

**Tennessee Department
of Transportation**

Survey & 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 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 libraries **TDOTmain.dgnlib** & **TDOTxsection.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 Design files.

.CEL	Cell Library
.DGN	Project Graphics Design File.
.SHT	Project Sheet Graphics Design File
.DGNLIB	DGN Level & Text Style Library 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

Design DGN Project Filenames

The project's 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 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)

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)

roadwayXSections 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

roadwayXSections 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

roadwayCulvertXSections Culvert Cross Section sheets.
Example: SR155CulvertXSections.SHT

Number	County	Number	County		
1	AN	Anderson	49	LD	Lauderdale
2	BD	Bedford	50	LW	Lawrence
3	BN	Benton	51	LE	Lewis
4	BS	Bledsoe	52	LI	Lincoln
5	BT	Blount	53	LO	Loudon
6	BR	Bradley	54	MM	McMinn
7	CM	Campbell	55	MN	McNairy
8	CN	Cannon	56	MC	Macon
9	CA	Carroll	57	MD	Madison
10	CR	Carter	58	MA	Marion
11	CT	Cheatham	59	MS	Marshall
12	CH	Chester	60	MU	Maury
13	CB	Claiborne	61	ME	Meigs
14	CL	Clay	62	MR	Monroe
15	CO	Cocke	63	MT	Montgomery
16	CF	Coffee	64	MO	Moore
17	CK	Crockett	65	MG	Morgan
18	CU	Cumberland	66	OB	Obion
19	DV	Davidson	67	OV	Overton
20	DE	Decatur	68	PE	Perry
21	DK	DeKalb	69	PI	Pickett
22	DS	Dickson	70	PO	Polk
23	DY	Dyer	71	PU	Putnam
24	FA	Fayette	72	RH	Rhea
25	FE	Fentress	73	RO	Roane
26	FR	Franklin	74	RB	Robertson
27	GB	Gibson	75	RF	Rutherford
28	GI	Giles	76	SC	Scott
29	GG	Grainger	77	SQ	Sequatchie
30	GR	Greene	78	SE	Sevier
31	GD	Grundy	79	SH	Shelby
32	HB	Hamblen	80	SM	Smith
33	HT	Hamilton	81	ST	Stewart
34	HC	Hancock	82	SL	Sullivan
35	HM	Hardeman	83	SU	Sumner
36	HD	Hardin	84	TI	Tipton
37	HK	Hawkins	85	TR	Trousdale
38	HW	Haywood	86	UC	Unicoi
39	HS	Henderson	87	UN	Union
40	HY	Henry	88	VB	Van Buren
41	HI	Hickman	89	WR	Warren
42	HO	Houston	90	WS	Washington
43	HU	Humphreys	91	WA	Wayne
44	JK	Jackson	92	WE	Weakley
45	JF	Jefferson	93	WH	White
46	JN	Johnson	94	WM	Williamson
47	KN	Knox	95	WI	Wilson
48	LA	Lake			

Data Exchange between Survey & 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 & 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:

<u>Division</u>	<u>Prefix</u>	<u>Point Example</u>	<u>Curve Example</u>	<u>Spiral Example</u>
Survey	S	S105	SC105	SC105A
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.

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 describes 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 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 Design.
Cogo Database	*.GPK	Survey sets up initial GPK file for the project with all existing data including preliminary & existing alignments, topo, etc.

by 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, 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 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 Design personnel...

Topo Graphics	*.DGN	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 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 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 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 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 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 Design by using Geopak Cogo input files.

After Additional Information is received

by 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:\Program Files\Bentley\Workspace\System\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**

Level Names/Filters & Text Styles: **TDOTmain.dgnlib**

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:

Level Names/Filters & Text Styles: **TDOTmain.dgnlib**

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 (*.dot or *.xlt) 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 2007 and MicroStation V8

TDOT Letters

C:\Program Files\Microsoft Office\Templates\TDOT Letters

<u>Name</u>	<u>Software</u>
AdditionalSurveyRequestForm.dot	Excel
CADPlansDisclaimer.dot	Word
Const.PlansTransmittal.dot	Word
Construction Plans Revision.dotx	Word
CrashDataRequestForm.dot	Word
DesignExceptionRequest.dot	Word
EstimateRevisionRequest.xlt	Excel
EvaluationOfSurvey.dot	Word
FileNetDistributionRequest.dot	Word
FileNetDistributionRequestFieldReview.dot	Word
FileNetDistributionRequestHGApproval.dot	Word
Letterhead.dot (Blank w/State Seal letterhead)	Word
Letting Plans Revision.dotx	Word
ProjectActivityStatusSheet.dot	Word
PublicHearingNotice.dot	Word
Red Flag Report Form 6-18-10.dotx	Word
RequestForPavementDesign.dot	Word
ResurfacingSafetyReviewChecklist.dot	Word
Retaining Wall Transmittal.dot	Word
RoadwayDesignChecklist.dot (Prelim., ROW & Const. Lists)	Word
ROW Plans Revision.dotx	Word
ROWFundingApproval.dot	Word
ROWPlansTransmittal.dot	Word
SoilsRequestForm.dot	Word

