sign Installation Detail	MISE
Median Barrier Mile Post Sign Installation Detail	MISE1
Span Wire Shield Assembly	SWSA
Sign Schedule Sheet 1	SS1
Sign Schedule Sheet 2 (Includes “ U” Post Substitution Table)	SS2
Sign Structure Sheet	SSHEET
Cross Roads Signing One Way & Wrong Way	CSOWWW
Cross Road Signing One Way & Wrong Way With Channelized Turn Lanes	CSOWWWCH
T Intersection Left Signing One Way And Wrong Way	TLTOWWW
T Intersection Right Signing One Way And Wrong Way	TRTOWWW

Construction Signs	Cell Name
Exit Open	E5.2
Exit Closed	E5.2A
Road Work Next XX Miles	G20.1
End Road Work	G20.2
Detour	M4.8
End Detour	M4.8A
Detour - left	M4.9L
Detour - right	M4.9R
Detour Arrow - left	M4.10L
Detour Arrow - right	M4.10R
Work Zone Speed ? MPH When Flashing	R2.1M
Do Not Pass In Right Lane	R4.1M
Stop Here On Red	R10.6
Stay In Lane To Extend Green	R10.6M
Road Closed	R11.2
Road Closes ? Miles Local Traffic Only	R11.3A
Road Closed to Thru Traffic	R11.4
Two-Lane Shift Left	W1.4BL
Two-Lane Shift Right	W1.4BR
Lane Shift Ahead	W1.4BM
Lane Shift XXXX FT	W1.4BM2
Three-Lane Shift Left	W1.4CL
Three-Lane Shift Right	W1.4CR
Be Prepared To Stop	W3.4
Lane Closed Merge Left Symbol	W4.2LC
Lane Closed Merge Right Symbol	W4.2RC
Road Narrows	W5.1
Next _ Mile_ - Supplemental	W7.3APC
Low Shoulder	W8.9
Uneven Lanes	W8.11
Uneven Lanes - Special Sign Assembly	W8.11M
No Center Stripe	W8.12
Shoulder Drop-Off - Sign Assembly (W8-17, W8-17P)	W8.17ASSEMBLY
Center Lane Closed Ahead	W9.3

Construction Signs	Cell Name
Center Lane Closed Ahead - Symbol	W9.3M
XX MPH - Supplemental Speed Advisory Plate	W13.1PC
XXX Feet - Supplemental	W16.2PC
Road Work Ahead	W20.1
Road Work ? FT	W20.1F
Road Work ? MI	W20.1M
Road Work ? (Left or Right)	W20.1S
Detour Ahead	W20.2
Detour ? FT	W20.2F
Detour ? MI	W20.2M
Road Closed Ahead	W20.3
Road Closed ? FT	W20.3F
Road Closed ? MI	W20.3M
One Lane Road Ahead	W20.4
One Lane Road ? FT	W20.4F
One Lane Road ? MI	W20.4M
Left Lane Closed Ahead	W20.5L
Left Lane Closed ? FT	W205LF
Left Lane Closed ? MI	W205LM
Right Lane Closed Ahead	W20.5R
Right Lane Closed ? FT	W205RF
Right Lane Closed ? MI	W205RM
Flagger Symbol	W20.7
Workers Symbol	W21.1
Workers Present	W21.1M
Workers Present When Flashing Reduce Speed	TN.44
Fresh Oil	W21.2
Road Machinery Ahead	W21.3
Shoulder Work	W21.5
? Shoulder Closed Ahead	W20.5B
? Shoulder Closed ? ?	W20.5BF
Blasting Zone Ahead	W22.1
Turn Off 2-Way Radios & Cellular Phones	W22.2
End Blasting Zone	W22.3
Double Reverse Curve LT - 1 Lane	W24.1L
Double Reverse Curve RT - 1 Lane	W24.1R
Double Reverse Curve LT - 2 Lane	W24.1AL
Double Reverse Curve RT - 2 Lane	W24.1AR
Double Reverse Curve LT - 3 Lane	W24.1BL
Double Reverse Curve RT - 3 Lane	W24.1BR
End ? MPH Speed	TN.9C
Maximum ? Minute Red	SPEC1
Maintain ? MPH Speed	SPEC2
Horizontal Clearance ? FT	SPEC3
1-Lane Bridge ? FT Horizontal Clearance ? FT	SPEC4F
1-Lane Bridge ? MI Horizontal Clearance ? FT	SPEC4M
Trucks Use Left Lane	SPEC8
Merge Now	SPEC5
TDOT Construction Record-A-Comment 1-877-SmartWay (Interstate)	TN.55A
TDOT Construction Record-A-Comment 1-877-SmartWay (State Route)	TN.55B
Grooved Pavement	TN.64

Highway Route Signs	Cell Name
Secondary State Route 1 Digit	TN.6A1
Secondary State Route 2 Digits	TN.6A
Secondary State Route 3 Digits	TN.6B
Primary State Route 1 Digit	TN.6C1
Primary State Route 2 Digits	TN.6C
Primary State Route 3 Digits	TN.6D
U.S. Highway 2 Digits	M1.4
U.S. Highway 3 Digits	M1.4A
Interstate 2 Digits	M1.1
Interstate 3 Digits	M1.1A
Junction Marker	M2.1
Direction - North	M3.1
Direction - East	M3.2
Direction - South	M3.3
Direction - West	M3.4
By-Pass Marker	M4.2
Business Marker	M4.3
To Highway	M4.5
End Marker	M4.6
Begin Marker	M4.14
Advance Arrow - left	M5.1L
Advance Arrow - right	M5.1R
Advance Arrow - 45° left	M5.2L
Advance Arrow - 45° right	M5.2R
Directional Arrow - left	M6.1L
Directional Arrow - right	M6.1R
Directional Arrow - 45° left	M6.2L
Directional Arrow - 45° right	M6.2R
Directional Arrow -45° down left	M6.2AL
Directional Arrow -45° down right	M6.2AR
Directional Arrow - straight	M6.3
Directional Arrow - left and right	M6.4
Directional Arrow - diagonal left and right	M6.5L
Directional Arrow - diagonal right and left	M6.5R
Directional Arrow - left and straight	M6.6L
Directional Arrow - right and straight	M6.6R
Directional Arrow - 45° left and straight	M6.7L
Directional Arrow - 45° right and straight	M6.7R
Log Mile (1 digit)(1 digit state route)	TN.17A1
Log Mile (1 digit)(2 digit state route)	TN.17A2
Log Mile (1 digit)(3 digit state route)	TN.17A3
Log Mile (2 digit)(1 digit state route)	TN.17B1
Log Mile (2 digit)(2 digit state route)	TN.17B2
Log Mile (2 digit)(3 digit state route)	TN.17B3
Scenic Highway - Small	TN.22A
Scenic Highway - Large	TN.22B
Scenic Route	TN.23
Cardinal Directional Arrow	TN.39
Mile Reference Marker - 1 digit	D10.1
Mile Reference Marker - 2 digits	D10.2
Mile Reference Marker - 3 digits	D10.3
Gore Exit	E5.1

Highway Route Signs	Cell Name
Gore Exit w/ Loop Arrow	E5.1M2
Gore Ramp	E5.1M
Gore Ramp w/ Loop Arrow	E5.1M3
Gore Exit 2 Digits	E5.1A
Gore Exit 3 Digits	E5.1A3
Gore Exit 4 Digits	E5.1A4
Gore Exit 2 Digits w/ Loop Arrow	E5.1AM
Gore Exit 3 Digits w/ Loop Arrow	E5.1AM2

Regulatory Signs	Cell Name
Stop	R1.1
Yield	R1.2
All Way	R1.3P
Speed Limit ? mph	R2.1
Speed Limit 55 mph	R2.1_5
Speed Limit 65 mph	TN.7A
Speed Limit 70 mph	R2.1_7
Speed Limit ? Trucks ?	TN.7B
Speed Limit 55 Trucks 50	TN.7B5
Speed Limit 65 Trucks 55	TN.7C
Minimum Speed ? mph	R2.4P
Speed Limit ? Minimum ?	R2.4A
No Right Turn Symbol	R3.1
No Left Turn Symbol	R3.2
No “U” Turn Symbol	R3.4
Mandatory Movement Arrow - Left	R3.5L
Mandatory Movement Arrow - Right	R3.5R
Left Lane - Supplemental	R3.5BP
Right Lane - Supplemental	R3.5FP
Optional Movement Arrow	R3.6
Left Lane Must Turn Left	R3.7L
Right Lane Must Turn Right	R3.7R
Lane Movement Arrows	R3.8MD
Center Lane Left Turn Only	R3.9B
HOV 2+ Only 2 Or More Persons Per Vehicle	R3.10
No Trucks 3 Or More Axles 7AM - 9AM Mon-Fri	R3.10M
No Trucks 3 Or More Axles 4PM - 6PM Mon-Fri	R3.10M2
Inherently Low Emission Vehicles Allowed	R3.10A
HOV 2+ Only 7AM - 9AM Mon-Fri	R3.11A
HOV 2+ Only 4PM - 6PM Mon-Fri	R3.11A2
Motorcycles Allowed - Supplemental	R3.11P
7AM - 9AM Mon-Fri - Supplemental	R3.11PM
4PM - 6PM Mon-Fri - Supplemental	R3.11PM2
HOV Lane Ahead 1 Mile	R3.12BM
HOV Restriction Ends	R3.12C
HOV Restriction Ends ½ Mile	R3.12D
HOV 2+ Only ½ Mile	R3.12E
HOV 2+ Only 2 Or More Persons Per Vehicle 7AM - 9AM Mon-Fri	R3.13A
HOV 2+ Only 2 Or More Persons Per Vehicle 4PM - 6PM Mon-Fri	R3.13A2
HOV 2+ Only 7AM - 9AM Mon-Fri	R3.14
HOV 2+ Only 4PM - 6PM Mon-Fri	R3.14N

Regulatory Signs	Cell Name
HOV 2+ Lane 1 Mile	R3.15
HOV 2+ Lane ½ Mile	R3.15_2
HOV 2+ Begins 1 Mile	R3.15A
HOV Lane Ends	R3.15B
HOV Restriction Ends	R3.15C
Bike Lane	R3.17
Ahead - Supplemental for Bike Lane	R3.17AP
Ends - Supplemental for Bike Lane	R3.17BP
Do Not Pass	R4.1
Do Not Pass In Right Lane	R4.1M
Pass With Care	R4.2
Slower Traffic Keep Right	R4.3
Begin Right Turn Lane Yield to Bikes	R4.4
Trucks Use Right Lane	R4.5
Trucks Use Right 2 Lanes Ahead (Shoulder)	TN.60A
Trucks Use Right 2 Lanes Ahead (Median Barrier)	TN.60B
Trucks Use Right 2 Lanes (Shoulder)	TN.60C
Trucks Use Right 2 Lanes (Median Barrier)	TN.60D
End Truck Lane Restriction (Shoulder)	TN.60E
End Truck Lane Restriction (Median Barrier)	TN.60F
Keep Right symbol	R4.7
Keep Right arrow - level	R4.7A
Keep Right arrow - slant	R4.7B
Do Not Enter	R5.1
Wrong Way	R5.1A
No Motor Vehicles	R5.3
One Way arrow - left	R6.1L
One Way arrow - right	R6.1R
Divided Highway - " + " Intersection	R6.3
Divided Highway - " T " Intersection	R6.3A
Roundabout Directional Arrow (2 Chevrons)	R6.4
Roundabout Directional Arrow (3 Chevrons)	R6.4A
Roundabout Directional Arrow (4 Chevrons)	R6.4B
Roundabout Circulation Plaque - Supplemental	R6.5P
No Parking Anytime - Left & Right	R7.1
No Parking Anytime - Left	R7.1L
No Parking Anytime - Right	R7.1R
No Parking Anytime	R7.1X
Bus Stop No Parking	R7.107A
No Parking Symbol	R8.3
Emergency Stopping Only	R8.7
Do Not Stop On Tracks	R8.8
Keep Left Right Bicycles Pedestrians	R9.7
Sidewalk Closed	R9.9
Sidewalk Closed Use Other Side	R9.10
Sidewalk Closed Ahead Cross Here (Left Arrow)	R9.11L
Sidewalk Closed Ahead Cross Here (Right Arrow)	R9.11R
Pedestrian Crossing Info - Push Button Left	R10.3BL
Pedestrian Crossing Info - Push Button Right	R10.3BR
Pedestrian Crossing Info - Push Button Left	R10.3EL
Pedestrian Crossing Info - Push Button Right	R10.3ER
Left On Green Arrow Only	R10.5
Stop Here On Red	R10.6

Regulatory Signs	Cell Name
Stay In Lane To Extend Green	R10.6M
Left Turn Signal	R10.10
No Turn On Red	R1011A
Left Turn Yield On Green	R10.12
Keep Off Median	R11.1
Road Closed	R11.2
Road Closes ? Miles Local Traffic Only	R11.3
Road Closed to Thru Traffic	R11.4
Railroad Crossing (Crossbuck)	R15.1
_ Tracks - Supplemental	R15.2P
School flashing overhead	TN.8.OH
School flashing ground	TN.8.S
End XX Mile Speed	TN.9
Lights On When Raining	TN.16
Pedestrians Prohibited	TN.21
Authorized Vehicles Only	TN.29
Buckle Up	TN.30
Anti-Litter Trashman Symbol	TN.31
Reserved Parking - Handicap	TN.41
Move Damaged Vehicle To Shoulder If No Serious Injury	TN.49
Use Of Unapproved Compression Brakes Prohibited (Freeways/Expressways)	TN.58A
Use Of Unapproved Compression Brakes Prohibited (Conventional Roads)	TN.58B
Move Over For Stopped Emergency Vehicles $500 Maximum Fine	TN.61