TMPWorkbook.dot	Word
TrafficRequestForm.dot	Word

TDOT 2nd Sheets

C:\Program Files\Microsoft Office\Templates\TDOT 2nd Sheets

<u>Name</u>	<u>Software</u>
BridgeIndex.dot	Word
BridgeQuantities.xlt	Excel
ConvertExcelToV8.xlt	Excel
(This Excel file, contains macros for the conversion of old Excel files for use with Office 2003/2007 and MicroStation V8)	
ConvertWordToV8.dot	Excel
(This Excel file, contains macros for the conversion of old Word files for use with Office 2003/2007 and MicroStation V8)	
EnglishDropOffNotes.dot	Word
EnglishEPSCSpecialNotes.dot	Word
EnglishGeneralNotes.dot	Word
EnglishIndex&StdDwgs.dot	Word
EstimatedRoadwayQuantities.xlt	Excel
IB_ToBePrintedwithPlans_English.dot	Word
IB_ToBePrintedwithPlans_Metric.dot	Word
MaintQuantities.xlt	Excel
MetricDropOffNotes.dot	Word
MetricEPSCSpecialNotes.dot	Word
MetricGeneralNotes.dot	Word
MetricIndex&StdDwgs.dot	Word
Project Commitments.xlt	Excel
ProjectData.xlt	Excel
(1st worksheet for EstimatedRoadwayQuantities.xlt)	
ROW_Notes.dot	Word

TDOT Tabulated Quantities (English & Metric)

C:\Program Files\Microsoft Office\Templates\TDOT English Tab Quantities
and C:\Program Files\Microsoft Office\Templates\TDOT Metric Tab Quantities

<u>Name</u>	<u>Software</u>
BoxBridge.xlt	Excel
BoxCulvert.xlt	Excel
BridgeDrains.xlt	Excel
CatchBasins.xlt	Excel
CatchBasinsandManholes.xlt	Excel
ConcMedianBarrier.xlt	Excel
CrossDrainArterialsWOFullAccessControl.xlt	Excel
CrossDrainCollectors.xlt	Excel
CrossDrainFreeways.xlt	Excel
CrossDrainLocalRoads.xlt	Excel
DropInlets.xlt	Excel
EnhancedSiltFenceCheckDesignDimensions.xlt	Excel
ErosionControl.xlt	Excel
Grading1.xlt	Excel
Grading2.xlt	Excel
Guardrail.xlt	Excel
GuardrailTabBuilder.xlt	Excel
Manholes.xlt	Excel
MedianDrains.xlt	Excel
Pavement.xlt (Quantities, not a schedule block)	Excel
RemovalOfBuildings&Obstructions.xlt	Excel
RemovalOfStructures.xlt	Excel
RipRapBasins.xlt	Excel
RipRapDitches.xlt	Excel
RoadwayApproaches.xlt	Excel
ROWmarkers.xlt	Excel
Sediment.xlt	Excel
SedimentEstQty.xlt	Excel
SideDrain.xlt	Excel
SlopeRehabilitation.xlt	Excel
SpecialDitches.xlt	Excel

SpringDrains.xlt	Excel
StormDrainageEndwalls.xlt	Excel
StormDrainagePipes.xlt	Excel
StormDrainagePipeTabBuilder.xlt	Excel
StormDrainageStructureTabBuilder.xlt	Excel
TrafficControl.xlt	Excel
Trees.xlt (Tabulation for prop. wetlands)	Excel
UtilityOwners.xlt	Excel

Survey

C:\Program Files\Microsoft Office\Templates\Survey

<u>Name</u>	<u>Software</u>
Blank Weekly Progress Report.xls	Excel
Opinion Survey Modified.dot	Word
Property Owner Contact Letter - Aerial Flagging.dot	Word
Property Owner Contact Letter - Geotechnical Staking.dot	Word
Property Owner Contact Letter - ROW Staking.dot	Word
Property Owner Contact Letter - Survey.dot	Word
ROWAcqTable.xlt	Excel
ROWAcqMetric.xlt	Excel
Survey Check List_Field.dot	Word
Survey Check List_Office.dot	Word
Survey_Contact_Acq_Create.xlt	Excel
Survey_Contact_Acq_Create2003.xlt	Excel
SURVEY_SUBMITTAL_CHECK_LIST.doc	Word
SuveyContact_Avery5160_Labels.doc	Word
SuveyContact_Envelopes.doc	Word

Standard Plot Control Files

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

Iplot

C:\Program Files\Common Files\InterPlot\IPLLOT\misc
and C:\Program Files\InterPlot Client\settings

In order to produce the correct thickness for lines on plots using Iplot software, design scripts are used. The standard design scripts for Iplot 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 Design Division personnel to apply specific design scripts and to send plots to local plot queues using Iplot in MicroStation or with Interplot Organizer for batch plotting. PDF settings files can also be used with MicroStation PDF Composer by consultants who do not use Interplot Client software.

Settings files are defined with plot queue names for a given office within the 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*Haf.set	PDF.HAF	B/W half size, Interplot Organizer PDF plot sets developed from color 254 plot shapes
Pdf254Metric*Haf.set	PDFM.HAF	B/W half size, Interplot Organizer PDF plot sets developed from color 254 plot shapes
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 Clor as Black

MicroStation Print

C:\Program Files\Bentley\Workspace\System\plotdrv

In order to produce the correct thickness for lines on plots using MicroStation's Print function, 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 for MicroStation are:

For Roadway Plans Production ...

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

For Raster Image Generation ...

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

For PDF File Generation ...

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

For Standard Drawing Production **only** ...

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

Standard Line Weights\Thickness

WT=0	_____
WT=1	_____
WT=2	_____
WT=3	_____
WT=4	_____
WT=5	_____
WT=6	_____
WT=7	_____
WT=8	_____
WT=9	_____
WT=10	_____
WT=11	_____
WT=12	_____
WT=13	_____
WT=14	_____
WT=15	_____
WT=16	_____
WT=17	_____
WT=18	_____
WT=19	_____
WT=20	_____
WT=21	_____
WT=22	_____
WT=23	_____
WT=24	_____
WT=25	_____
WT=26	_____
WT=27	_____
WT=28	_____
WT=29	_____
WT=30	_____
WT=31	_____

Weight	English (in.)	Metric (mm)
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

0	0.0060	0.10
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Standard MicroStation Libraries

Type	Library File	Application
Color Table:	STDCOLOR.tbl	All 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:\Program Files\Bentley\Workspace\System\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 Design drawings.