School Signs	Cell Name
School Advance Symbol	S1.1
When Children Are Present	S4.2P
School - Supplemental	S4.3P
School flashing ground (separate lights)	S5.1
School flashing overhead (separate lights)	S5.1MOD
XXX Feet - Supplemental	W16.2PS
Diagonal Arrow Down - Supplemental	W16.7PS
Ahead - Supplemental	W16.9PS
School flashing overhead	TN.8.OH
School flashing ground	TN.8.S
End XX Mile Speed	TN.9

Tennessee Signs	Cell Name
Tennessee State Line (for state route)	TN.1
_____ Co (for state route)	TN.2
_____ City Limit (for state route)	TN.3
_____ Unincorporated (for state route)	TN.4
_____ Creek (for state route)	TN.5
Secondary State Route 1 Digit	TN.6A1
Secondary State Route 2 Digits	TN.6A
Secondary State Route 3 Digits	TN.6B
Primary State Route 1 Digit	TN.6C1
Primary State Route 2 Digits	TN.6C
Primary State Route 3 Digits	TN.6D
Speed Limit 65	TN.7A
Speed Limit ? Trucks ?	TN.7B

Tennessee Signs	Cell Name
Speed Limit 55 Trucks 50	TN.7B5
Speed Limit 65 Trucks 55	TN.7C
School flashing overhead	TN.8.OH
School flashing ground	TN.8.S
End XX Mile Speed	TN.9
Type 3 Object Marker - left (old TN-14L)	OM.3L
Type 3 Object Marker - right (old TN-14R)	OM.3R
Lights On When Raining	TN.16
Log Mile (1 digit)(1 digit state route)	TN.17A1
Log Mile (1 digit)(2 digit state route)	TN.17A2
Log Mile (1 digit)(3 digit state route)	TN.17A3
Log Mile (2 digit)(1 digit state route)	TN.17B1
Log Mile (2 digit)(2 digit state route)	TN.17B2
Log Mile (2 digit)(3 digit state route)	TN.17B3
Pedestrians Prohibited	TN.21
small - Scenic Highway	TN.22A
large - Scenic Highway	TN.22B
Scenic Route	TN.23
Offset Crossroad (Right then Left)	TN.27A
Offset Crossroad (Left then Right)	TN.27B
Authorized Vehicles Only	TN.29
Buckle Up	TN.30
Anti-Litter Trashman symbol	TN.31
Hospital Exit XXXX - Interstate Hospital Service	TN.33
Shoulder Narrows Ahead	TN.35
Reduced Truck Speed Ahead	TN.38
Cardinal Directional Arrow	TN.39
Reserved Parking - Handicap	TN.41
Workers Present When Flashing Reduce Speed	TN.44
Emergency Reference Marker - Roadway (2 nos.)	TN45A1
Emergency Reference Marker - Roadway (3 nos.)	TN45A2
Emergency Reference Marker - Directional Ramp	TN45B
Emergency Reference Marker - Entrance Ramp	TN45C1
Emergency Reference Marker - Exit Ramp	TN45C2
Motorcycles Allowed	TN.46
Highway Emergency *847 Cellular State Trooper	TN.47
Move Damaged Vehicle To Shoulder If No Serious Injury	TN.49
TDOT Construction Record-A-Comment 1-877-SmartWay (Interstate)	TN.55A
TDOT Construction Record-A-Comment 1-877-SmartWay (State Route)	TN.55B
Use Of Unapproved Compression Brakes Prohibited (Freeways/Expressways)	TN.58A
Use Of Unapproved Compression Brakes Prohibited (Conventional Roads)	TN.58B
Trucks Use Right 2 Lanes Ahead (Shoulder)	TN.60A
Trucks Use Right 2 Lanes Ahead (Median Barrier)	TN.60B
Trucks Use Right 2 Lanes (Shoulder)	TN.60C
Trucks Use Right 2 Lanes (Median Barrier)	TN.60D
End Truck Lane Restriction (Shoulder)	TN.60E
End Truck Lane Restriction (Median Barrier)	TN.60F
Move Over For Stopped Emergency Vehicles $500 Maximum Fine	TN.61

Tennessee Signs	Cell Name
Travel Info Call 511 (Interstate)	TN.62A
Travel Info Call 511 (Non-Interstate)	TN.62B
Grooved Pavement	TN.64

Warning Signs	Cell Name
Turn Symbol - Left	W1.1L
Turn Symbol - Right	W1.1R
Curve Symbol - Left	W1.2L
Curve Symbol - Right	W1.2R
Reverse Turn Symbol - Left	W1.3L
Reverse Turn Symbol - Right	W1.3R
Reverse Curve Symbol - Left	W1.4L
Reverse Curve Symbol - Right	W1.4R
Winding Road - Left	W1.5L
Winding Road - Right	W1.5R
One Direction Arrow- Left	W1.6L
One Direction Arrow- Right	W1.6R
Two Direction Arrow	W1.7
Chevron Arrow - Left	W1.8L
Chevron Arrow - Right	W1.8R
Crossroads Symbol	W2.1
Side Road Symbol - Left	W2.2L
Side Road Symbol - Right	W2.2R
“T” Intersection Symbol	W2.4
Circular Intersection Symbol	W2.6
Offset Crossroad (Right then Left)	TN.27A
Offset Crossroad (Left then Right)	TN.27B
Stop Ahead	W3.1
Stop Ahead Symbol	W3.1S
Yield Ahead	W3.2
Yield Ahead Symbol	W3.2S
Signal Ahead Symbol	W3.3
XX (mph) Speed Limit Ahead	W3.5
XX MPH Speed Zone Ahead	W3.5A
Reduced Truck Speed Ahead	TN.38
Ramp Merge Arrow	W4.1
Lane Ends Merge Left Symbol	W4.2L
Lane Ends Merge Right Symbol	W4.2R
Added Lane Symbol - Left	W4.3L
Added Lane Symbol - Right	W4.3R
Narrow Bridge Symbol	W5.2
One Lane Bridge	W5.3
Path Narrows	W5.4A
Bikeway Narrows	W5.4AM
Shoulder Narrows Ahead	TN.35
Divided Highway Begins	W6.1
Divided Highway Ends	W6.2
Two-Way Traffic	W6.3