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	TDOT Logo Dark Green	0	190	60
68	TDOT Logo Light Green	0	215	35
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:\Program Files\Bentley\Workspace\System\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 be 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 Design Division plans.

ALIGNMENT (#94) is a symbol font used by the 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 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 Iplot pen tables 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 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 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		✓	✓	⊖ ⁴	⊖	⊖	✓	✓	✓	✓	✓	✓	
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 ($^\circ$)	^ or \94	caret
plus-or-minus (\pm)	\ or \92	backslash
diameter (\varnothing)	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 <i>only</i> 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 ($^\circ$)	^ or \94	caret
plus-or-minus (\pm)	\ or \92	backslash
diameter (\varnothing)	\$ or \36	dollar

Standard Text Styles – TDOTmain.dgnlib

C:\Program Files\Bentley\Workspace\System\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. Text styles accessed through MicroStation's text tools set the basic text parameters based on a scale of 50 and the desired color. 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	Profile Drainage Pipe & Culvert - Exist.
Building - Exist.	Profile Drainage Storm Sewer - Exist.
Business - Functional	Profile Drainage Storm Sewer - Prop.
Centerline - Exist. Road	Profile Existing Road
Centerline - Prelim.	Profile Ground Line
Centerline - Prop.	Profile Project Info - Exist.
Centerline Curve - Exist. Road	Profile Project Info Name - Exist.
Centerline Curve - Prelim.	Profile Survey Control
Centerline Curve - Prop.	Profile Utilities Cable – Exist.
Drainage - Natural	Profile Utilities Electric - Exist.
Drainage - Prop.	Profile Utilities Gas - Exist.
Drainage Area Shape - Exist.	Profile Utilities OH - Exist.
Drainage Br. & Cross Drain Size Prop.	Profile Utilities Sanitary Sewer - Exist.
Drainage Br. Deck - Exist.	Profile Utilities Telephone - Exist.
Drainage Br. Hydraulic Data - Exist.	Profile Utilities Water - Exist.
Drainage Bridge - Exist.	Project Info - Exist.
Drainage Pipe & Culvert - Exist.	Project Limits
Drainage Storm Sewer - Exist.	Property Line - Exist.
Easement - Exist.	Property Marker - Exist.
Erosion Control	Property Owner
Guardrail - Exist.	Property Tract/Parcel Number
Guardrail - Prop.	Railroad - Exist.
Lighting - Prop.	Roads - Exist
Non-Transportation - Exist.	Roads - Functional
Pavement Marking - Exist.	Roads - Prop.
Pavement Marking - Prop.	Roadside Barriers - Exist.
Political Boundary	Roadside Barriers - Prop.
Profile - Prop.	ROW & Easements - Prop.
Profile Curve - Prop.	ROW - Exist.
Profile Drainage - Natural	ROW - Functional
Profile Drainage - Prop.	ROW Bearing & Distance - Prop.
Profile Drainage Bridge - Exist.	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:\Program Files\Bentley\Workspace\System\symb

This file contains custom line styles used by the 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 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 key in **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. In Geopak's D&C manager go to the drop down option *Settings>Design*.
3. Use whatever element placement tool needed and appearance will be as desired.

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

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 bar under *Custom Line Styles* pick tool *Change Line Style Scale*. In the tool's dialog enter the desired scale.
Or key in **CHANGE LINestyle SCALE** (new 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. On the *Change Attributes* tool box get the *Modify Linestyle* command. Set the tool settings bar to *Shift*.
2. Identify element with a data point and then move cursor left or right to shift symbols.
3. Data point to accept new location.

NOTE: You can also access this through the keyin... **MODIFY LINestyle SHIFT** or from the TDOT drop down menu bar under *Custom Line Styles*.

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. On the *B Spline Modify Curves* tool box get the *Change Element Direction* command.
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: You can also access this through the keyin... **CHANGE DIRECTION** or from the TDOT drop down menu bar under *Custom Line Styles*. 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	14"ST LINE	20"SUE WATER LINE
1"GAS LINE	14"SUE GAS LINE	20"WATER LINE
1"GAS LINE PROP	14"SUE SA LINE	20"WATER LINE PROP
1"SUE GAS LINE	14"SUE WATER LINE	22"FMS LINE
1"SUE WATER LINE	14"WATER LINE	22"FMS LINE PROP
1"WATER LINE	14"WATER LINE PROP	20"GAS LINE
1"WATER LINE PROP	15"GAS LINE	20"GAS LINE PROP
1-1/2"GAS LINE	15"GAS LINE PROP	22"SA LINE
1-1/2"GAS LINE PROP	15"SA LINE	22"SA LINE PROP
1-1/2"WATER LINE	15"SA LINE PROP	22"ST LINE
1-1/2"WATER LINE PROP	15"ST LINE	22"SUE GAS LINE
1-1/4"GAS LINE	15"SUE GAS LINE	22"SUE SA LINE
1-1/4"GAS LINE PROP	15"SUE SA LINE	22"SUE WATER LINE
1-1/4"SUE GAS LINE	15"SUE WATER LINE	22"WATER LINE
1-1/4"SUE WATER LINE	15"WATER LINE	22"WATER LINE PROP
1-1/4"WATER LINE	15"WATER LINE PROP	24"FMS LINE
1-1/4"WATER LINE PROP	16"FMS LINE	24"FMS LINE PROP
1/2"GAS LINE	16"FMS LINE PROP	24"GAS LINE
1/2"GAS LINE PROP	16"GAS LINE	24"GAS LINE PROP
1/2"SUE GAS LINE	16"GAS LINE PROP	24"SA LINE
1/2"SUE WATER LINE	16"SA LINE	24"SA LINE PROP
1/2"WATER LINE	16"SA LINE PROP	24"ST LINE
1/2"WATER LINE PROP	16"ST LINE	24"SUE GAS LINE
10"FMS LINE	16"SUE GAS LINE	24"SUE SA LINE
10"FMS LINE PROP	16"SUE SA LINE	24"SUE WATER LINE
10"GAS LINE	16"SUE WATER LINE	24"WATER LINE
10"GAS LINE PROP	16"WATER LINE	24"WATER LINE PROP
10"SA LINE	16"WATER LINE PROP	26"FMS LINE
10"SA LINE PROP	18"FMS LINE	26"FMS LINE PROP
10"ST LINE	18"FMS LINE PROP	26"GAS LINE
10"SUE GAS LINE	18"SA LINE	26"GAS LINE PROP
10"SUE SA LINE	18"SA LINE PROP	26"SA LINE
10"SUE WATER LINE	18"ST LINE	26"SA LINE PROP
10"WATER LINE	18"SUE GAS LINE	26"WATER LINE
10"WATER LINE PROP	18"SUE SA LINE	26"WATER LINE PROP
12"FMS LINE	18"SUE WATER LINE	27"SA LINE
12"FMS LINE PROP	18"WATER LINE	27"SA LINE PROP
12"GAS LINE	18"WATER LINE PROP	27"ST LINE
12"GAS LINE PROP	2"FMS LINE	27"SUE GAS LINE
12"SA LINE	2"FMS LINE PROP	27"SUE SA LINE
12"SA LINE PROP	2"GAS LINE	27"SUE WATER LINE
12"ST LINE	2"GAS LINE PROP	27"WATER LINE
12"SUE GAS LINE	2"SUE GAS LINE	27"WATER LINE PROP
12"SUE SA LINE	2"SUE WATER LINE	28"FMS LINE
12"SUE WATER LINE	2"WATER LINE	28"FMS LINE PROP
12"WATER LINE	2"WATER LINE PROP	28"SA LINE
12"WATER LINE PROP	20"FMS LINE	28"SA LINE PROP
14"FMS LINE	20"FMS LINE PROP	3"GAS LINE
14"FMS LINE PROP	20"SA LINE	3"GAS LINE PROP
14"GAS LINE	20"SA LINE PROP	3"SUE GAS LINE
14"GAS LINE PROP	20"ST LINE	3"SUE WATER LINE
14"SA LINE	20"SUE GAS LINE	3"WATER LINE
14"SA LINE PROP	20"SUE SA LINE	3"WATER LINE PROP

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

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

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

Standard MicroStation Macros

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 button for MicroStation's Cell Tools for special placement options 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 Design Division Toolbox** is another alternate way to access most of the most commonly used tools. See PDF documentation file [TDOTDesignDivisionPrograms.pdf](#) for complete workflows and methods of use for these programs.

Visual Basic Applications

C:\Program Files\Bentley\Workspace\System\vba

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. This program is set up specifically to fix old Aerial Survey project design files converted to V8.

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 break lines 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 V8, 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 breaklines. The program allows processing of multiple files.

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 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. Match Case and Edit Text in Cells is enabled. 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.

CenterlineCells.mvba Access centerline cells.

ChangeLinestyleScale.mvba This program is used to change the line style scale on existing lines that have a custom line style applied on them. The current active scale is read at program start up and is shown in a keyin field. This value which can be set as needed by the user is used to build the keyin to change the line style scale. After setting the scale desired the user can immediately apply by identifying an element or accepting the fence contents if a fence is active. Active selection sets are automatically updated to the new scale. A command button is provided to restart the command with the current specified scale after using other MicroStation commands.

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 access to programs to place box culverts or bridges, slab culverts or bridges and pipes.
- 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.
- DrawHandicapRamp.mvba** This program draws proposed handicap 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 handicap 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 minimum of 8 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 Handicap 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 handicap ramp dimensions, etc. For placements along the roadway, at concrete islands, concrete medians, splitter islands or bicycle ramps the 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 handicap 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 handicap 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.

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.

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.

- DrawTypeUEndwall.mvba** Draws proposed Type U pipe endwalls in the plan view (based on std dwg D-PE-3B,4,4B & 6B) 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. Tabulated endwall information including quantities is written to file EndwallTabulation.csv.
- 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.
- 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 keypoints 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.
- 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 part 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.
- 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.
- 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.

- 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.
- 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 those 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 and line length is set to 255. 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 Handicap 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.
- SlopeCalclater.mvba** Calculates 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.
- 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.
- 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. Options are provided for the use of either RD or RD01 vertical curve design standards which are read from the text file VALabel_Speed_kv1.txt.
- V8_Import.mvba** This program is used to delete old level filters and import new V8 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 V8 levels & V8 filters, V8 text styles, attach the V8 color table and to reset English working units to survey feet.

- 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.