Warning Signs	Cell Name
Hill Symbol	W7.1
Trucks Use Lower Gear - Supplemental	W7.2BP
? % Grade - Supplemental	W7.3P
Next ? Miles - Supplemental	W7.3AP
? % Grade Next ? Miles - Supplemental	W7.3BP
Bump	W8.1
Dip	W8.2
Pavement Ends	W8.3
Soft Shoulder	W8.4
Slippery When Wet Symbol	W8.5
Left Lane Ends	W9.1L
Right Lane Ends	W9.1R
Lane Ends Merge Left	W9.2L
Lane Ends Merge Right	W9.2R
Railroad Crossing	W10.1
Railroad Crossing Left at Intersection symbol	W10.2L
Railroad Crossing Right at Intersection symbol	W10.2R
Railroad Crossing Left at Sideroad symbol	W10.3L
Railroad Crossing Right at Sideroad symbol	W10.3R
Railroad Crossing Left at "T" Intersection symbol	W10.4L
Railroad Crossing Right at "T" Intersection symbol	W10.4R
Bicycle Symbol	W11.1
Pedestrian Symbol	W11.2
Equestrian Symbol	W11.7
Emergency Vehicle Symbol	W11.8
Truck Symbol	W11.10
Double Arrow for Obstacle	W12.1
? FT ? IN Low Clearance	W12.2
XX MPH - Supplemental Speed Advisory Plate	W13.1P
Exit Speed ? MPH	W13.2
Dead End	W14.1
No Outlet	W14.2
No Passing Zone	W14.3
Share The Road (supplemental used with bike signs)	W16.1P
XXX Feet - Supplemental	W16.2P
Diagonal Arrow Down - Supplemental	W16.7P
Ahead - Supplemental	W16.9P
Traffic Circle - Supplemental	W16.12P
Roundabout - Supplemental	W16.17P
45 MPH Curve	45CUR
Park and Ride - Left	D4.2L
Park and Ride - Right	D4.2R
Bicycle Parking - Right	D4.3
Picnic Area Symbol	D5.5M
Hospital Exit XXXX - Interstate Hospital Service	TN.33
Hospital Symbol	D9.2
Handicap Symbol	D9.6

Warning Signs	Cell Name
Bike Route	D11.1
Bike Trail	D11.1M
End - Supplemental for Bike Route or Trail	M4.6B
Directional Arrow Left - Supplemental for Bike Route or Trail	M6.1LB
Directional Arrow Right - Supplemental for Bike Route or Trail	M6.1RB
Directional Arrow Left & Right - Supplemental for Bike Route or Trail	M6.4B
Airport Symbol	I.5
Airport Directional Arrow Left	M6.11LA
Airport Directional Arrow Right	M6.11RA
Type 3 Object Marker - left (old TN-14L)	OM3.L
Type 3 Object Marker - right (old TN-14R)	OM3.R
End of Roadway Object Marker	OM4.1
Hiker Symbol	R5.068
School Advance Symbol	S1.1
When Children Are Present	S4.2P
School - Supplemental	S4.3P

Manual Revisions

May, 2014

1. Updated table of contents.
2. Under **Standard Line Styles - TDOTLINE.RSC**, added the following new linestyles:

GR Br End Prop Low Volume	Bridge End Guardrail for Low Volume Roadways (<= 400 ADT)

3. Under **Standard Geopak Files,** the following changes have been made:

   Under **Typical Sections and Criteria Files**

   Added new typical **1LNRMPSE,** 1 lane interchange ramp with shoulder and subgrade applied at the normal superelevation rate used with the pavement.

   Added the following new criteria files:

BarrierAtNoiseWall.x	Concrete Barrier 51" Wall at Noise Wall
RampBarrierHalfWall.x	Concrete Barrier 51" Half Wall for Ramps.
RampInsideShoulder_at_SE.x	Inside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampInsideShoulderMetric_at_SE.x	Inside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampShoulder_at_SE.x	Outside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate
RampShoulderToWall.x	Ramp Shoulder which extends to Walls (already in place).
RampShoulderMetric_at_SE.x	Outside Shoulder for Ramps w/Shoulder & Subgrade at Superelevation Rate

   Under **3PC Files for D&C Manager**

   Revised the description of the following 3PC program file:

place_median_br_end_prot.x	Removed reference to 50 foot curve which is no longer applied.
place_median_br_pier_prot.x	Completely replaced as follows … This application places median barrier wall at the required distance based on design speed from the face of first pier at the shoulder and guardrail from the end of the wall through the terminal in the median for protection at bridge piers with bridge end guardrail.

4. Under **Standard Cell Library Index**, made the following changes.

   In **STDS.cel** & **METRIC.cel:**

   Added the following new typical sections cells for ramps:

TS41SET	Typical Section RD01-TS-4 1 Lane, all at superelevation-Tangent
TS41SES	Typical Section RD01-TS-4 1 Lane, all at superelevation-Super

   Added new pavement marking cell, **PVBLANESYM**, bike symbol with direction arrow for use in bike lanes.

5. Added the latest manual revision notes.

November, 2013

1. Updated table of contents.
2. Under **Standard Office Templates**, the following changes have been made:

   Under **TDOT Letters**, added new template **NEPA Project Description Form.dotx**, as described in Design Guidelines IB 13-21.

   Under **TDOT Tabulated Quantities**, added new drainage Excel templates for tabulation of endwall quantities: **Cross Drain Endwalls.xltx, Side Drain Endwalls.xltx** and **Median Drain Endwalls.xltx**, Also renamed Excel template, Cross Drain Arterials WO Full Access Control.xltx, as **Cross Drain Arterials.xltx** to reflect its current designation in the T.D.O.T. Drainage Manual.
3. Under **Standard Line Styles - TDOTLINE.RSC**, added the following new linestyles:

FENCE SHORT	Existing Short Fence
MB SINGLE SLOPE WALL-32 INCH	Proposed 32 Inch Single Slope Median Barrier
MB SINGLE SLOPE WALL-51 INCH	Proposed 51 Inch Single Slope Median Barrier
MB SINGLE SLOPE WALL-GRADE SEPARATED	Proposed Grade Separated Single Slope Median Barrier

4. Under **Standard MicroStation Visual Basic Applications**, the following changes have been made:

   Added the following new programs:

AerialSurveyTools.mvba	This program provides a dialog access point to various aerial survey tools not automatically used by aerial survey software including the following programs: **MFC to DTM** **View On 1 to 4** **Update Contours** **Fix Topo Levels by ISFC Feature Number** **Fix levels in DTM files by Element Type**
PlacePlanPhaseStamps.mvba	This program is used to place (for the first time), replace or remove plan phase stamp cells in plan sheet files. When the command is first started the Place Plan Phase Stamps in File dialog is displayed. Drop down lists are provided to specify plan phase stamp to be replaced, new plan phase stamp to be placed and plan phase stamp to be just removed.
PlaceSteps.mvba	This program places stairway steps when four points are given by the user to establish its location and dimensions. This was created specifically for use by Aerial Surveys personnel for use when gathering topographic information from aerial photography.
PreV8iDotPatternFix.mvba	This program scans all graphics in the active file and then reads for any dot pattern elements and

duplicates the circle for the filled dot without fill so that they will plot correctly and create printable patterns in PDF documents as well. This replicates the way MicroStation V8i patterns with filled shapes where it duplicates the shape without fill so that the weight of the shape is honored when printing.