MicroStation Basic Macros

C:\Program Files\Bentley\Workspace\System\macros

- drawAEWplan.ba** Draws proposed Type A pipe endwalls in the plan view (based on std dwg D-PE-1) given 2 user defined points to define the pipe angle and values for pipe size, skew, skew direction and type. Tabulated endwall information including quantities is written to file EndwallTabulation.csv
- drawboxplan.ba** Draws proposed Box Culvert or Bridge in the plan view given 2 user defined points for begin & end and values for barrels, skew and wing walls.
- drawboxprofile.ba** Draws proposed Box Culvert or Bridge in the profile view given a user defined center flow line point and values for barrels, skew and thickness.
- drawEXboxprofile.ba** Draws existing Box Culvert in the profile view given a user defined center flow line point and values for barrels, skew and thickness.
- drawEXpipeprofile.ba** Draws existing Pipe in the profile view given a user defined center flow line point and values for size and skew.

drawEXslabprofile.ba	Draws existing Slab Culvert in the profile view given a user defined center flow line point and values for barrels, skew and thickness.
drawLEWplan.ba	Draws proposed Type L pipe endwalls in the plan view (based on std dwg D-PE-4) given 2 user defined points to define the pipe angle and values for pipe size, number of barrels, skew, skew direction, side for wing wall and type. Tabulated endwall information including quantities is written to file EndwallTabulation.csv.
drawpipeprofile.ba	Draws proposed Pipe in the profile view given a user defined center flow line point and values for size and skew.
drawSDEWplan.ba	Draws proposed Type SD pipe endwalls in the plan view (based on std dwg D-SEW-6DA & 12D) given 2 user defined points to define the pipe angle and values for pipe size and side slope. Tabulated endwall information including quantities is written to EndwallTabulation.csv.
drawslabprofile.ba	Draws proposed Slab Culvert or Bridge in the profile view given a user defined center flow line point and values for barrels, skew and thickness.
drawSTEWplan.ba	Draws proposed Type Straight pipe endwalls in the plan view (based on std dwg D-PE-4) given 2 user defined points to define the pipe angle and values for pipe size, number of barrels, skew, skew direction and type. Tabulated endwall information including quantities is written to file EndwallTabulation.csv.
iplotset.ba	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 to Iplot's settings file directory. Once the file is chosen the macro deletes the existing iplot.set, copies the new file to iplot.set. The macro displays an error message if plot.exe is not found in C:\Program Files\Common Files\InterPlot\IPLOT\bin.
mfc2dtm.ba	Aerial Survey program used to convert planimetric data to DTM specifications. Program should only be used on a copy of the original mfc file.
moveraster.ba	Moves a raster file by a user given datum adjustment factor and has the option to move it back by the adjustment factor. Raster file must be highlighted in Raster Manager. The macro reads, saves and updates the datum adjustment factor used in a text file in the folder with the design file. The macro will display an error message if the datum adjustment factor is not within the values used in Tennessee
traject.ba	Used to draw a vehicle trajectory path to help determine the point of need for guardrail.

Standard TDOT Design Division Interface

MicroStation Interface

C:\Program Files\Bentley\Workspace\Interfaces\MicroStation\TDOT

ustn.m01

MicroStation project interface file provided to access Design Division macros as well as some commonly used MicroStation functions in a TDOT drop down menu from the main MicroStation menu bar.

Also includes the following additions:

Window Center on 2D View Control tool box

Construct Parabolic Fillet on Modify tool box

Graphic Group Lock Toggle on Dimensioning tool box

Iplot & Interplot Organizer on Standard tool box

Interplot Organizer on the File drop down menu.

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

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

MicroStation Configuration Variables

C:\Program Files\Bentley\Program\MicroStation\config\appl

TDOT.cfg

MicroStation configuration variable file used to assign standard folder locations and other configurations for MicroStation, Geopak and other software used in MicroStation.

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 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:\Program Files\Bentley\Workspace\System\data

TDOTV8main.csv	Main level mapping file which includes all plan 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 V8 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:\Program Files\Bentley\Workspace\System\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 V8. Cross section DGN files should not be converted in this way since the wrong level names will be applied.
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Standard MicroStation Image Files

C:\Program Files\Bentley\Workspace\System\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 - Construction Field Review.jpg**
- Phase Stamp - For Incidentals Only.jpg**
- Phase Stamp - For Title Search Only.jpg**
- Phase Stamp - Hydraulic Grade Approval.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**

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. 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	File used for calibration of Wild RC30 aerial photography camera.
camera UCX April 09	File used for calibration of the Microsoft/Vexcel UCX large format digital aerial photography camera.

Standard AutoTrack Design Vehicle Library

C:\Program Files\AutoTrack\Library

AutoTrack software is used by 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 versions). This library only contains design vehicles applicable for use in Tennessee.
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Standard Geopak Files

C:\Program Files\GeopakStandards\

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.
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.
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DTM/TIN Graphic Displays

tdotEXIST.lpf	Used in conjunction with the <i>Load DTM Features</i> 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 <i>Plan View Labeler</i> to place standard labels.
tdotdef_prof.lsf	Used with the <i>Profile Labeler</i> to place standard labels.
tdotdef_xs.lsf	Used with the <i>Cross Section Labeler</i> to place standard labels.
tdotdef_drainage.lsf	Used with the <i>Drainage Labeler</i> 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

tdot.kvl	Used in conjunction with <i>Profile Generator</i> to design vertical curves based on “K” values and the design speed in miles per hour. This table uses values from the RD standard roadway drawings.
tdot01.kvl	Used in conjunction with <i>Profile Generator</i> 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 <i>Profile Generator</i> 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 <i>VA Labeler</i> , a MicroStation vba program used to annotate vertical alignments, to determine design speeds. Also used by MicroStation vba program, <i>Vertical Curve Design Tool</i> , to determine design speeds or K values. This file includes K values and speeds from RD & RDO1 standard roadway drawings for English & Metric 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_I.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_1_metric.csv Metric transition lengths based on the number of lanes, superelevation rate and design speed.

To use these 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*.

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 Generator* to create *csv* formatted files for import into Excel quantity tabulation blocks.

- | | |
|--------------------------|--|
| TDOTnodes.drf | Data for drainage nodes (catch basins, manholes, junction boxes) Includes limited listing of data used for manual tabulation in Excel. |
| TDOTnodesFULL.drf | Data for drainage nodes (catch basins, manholes, junction boxes) Includes full listing of data used by auto-build Excel template for tabulation. |
| TDOTlinks.drf | Data for drainage links (storm sewer pipes & boxes) Includes limited listing of data used for manual tabulation in Excel. |
| TDOTlinksFULL.drf | Data for drainage links (storm sewer pipes & boxes) Includes full listing of data used by auto-build Excel template for tabulation. |
| TDOTculverts.drf | Data for drainage culverts (crossdrains & sidedrains) |

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:\Program Files\GeopakStandards\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 TDOT 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 it's 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:\Program Files\GeopakStandards\criteria**.

Roadway Typical Sections:

<u>Name</u>	<u>Description</u>
1LNRMP	1 Lane Interchange Ramp
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
RADIU	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
ROUNDAABOUT	Rural or Urban Roundabout
ROUNDAMP	Roundabout Intersecting Roadway

Non-Roadway Typical Sections:

<u>Name</u>	<u>Description</u>
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 Lines 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:

<u>Name</u>	<u>Description</u>
AirportSymbDef.x	Define Variables for Runway Element Symbolologies
BridgeDeck.x	Concrete Bridge Deck w/rails, sidewalk, 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
RampPavement.x	Ramp Pavement & Subgrade w/Widening
RampRightPavement.x	Ramp Right Pavement & Subgrade w/Widening
RampShoulder.x	Outside Shoulder for Ramps
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
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.

<u>Name</u>	<u>Description</u>
BarrierWall.x	Concrete Median Barrier Wall
Berm.x	Berm for application along roadway
BermInd.x	Berm for independent application
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)
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
PvtDrProfileRural.x	Private Drive Profiles - Rural Roadways
PvtDrProfileUrban.x	Private Drive Profiles - Urban Roadways
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.
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.
SimpleSideSlope.x	Simple Side Slope Tie to ground
SimpleSideSlopeRamp.x	Simple Side Slope Tie to ground for Ramps, includes subgrade tie subroutine.
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 existing 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.
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 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.

<u>Name</u>	<u>Description</u>
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
RampPavementMetric.x	Ramp Pavement & Subgrade w/Widening
RampShoulderMetric.x	Outside Shoulder for Ramps
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:\Program Files\GeopakStandards\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.

<u>Name</u>	<u>Description</u>
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”
- NumbersValues 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:

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

Typical Section general location:

<u>Along Roadway</u>	<u>At Toe of Fill</u>	<u>At Top of Cut</u>
Ditch at Toe = "N"	Ditch at Toe = "Y"	Ditch at Top = "Y"
Ditch at Top = "N"	Ditch at Top = "N"	Ditch at Toe = "N"

Shape of Special Ditch:

<u>“V” Ditch</u>	<u>Trapezoidal Flat Bottom Ditch</u>
Special Ditch Width = 0	Special Ditch Width > 0

Low Water Keyhole Placement:

<u>No Low Water Keyhole</u>	<u>Place Low Water Keyhole</u>
LW Keyhole depth = 0	LW Keyhole depth > 0

Low Water Keyhole Shape:

<u>“V” Keyhole</u>	<u>Trapezoidal Flat Bottom Keyhole</u>
LW Keyhole width = 0	LW Keyhole width > 0

Benching

Cut or Fill & Target Layer:

Rock Cut

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

Earth Cut

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

Earth Fill

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

Bench Offset & Elevation for Rock:

Single Bench at Rock

One Bench at Rock = "Y"
Repeating Bench = "N"
Bench Elevations = 0
Slope to Bench Value

Repeating Bench

Repeating Bench = "Y"
One Bench at Rock = "N"
Bench Elevations = 0
Slope to Bench Value
Bench Height Value

Bench at Specific Elevations

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

Geometry at Top of Rock:

Slope to Ground only

Bench at Rock Top = "N"
Trace at Rock Top = "N"

Bench at Rock Top

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

Trace at Rock Top

Trace at Rock Top = "Y"
Bench at Rock Top = "N"
Width at Rock Top Value

Bench Offset & Elevation for Earth:

Repeating Bench

Repeating Bench = "Y"
Bench Elevations = 0
Slope to Bench Value
Bench Height Value

Bench at Specific Elevations

Bench Elevations #1 - #n > 0
Repeating Bench = "N"
Slope to Bench Value

Slope to the Bench for Earth or Rock:

Vertical slope face

Slope to bench = 0

Side Slope Value is applied

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 it's 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:\Program Files\GeopakStandards\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 [TDOTDesignDivisionPrograms.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.

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 50' curve through the taper to 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 calculated and appended to a CSV file named MedianEarthBerms.csv.
- place_median_br_pier_prot.x** This application places guardrail from the beginning of the 50' curve through the taper to the terminal in the median for protection at bridge piers with 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.
- 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.

Standard Level Filters - TDOTmain.dgnlib

C:\Program Files\Bentley\Workspace\System\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 - Erosion Control	7,8,11,15,17,19-20,31-32,37,43,45,47,49-51,54-55,58,61-62, 93,125,189,257-261,275,292-300,311-313
Sheets - Erosion Control - References	7,11,15,17,19,31,37,43,45,47,49,51,54-55,58,61-62,93,125, 189,257-260,275,292-300,312-313
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
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

Level Filters – TDOTmain.dgnlib	Name or Level Group Definitions
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 - DTM	DTM - GRAPHICS - Numbers - Elevations
Survey - Non-Transportation	(SURVEY & NON) - Elevations - Numbers
Survey - Points	SURVEY & Points
Survey - Profile	SURVEY & PROFILE (Sheet - Plot)
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