Revised the description of the following program to reflect changes to its functionality:

PlanPhaseCells.mvba Added reference to a new command button to access new vba program Place Plan Phase Stamps in Files.

5. Under **Standard MicroStation Image Files**, added new image file **Phase Stamp - Unofficial Set Not For Bidding.jpg** for application as a watermark on PDF plan sets using Adobe Acrobat.

6. Under **Standard Geopak Files,** the following changes have been made:

   Under **Typical Sections and Criteria Files**

   Added new typical **P_ROCKB** which is used to plot the bottom of a rock layer on cross sections when sub-surface boring data is used to develop a surface for the top of the layer.

   Under **3PC Files for D&C Manager**

   Revised the description of the following 3PC program file:

   PipeEndwall_Computation.x Replaced reference to structural steel in computations with the new safety endwall item.

7. Under **Standard Levels and Element Parameters - TDOTmain.dgnlib**, made the following changes:

   Under **TDOTmain.dgnlib > Design:**

   Under level **DESIGN - TRANSPORTATION - Roadside Barriers** added new item “Cable Barrier”.

   Under **TDOTmain.dgnlib > Survey:**

   Under level **SURVEY - AERIAL SURVEY - Collected Point** added new item “Spot Elevation”.

   Under level **SURVEY - ROADSIDE BARRIERS with Text** added new item “Cable Barrier”.

   Under level **SURVEY - NON-TRANSPORTATION - Features** corrected color listed for item “Rip-rap (Non-Drainage)” to be color 47.

   Under level **SURVEY - UTILITIES - Electric (Lighting) with Text** corrected color listed for item “Text” to be color 2.

   Under level **SURVEY - UTILITIES - Water with Text** corrected color listed for item “Fire Hydrants” to be color 6.

8. Under **Standard Cell Library Index**, made the following changes.

In **STDS.cel** & **METRIC.cel:**

Added the following new traffic low diagram cells for one way interchanges and bridge crossings:

TFD6	Traffic Flow Diagram One Way Left Intersection
TFD6RAMPS	Traffic Flow Diagram One Way Left Intersection with Ramps
TFD7	Traffic Flow Diagram One Way Right Intersection
TMWBO	Traffic Flow Diagram with Bridge Overpass
TMWBU	Traffic Flow Diagram with Bridge Underpass

Added new sheet stamp cell, **SPUOSNFB**, "Unofficial Set Not For Bidding".

9. Added the latest manual revision notes.

August, 2013

1. Updated all references to the “Design Division” to specify “Roadway Design Division”.
2. Updated all references to “Handicap Ramp” to specify “Curb Ramp”.
3. Updated table of contents.
4. Under **Standard File Extensions**, added the following file extensions for aerial survey files:

   .MFC Aerial Surveys Topography Graphics Design File

   .DTM Aerial Surveys Digital Terrain Model Graphics Design File
5. Under **Phased Project Data Workflow** on page 8, changed the file extension to .MFC for 3D topographic DGN file provided by aerial surveys.
6. Under **Standard MicroStation Seed Files** on page 13, added aerial survey color table **AerialColorTable.tbl** to the list of standard design file parameters utilized with seed files.
7. Under **Standard Office Templates**, the following changes have been made:

   Under **TDOT Letters**, revised all template names with the text “Design Division” to specify “Roadway Design Division”.

   Under **Survey**, revised all template names with the text “Design Division” to specify “Roadway Design Division”.
8. Under **Standard MicroStation Libraries** on page 24, added aerial survey color table **AerialColorTable.tbl** to the list of standard library files.
9. Under **Standard Color Table - STDCOLOR.TBL**, added the following note concerning aerial surveys colors ...

   > … Aerial Surveys use an alternate color table (AerialColorTable.tbl) for their work on aerial photography. Their color settings will differ from the standard ones listed below but the color numbers **should** match the standards on all elements produced.
10. Under **Standard Line Styles - TDOTLINE.RSC**, added the following new linestyles:

CABLE BARRIER	Existing Cable Barrier
CABLE BARRIER PROP	Proposed Cable Barrier
GUARDRAIL ATTENUATOR SACRIFICIAL	Guardrail attenuator crash cushion - sacrificial
GUARDRAIL ATTENUATOR NARROW REUSABLE	Guardrail attenuator crash cushion – narrow reusable
GUARDRAIL ATTENUATOR WIDE REUSABLE	Guardrail attenuator crash cushion – wide reusable
GUARDRAIL ATTENUATOR	Guardrail attenuator crash cushion – narrow low

NARROW LOW MAINTENANCE	maintenance
GUARDRAIL ATTENUATOR WIDE LOW MAINTENANCE	Guardrail attenuator crash cushion – wide low maintenance
PVMT MRK 10-10 W 12"	Pavement marking stripe style for white 12” wide stripe with 10’ dash and 10’ gaps for use along HOV lanes
PVMT MRK 10-30 Y 4"	Pavement marking stripe style for yellow 4” wide stripe with 10’ dash and 30’ gaps for use along the center of 2 lane roadways
PVMT MRK 10-30 Y 6"	Pavement marking stripe style for yellow 4” wide stripe with 10’ dash and 30’ gaps for use along the center of 2 lane roadways
RUMBLE STRIPE 4" CENTER CONT	Centerline 4” rumble stripe for use along the center of 2 lane roadways

11. Under **Standard MicroStation Visual Basic Applications**, the following changes have been made:

CellTools.mvba	Revised description to reflect new functionality in the “Place Cells Along an Element” option,
DrawCurbRamp.mvba	Revised name and all references to “handicap ramps” in the description to be “curb ramps”.
SignalizationDeviceCells.mvba	Revised all references to “handicap ramps” in the description to be “curb ramps”.

Deleted obsolete program DrawTypeLEndwall.mvba which is no longer a valid endwall type for use.

12. Under **Standard TDOT Roadway Design Division Interface**, revised the name of tool strip to be **Roadway Design Division Tool Strip**. Also added the **Survey Project WorkFlow Toolbox** to the available tool list for the tool strip.

13. Under **Standard Geopak Files,** the following changes have been made:

Added the following new criteria files not used directly by the typical sections:

BarrierHalfWall.x	Concrete Barrier Half Wall as used in front of retaining walls, median piers or sign supports
PlotRockBottom.x	Plot Bottom of Rock Layer at Specified Depth for use where rock surfaces are developed for the top of rock
SharedUsePathNoRoadway.x	Independent Shared Use Path along the edge of a roadway without tie to roadway

SideSlopeToWallUrban.x Side Slope which extends to a "Wall" which has been created in a previous run with optional earth or concrete swale ditch at wall intersection for use with urban retaining walls in fill or cut.

SubgradeVerticalTieShoulderNoGround.x Forms vertical tie from subgrade to FG, for use at outside edge of shoulder without a final tie to ground.

Under **3PC Files for D&C Manager**

Added the following new 3PC program file:

SnowPlwPvmtMarkers_Computation.x Reads a D&C Manager set & then counts the specified snowplowable pavement marker cells and reports the quantity back to D&C Manager.

14. Under **Standard Levels and Element Parameters - TDOTmain.dgnlib**, made the following changes:

    Under **TDOTmain.dgnlib > Design:**

    Under level **DESIGN - TRANSPORTATION - Curb Gutter and Sidewalk** changed item "Handicap ramp" to "Curb ramp" and added notation that boundary is formed with a custom line style for use in quantity calculations.

    Under **TDOTmain.dgnlib > Survey:**

    Under level **SURVEY - AERIAL SURVEY - Collected Point** changed item "Collected point" to "Collected Grid Points for DTM".

    Under level **SURVEY - DTM - Breaklines** changed item "Breaklines" to "Survey Breaklines" and corrected color to be 3 not 13. Also added new item "Aerial Survey Breaklines" (color 3, weight 2, line code 0) which includes an alternate weight to that used by Field Surveys.

    Under level **SURVEY - TRANSPORTATION - Features** changed "Handicap ramp opening" to "Curb ramp opening".

15. Under **Standard Cell Library Index**, made the following changes.

    In **STDS.cel** & **METRIC.cel:**

    Added new proposed cable barrier terminal cell, **CBT**, which is to be used with the new proposed cable barrier custom line style.

    Added new temporary traffic control cell, **TVPLT**, which is a single face vertical panel sign set up for use on the left side of the roadway. This was set up to avoid upside down text since this cell includes the text label "V".

    Revised descriptions for cells **XHCR** and **ASHCRAMP**, changed them from "handicap ramp" to "curb ramp".

Added the following new sand barrel crash cushion cells:

CCBARREL200	200 lb. plastic drum w/sand crash cushion
CCBARREL400	400 lb. plastic drum w/sand crash cushion
CCBARREL700	700 lb. plastic drum w/sand crash cushion
CCBARREL1400	1400 lb. plastic drum w/sand crash cushion
CCBARREL2100	2100 lb. plastic drum w/sand crash cushion

Added the following new traffic low diagram cells for semi-direct “T” interchanges

TMINTSDTL	Semi-direct “T” Interchange left side only
TMINTSDTR	Semi-direct “T” Interchange right side only

In **STDS.cel** only:

Added the following new Geopak drainage node cells:

JB4DIA	Junction Box 4’ Diameter
JB5DIA	Junction Box 5’ Diameter
JB6DIA	Junction Box 6’ Diameter
JB7DIA	Junction Box 7’ Diameter
JB8DIA	Junction Box 8’ Diameter
JB9DIA	Junction Box 9’ Diameter
JB10DIA	Junction Box 10’ Diameter

In **SIGN.cel:**

Added the following new solar flashing warning beacon cells:

LTSFAA	Amber solar flashing assembly
LTSFAR	Red solar flashing assembly

Added the following new construction sign cells:

M4.8	Detour
W5.1	Road Narrows (Words)

16. Added the latest manual revision notes.

February, 2013

1. Revised standard file folder locations throughout document to reference new locations used on Windows 7 systems.
2. Updated table of contents.
3. Under **Standard Parameters**, removed reference to obsolete cross section dgnlib file.
4. Under **Standard Office Templates**, the following changes have been made:

   Revised all template names and extensions to reflect expanded names and conversion to Office 2010 file formats.

   Under **TDOT Letters**, added new approved letterhead templates for various Design offices and new form templates **Green Sheet Certification Letter** and **Request For Review Of Pavement Design**.

   Under **TDOT 2nd Sheets**, deleted obsolete templates IB_ToBePrintedwithPlans_English.dot**,** IB_ToBePrintedwithPlans_Metric.dot and ProjectData.xlt

   Under **TDOT Tabulated Quantities**, added new Excel templates **Slab Bridge.xltx** & **Slab Culvert.xltx**

   Under **Survey**, added new approved letterhead templates for various Survey offices and deleted obsolete template Opinion Survey Modified.dotm which is not currently required.
5. Under **Standard Plot Control Files**, the following changes have been made:

   Renamed sub-sections as **Iplot & InterPlot Organizer** and **MicroStation Print & Print Organizer**.

   Under Iplot & InterPlot Organizer, reference to old PDF Composer tool was removed.

   Under Iplot & InterPlot Organizer, added new settings files **Pdf254English*Ful.set** and **Pdf254Metric*Ful.set** to facilitate the production of full size PDF documents from older project plan sheets. Also added a note to all Pdf254* settings files specifying that they are only for projects developed prior to January 2006.

   Under MicroStation Print & Print Organizer, revised extensions of all files to be **pltcfg** to reflect that they are now plot configuration files.
6. Under **Standard Color Table - STDCOLOR.TBL**, added new colors 69, 70 and 71 which are used in the new T.D.O.T. logo.
7. Under **Standard Text Styles - TDOTmain.dgnlib**, revised text concerning the base scale of defined text styles to indicate that Signalization text styles are now at a scale of 20 while others are set at a 50 scale.

8. Under **Standard Line Styles - TDOTLINE.RSC**, the following changes have been made::

   Re-wrote text concerning control of the appearance of custom line styles to reflect recommended functions accessed through the TDOT drop down menu or D&C Manager.

   Removed reference to obsolete program ChangeLinestyleScale.mvba which is now covered by MicroStation's custom line style control functions.

   Added the following new linestyles:

BIKE PEDESTRIAN SAFETY RAIL	Prop. bike/pedestrian safety rail for use along shared use paths
PVMT MRK 3-9 W 12"	Pavement marking stripe style for white 12" wide stripe with 3' dash and 9' gaps
PVMT MRK SOL Y 8"	Pavement marking stripe style for solid yellow 8" wide stripe
ROCK WALL FACE	Existing rock wall with alignment along the face
SIDE DRAIN 15" PROP	Prop. 15" side drain
ST SEWER 12" PROP CMP	Prop. 12" storm sewer corrugated metal pipe
ST SEWER 15" PROP CMP	Prop. 15" storm sewer corrugated metal pipe
ST SEWER 18" PROP CMP	Prop. 18" storm sewer corrugated metal pipe
ST SEWER 24" PROP CMP	Prop. 24" storm sewer corrugated metal pipe
ST SEWER 30" PROP CMP	Prop. 30" storm sewer corrugated metal pipe
ST SEWER 36" PROP CMP	Prop. 36" storm sewer corrugated metal pipe
ST SEWERM 300 PROP CMP	Prop. 300 mm storm sewer corrugated metal pipe
ST SEWERM 375 PROP CMP	Prop. 375 mm storm sewer corrugated metal pipe
ST SEWERM 450 PROP CMP	Prop. 450 mm storm sewer corrugated metal pipe
ST SEWERM 600 PROP CMP	Prop. 600 mm storm sewer corrugated metal pipe
ST SEWERM 750 PROP CMP	Prop. 750 mm storm sewer corrugated metal pipe
ST SEWERM 900 PROP CMP	Prop. 900 mm storm sewer corrugated metal pipe
ST SEWER 12" PROP UNSPECIFIED	Prop. 12" storm sewer, unspecified pipe type
ST SEWER 15" PROP UNSPECIFIED	Prop. 15" storm sewer, unspecified pipe type

9. Renamed section Standard MicroStation Macros as **Standard MicroStation Visual Basic Applications** and removed MicroStation Basic Macro section and all programs previously listed there.