Sheet Level Structure Summary & Cross Reference TDOTmain.dgnlib

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

Level Name

Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EROSION CONTROL	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAYS	UTILITIES	Level #
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	31
DESIGN - CENTERLINE - Proposed Curve Text		X														33
DESIGN - CENTERLINE - Proposed GPK Visualizations																256
DESIGN - CENTERLINE - Proposed Text	W	X	X	X		W	W	W	X	W	W			X		32
DESIGN - CONTOURS - Index with Text													X			34
DESIGN - CONTOURS - Intermediate with optional Text													X			35
DESIGN - DRAINAGE - Bridges		X	X			X	X	X	X				X	X		49
DESIGN - DRAINAGE - Bridges and Cross Drains Size Text		X	X			W	W	W								50
DESIGN - DRAINAGE - Cross Drains		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									259
DESIGN - DRAINAGE - Side Drains - less than 42 Inches				X			X									258
DESIGN - DRAINAGE - Special Ditch Width Text							X							X		366
DESIGN - DRAINAGE - Special Ditches				X		X	X									260
DESIGN - DRAINAGE - Storm Sewer				X			X	X								51
DESIGN - DRAINAGE - Structures Linework					X	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								58
DESIGN - EROSION CONTROL - Devices Text and Legends								W								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 - ROW - Bearings and Distances		O	X													270
DESIGN - ROW - Easement Linework and Patterning	W	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	45
DESIGN - ROW - Right-of-Way Markers		X	X													272
DESIGN - ROW - ROW and Easement GPK Visualizations																273

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Level Name

	P R O P E R T Y M A P	P R E S E N T L A Y O U T	R O W D E T A I L S	P R O P O S E D L A Y O U T	P R O F I L E S	P V T D R P R O F I L E S	D R A I N A G E M A P	C U L V E R T X S	E R O S I O N C O N T R O L	T R A F F I C C O N T R O L	P A V E M E N T M A R K I N G	E X I S T C O N T O U R S	P R O P C O N T O U R S	R O A D W A Y X S	U T I L I T I E S	Level #
DESIGN - ROW - Slope Lines		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							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	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	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			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												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
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

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Level Name

Level Name	P R O P E R T Y M A P	P R E S E N T L A Y O U T	R O W D E T A I L S	P R O P O S E D L A Y O U T	P R O F I L E S	P V T D R P R O F I L E S	D R A I N A G E M A P	C U L V E R T X S	E R O S I O N C O N T R O L	T R A F F I C C O N T R O L	P A V E M E N T M A R K I N G	E X I S T C O N T O U R S	P R O P C O N T O U R S	R O A D W A Y X S	U T I L I T I E S	Level #
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						X	55
DESIGN - UTILITIES - Cable (Underground) with Text									X						X	54
DESIGN - UTILITIES - Electric (Overhead) with Text									X						X	292
DESIGN - UTILITIES - Electric (Underground) with Text									X						X	293
DESIGN - UTILITIES - Electric and Cable (Overhead) with Text									X						X	312
DESIGN - UTILITIES - Electric Telephone and Cable (Overhead) with Text									X						X	313
DESIGN - UTILITIES - Fiber Optics (Overhead) with Text									X						X	294
DESIGN - UTILITIES - Fiber Optics (Underground) with Text									X						X	295
DESIGN - UTILITIES - Gas with Text									X						X	296
DESIGN - UTILITIES - Sanitary Sewer with Text									X						X	297
DESIGN - UTILITIES - Telephone (Overhead) with Text									X						X	298
DESIGN - UTILITIES - Telephone (Underground) with Text									X						X	299
DESIGN - UTILITIES - Water with Text									X						X	300
DESIGN - VEGETATION - Features with Text				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
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

Sheet Level Structure Summary & Cross Reference TDOTmain.dgnlib

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Level Name

Level Name	P R O P E R T Y M A P	P R E S E N T L A Y O U T	R O W D E T A I L S	P R O P O S E D L A Y O U T	P R O F I L E S	P V T D R P R O F I L E S	D R A I N A G E M A P	C U L V E R T X S	E R O S I O N C O N T R O L	T R A F F I C C O N T R O L	P A V E M E N T M A R K I N G	E X I S T C O N T O U R S	P R O P C O N T O U R S	R O A D W A Y X S	U T I L I T I E S	Level #
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				4
SURVEY - CONTOURS - Intermediate with optional Text							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		19
SURVEY - DRAINAGE - Bridges - Points - Elevations																87
SURVEY - DRAINAGE - Bridges - Points - Locators																88
SURVEY - DRAINAGE - Bridges - Points - Numbers																89
SURVEY - DRAINAGE - Bridges Text		X					W	W								20
SURVEY - DRAINAGE - Natural Features	X	X	X			X	X	X	X	X	X	X	X	X		17
SURVEY - DRAINAGE - Natural Features - Points - Elevations																90

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Level Name

Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EROSION CONTROL	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAYS	UTILITIES	Level #
SURVEY - DRAINAGE - Natural Features - Points - Locators																91
SURVEY - DRAINAGE - Natural Features - Points - Numbers																92
SURVEY - DRAINAGE - Natural Features Text	W	X		X			W		W	W						311
SURVEY - DRAINAGE - Pipes and Culverts		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														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
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							125

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Level Name

Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EROSION CONTROL	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAYS	UTILITIES	Level #
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								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
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

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Level Name

Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EROSION CONTROL	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAYS	UTILITIES	Level #
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	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								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
SURVEY - TRANSPORTATION - Roads	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	W	W							8
SURVEY - UTILITIES - Cable (Underground) - Points - Elevations																202

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Level Name	PROPERTY MAP	PRESENT LAYOUT	ROW DETAILS	PROPOSED LAYOUT	PROFILES	PVT DR PROFILES	DRAINAGE MAP	CULVERT XS	EROSION CONTROL	TRAFFIC CONTROL	PAVEMENT MARKING	EXIST CONTOURS	PROP CONTOURS	ROADWAYS	UTILITIES	Level #
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
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