10. Under **Standard MicroStation Visual Basic Applications**, the following changes have been made:

    Added new program **CellTools.mvba** with description to replace functionality from obsolete MicroStation Mdl program Cell Tools.

Added the following new programs with descriptions to replace obsolete MicroStation Basic macro programs:

DrawBoxPlan.mvba
DrawBoxProfile.mvba
DrawSlabProfile.mvba
DrawPipeProfile.mvba
DrawTypeAEndwall.mvba
DrawTypeLEndwall.mvba
DrawTypeSDEndwall.mvba
DrawTypeSTEndwall.mvba
DrawVehicleTrajectoryPath.mvba
Generate2Dfrom3DTop.mvba
IplotSet.mvba
mfc2dtm.mvba
MoveRasterbyDatumAdjust.mvba

Revised the descriptions of the following programs to reflect changes to their functionality:

BatchTextEditor.mvba
DrainageProfileCells.mvba
DrawTypeUEndwall.mvba
LabelEPSCStormWaterOutfalls.mvba
SetTextParametersAS.mvba
V8_Import.mvba
VA_Labeler.mvba
VerticalCurveDesign.mvba

Deleted obsolete program ChangeLinestyleScale.mvba which is now covered by MicroStation's custom line style control functions.

11. Under **Standard TDOT Roadway Design Division Interface**, replaced old interface file and description with new MicroStation V8i dgnlib file **tdot.dgnlib** for interface settings.
12. Under **Standard MicroStation Level Mapping Files**, revised text with minor changes to clarify current use of level mapping files.
13. Under **Standard MicroStation Image Files**, added new image file **Phase Stamp - P S & E Review.jpg** for application as a watermark on PDF plan sets using Adobe Acrobat. Also revised name of Construction Field Review image to be Constructability Field Review as described in Design Guidelines IB 13-2.
14. Under **Standard Aerial Survey Files,** removed obsolete standard analog camera file Camera.
15. Under **Standard AutoTrack Design Vehicle Library,** revised text to reflect that the design vehicle library now also includes design vehicles from the 2011 edition of the AASHTO Geometric Design of Highways and Streets.

16. Under **Standard Geopak Files,** the following changes have been made:

Under **Vertical Alignment Curve "K" Value Design Tables**

Removed obsolete K value file TDOT.kvl which was based on RD standards which are no longer used.

Under **Drainage Files**

Added new default drainage project preference file, **TDOTdrainageprefs.dpf.**

Under **Drainage Report Format Files**

Deleted non-FULL drainage report files which are no longer used.

Renamed the culvert drainage report file as **TDOTculvertsFULL.drf** since it now includes all drainage data items.

Under **Typical Sections and Criteria Files**

Added the following new criteria files not used directly by the typical sections:

Case2slopesToWall.x	Case II Variable Slopes which extends to a "Wall" which has been created in a previous run
MedianRaisedGrass8to1NoCurb.x	Raised Grass Median w/8:1 slope & w/o curbs
PvtDriveProfileUrbanTypeACurb.x	Private Drive Profiles - Urban Roadways w/type A detached curb
SlopeButtress1.5.x	Fill Slope Buttress - 1.5.1 buttress slope based on top of buttress elevation
SubgradeIntercept.x	Wedge Subgrade Closure at Ditch Slope

Under **3PC Files for D&C Manager**

Added the following new 3PC program files:

PipeEndwall_Computation.x	Reads a D&C Manager set & then pulls the quantities for concrete, reinforcing steel and structural steel from pipe endwall graphics that had that data written to them as adhoc information when they were created and reports the quantity back to D&C Manager. This is set up specifically for preliminary quantity estimates.
PipeEndwall_ComputationMetric.x	Metric version of PipeEndwall_Computation.x.
SlottedDrains_Computation.x	Reads a D&C Manager set & then counts the slotted drain cells and reports the linear feet quantity back to D&C Manager.
SlottedDrains_ComputationMetric.x	Metric version of SlottedDrains_Computation.x.

Added new section **Corridor Modeling Files** which includes the following files which have been developed for use with the Geopak V8i Roadway Designer tool in Corridor Modeling. They are set up for use in developing display models of proposed designs for presentations at public hearings or other meetings.

TDOTDefault.itl	Roadway template library with roadway templates and other component features
TDOT_Styles.ddb	Data base file for use with roadway template library TDOTDefault.itl with display items used by our templates.

Included with this new section is a listing of all templates and components that are defined in the library file TDOTDefault.itl. These are broken down into sub-categories as they appear in the library: **Templates, End Conditions, Components - Pavements, Components - Shoulders, Components - Curb Gutter and Sidewalk, Components - Medians, Components - Walls and Barriers**.

17. Under **Standard Level Filters - TDOTmain.dgnlib**, made the following changes.

    Added following new level filters for use on Erosion Prevention and Sediment Control sheets.

    Sheets - EPSC Clearing and Grubbing

    Sheets - EPSC Intermediate Grading

    Sheets - EPSC Final Construction

    Added following new level filters for use by Survey when checking their work

    Survey - Drainage - Topo Control

    Survey - DTM - Topo Control

    Survey - Field Topo

    Survey - Profile - Topo Control

    Deleted obsolete level filters Sheets - Erosion Control and Sheets - Erosion Control - References.

18. Under **Sheet Level Structure Summary and Cross Reference - TDOTmain.dgnlib** and **Standard Levels and Element Parameters - TDOTmain.dgnlib**, added the following new levels for proposed roadway model production.

    DESIGN - MODEL - Aggregate

    DESIGN - MODEL - Asphalt

    DESIGN - MODEL - Concrete

    DESIGN - MODEL - Grass

    DESIGN - MODEL - Rip-Rap

    DESIGN - MODEL - Truck Apron Pavers

Also under Sheet Level Structure Summary and Cross Reference - TDOTmain.dgnlib, deleted obsolete sheet Erosion Control and added new sheets **EPSC Clear. & Grub., EPSC Int. Grading** and **EPSC Final Const**.

Also under Standard Levels and Element Parameters - TDOTmain.dgnlib, revised level **DESIGN - PROFILE - Drainage - Bridges Drains and Ditches** to specify a weight of 6 for bridges, culverts and pipes to improve the visibility of proposed drainage structures on profiles.

19. Under **Standard Cell Library Index**, made the following changes.

In **STDS.cel** & **METRIC.cel:**

Renamed Erosion Control cell group as **Erosion Prevention and Sediment Control**.

Added a new EPSC legend cell **HVFL** for line style FENCE HIGH VISIBILTY since it is now often used to mark sensitive buffer zones on EPSC plans sheets.

Added new plan phase stamp cell **SPPSER** for P. S. & E. Review.

Added the following new traffic low diagram cells for semi-direct interchanges

TMINTSD	Semi-direct Interchange both sides
TMINTSDL	Semi-direct Interchange left side only
TMINTSDR	Semi-direct Interchange right side only

Added the following new sheet title block cells:

STB15	Natural Stream Design Plan
STB17	Natural Stream Design Plan Sta. to Sta. Scale
STB18	Environmental Mitigation Plan
STB24	Interchange Grading Plan

The following cells were added in conjunction with the adoption of the 2009 M.U.T.C.D. standards:

PVALRED	Lane Reduction Pavement Marking Arrow
PVBXING	Bike Crossing Pavement Marking
PVBSHARE	Bike Symbol with Arrow Pavement Marking
PVSASU	Stop Ahead Pavement Marking for shared use path
150A4H	Signal Head

Deleted the following obsolete cells:

FILERM	TLGO
130A2L	130A2R

In **STDS.cel** only:

Added the following new Geopak drainage node cells:

SLOT12	Slotted Drain 12” Diameter, 20’ Length

SLOT15	Slotted Drain 15” Diameter, 20’ Length
SLOT18	Slotted Drain 18” Diameter, 20’ Length
SLOT24	Slotted Drain 24” Diameter, 20’ Length
SLOT30	Slotted Drain 30” Diameter, 20’ Length
SLOT36	Slotted Drain 36” Diameter, 20’ Length

In **SIGN.cel:**

Added the following new sidewalk construction signs as shown on new standard drawing T-WZ-55.

R9.9	Sidewalk Closed
R9.10	Sidewalk Closed Use Other Side
R9.11L	Sidewalk Closed Ahead Cross Here (Left Arrow)
R9.11R	Sidewalk Closed Ahead Cross Here (Right Arrow)

The following cell changes were made in conjunction with the adoption of the 2009 M.U.T.C.D. standards and changes to our standard roadway drawings:

The following sign cells have been renamed to reflect the newer sign designations:

Old Cell Name	New Cell Name	Old Cell Name	New Cell Name
D5.5AM	**D5.5M**	**R8.3A**	**R8.3**
I.5A	**M6.1LA**	**RL.100**	**R5.068**
M4.6M	**M4.14**	**S4.2**	**S4.2P**
M4.12	**M4.6B**	**S4.3**	**S4.3P**
M7.1L	**M6.1LB**	**W7.2B**	**W7.2BP**
M7.1R	**M6.1RB**	**W7.3**	**W7.3P**
M7.5	**M6.4B**	**W7.3A**	**W7.3AP**
OM.3L	**OM3.L**	**W7.3B**	**W7.3BP**
OM.3R	**OM3.R**	**W8.9AM**	**W8.17ASSEMBLY**
R1.4	**R1.3P**	**W9.3A**	**W9.3M**
R2.4	**R2.4P**	**W13.1**	**W13.1P**
R3.5B	**R3.5BP**	**W13.1C**	**W13.1PC**
R3.5F	**R3.5FP**	**W16.1**	**W16.1P**
TN.46	**R3.11P**	**W16.2**	**W16.2P**
R3.15A	**R3.15B**	**W16.2C**	**W16.2PC**
R3.17A	**R3.17AP**	**W20.7A**	**W20.7**
R3.17B	**R3.17BP**	**W21.1A**	**W21.1**

Added the following new sign cells:

M6.1RA	Airport Directional Arrow Right
M6.2AL	Directional Arrow 45 degrees down Left
M6.2AR	Directional Arrow 45 degrees down Right
R2.1_7	Speed Limit 70
R3.10	HOV 2+ Only 2 Or More Persons Per Vehicle
R3.10M	No Trucks 3 Or More Axles 7AM - 9AM Mon-Fri
R3.110M2	No Trucks 3 Or More Axles 4PM - 6PM Mon-Fri
R3.10A	Inherently Low Emission Vehicles Allowed
R3.11A	HOV 2+ Only 7AM - 9AM Mon-Fri
R3.11A2	HOV 2+ Only 4PM - 6PM Mon-Fri
R3.11PM	7AM - 9AM Mon-Fri
R3.11PM2	4PM - 6PM Mon-Fri
R3.12BM	HOV Lane Ahead 1 Mile
R3.12C	HOV Restriction Ends
R3.12D	HOV Restriction Ends ½ Mile
R3.12E	HOV 2+ Only ½ Mile
R3.13A	HOV 2+ Only 2 Or More Persons Per Vehicle 7AM - 9AM Mon-Fri
R3.13A2	HOV 2+ Only 2 Or More Persons Per Vehicle 4PM - 6PM Mon-Fri
R3.14	HOV 2+ Only 7AM - 9AM Mon-Fri
R3.14N	HOV 2+ Only 4PM - 6PM Mon-Fri
R3.15_2	HOV 2+ Lane ½ Mile
R3.15A	HOV 2+ Begins 1 Mile
R3.15C	HOV Restriction Ends
R10.3BL	Pedestrian Crossing Info - Push Button Left
R10.3BR	Pedestrian Crossing Info - Push Button Right
R10.3EL	Pedestrian Crossing Info - Push Button Left
R10.3ER	Pedestrian Crossing Info - Push Button Right
R10.5	Left On Green Arrow Only
R15.2P	_ Tracks
TN.1	Tennessee State Line (for state route)
TN.2	_____ Co (for state route)
TN.3	_____ City Limit (for state route)
TN.4	_____ Unincorporated (for state route)
TN.5	_____ Creek (for state route)
W7.3APC	Next _ Mile_ (Construction)

W8.9	Low Shoulder
W9.3	Center Lane Closed Ahead
W16.2PS	___ Feet (Schools Supplemental Plaque)
W16.7PS	Directional Arrow Down (Schools Supplemental Plaque)
W16.9PS	Ahead (Schools Supplemental Plaque)

Deleted the following obsolete sign cells:

R1.3	R3.11AM	R3.11AM2	R3.11AM3	R3.11AM4
R3.12A	R3.12M	R3.14M	R3.14M2	R4.6
W8.9A				

20. Added the latest manual revision notes. Deleted old revision notes posted May 2011.