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Level Name

	P R O P E R T Y M A P	P R E S E N T L A Y O U T	R O W D E T A I L S	P R O P O S E D L A Y O U T	P R O F I L E S	P V T D R P R O F I L E S	D R A I N A G E M A P	C U L V E R T X S	E R O S I O N C O N T R O L	T R A F F I C C O N T R O L	P A V E M E N T M A R K I N G	E X I S T C O N T O U R S	P R O P C O N T O U R S	R O A D W A Y X S	U T I L I T I E S	Level #
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														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 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						06/12/2009
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						06/12/2009
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						06/12/2009
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						06/12/2009
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 - PROFILE - Drainage - Bridges Drains and Ditches						262
Bridges (including non-drainage bridges)		3	4	0		
Pipes & box culverts (side drains & cross drains)		3	2	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		

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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
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

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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		
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		

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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		
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

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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		
DESIGN - SURFACE - Bridge Surface Construction Lines						360
For TIN surface generation from cross sections, not included on Sheets		1	4	0		
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

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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		
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		

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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		
Sidewalks		64	2	0		
DESIGN - TRANSPORTATION - Driveway Shading						9
Driveway area shading		47	0	AP		
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		

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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
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		
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

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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
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		

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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
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

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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
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

TDOTmain.dgnlib > Design						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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
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 Points		3	7	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

TDOTmain.dgnlib > Survey						06/12/2009
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 unnamed features		4	2	0		.100
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		

TDOTmain.dgnlib > Survey						06/12/2009
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
Breaklines	BL	13	0	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

TDOTmain.dgnlib > Survey						06/12/2009
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		

TDOTmain.dgnlib > Survey						06/12/2009
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	

TDOTmain.dgnlib > Survey						06/12/2009
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	1	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

TDOTmain.dgnlib > Survey						06/12/2009
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		

TDOTmain.dgnlib > Survey						06/12/2009
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

TDOTmain.dgnlib > Survey						06/12/2009
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		

TDOTmain.dgnlib > Survey						06/12/2009
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

TDOTmain.dgnlib > Survey						06/12/2009
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

TDOTmain.dgnlib > Survey						06/12/2009
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	

TDOTmain.dgnlib > Survey						06/12/2009
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		
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		
SURVEY - TRAFFIC CONTROL - Pavement Marking - Points - Numbers						184
Text		0	2	0		.080

TDOTmain.dgnlib > Survey						06/12/2009
Level Name					Level Number	
Item Description	Feature Code	CO	WT	LC	TX	
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	XPVTEXT	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

TDOTmain.dgnlib > Survey						06/12/2009
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		
Handicap curb 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		5	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	4	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:\Program Files\Bentley\Workspace\System\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 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)	CEMTOPT
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

Existing Transportation Features	Cell Name
US Route Shield, 1 or 2 digits	USRT12
US Route Shield, 3 digits	USRT3
Handicap Ramp	XHCR
Aerial Surveys Handicap 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

Miscellaneous Cells	Cell Name
CO=2 (manila)	P2
CO=3 (light blue)	P3
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

Proposed Centerlines	Cell Name
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	
<i>Origin at parapet face</i>	
Bridge Deck Drain, parapet rail inlet	BDPRPT
Bridge Deck Drain, 9"X2' grate inlet	BD9X2
<i>Origin at edge of roadway approach</i>	
Bridge End Drain, 2'X8' grate inlet	BD2X8
Bridge End Drain, 4'X8' grate inlet	BD4X8
<i>Origin at curb face, cell centered on gutter</i>	
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

Proposed Drainage	Cell Name
<i>Origin at center of median ditch, cell centered on median ditch</i>	
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
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
<i>Origin at face of median barrier, cell beside median barrier</i>	
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
<i>Origin at center of median barrier, centered on median barrier</i>	
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
<i>Origin at face of retaining wall, cell beside retaining wall</i>	
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
<i>Origin at center of structure, cell centered</i>	
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

Proposed Drainage	Cell Name
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
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 5'2" by 5'2"	JB62X62
Junction Box, pipe connection points 7' by 7'	JB7X7
Junction Box, pipe connection points 9' by 9'	JB9X9
<i>Origin at pipe connection point</i>	
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
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 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
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

Proposed Erosion Control	Cell Name
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
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	FTCURTAIL
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
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

Proposed Erosion Control	Cell Name
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

Proposed Traffic Control - Permanent	Cell Name
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	GDA
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 130A2 Left	130A2L
Type 130A2 Right	130A2R
Type 130A3 Left	130A3L
Type 130A3 Right	130A3R
Type 140A1 Left	140A1L
Type 140A1 Right	140A1R

Proposed Traffic Control - Permanent	Cell Name
Type 150A2 Left	150A2L
Type 150A2 Right	150A2R
Type 150A2V	150A2V
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
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 Rider Symbol Pavement Marking	PVBRDR
Bike Lane Bike Symbol Pavement Marking	PVBSYM
Bike Lane Words Pavement Marking	PVBWRD
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	BARLL
Barrel w/light typical section	BARLTS
Flagger	FLGR
Flagger Legend	FLGRL

Proposed Traffic Control - Temporary	Cell Name
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	FLABB L
Flashing Caution (Device Face)	FLABC
Flashing Caution Legend	FLABC L
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 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
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

Proposed Traffic Control - Temporary	Cell Name
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
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
Interchange	TMINT
Bridge	TMWB

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

Proposed Utilities	Cell Name
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
TDOT Logo With Go	TLGO
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
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 (<i>in METRIC.CEL only</i>)	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 and Sediment Control Plan - Station – Scale	STB06

Sheets	Cell Name
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
Utilities - Station - Scale	STB16
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
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
Tabulated Quantities	STB50
Tabulated Quantities & General Notes	STB51
Tabulated Quantities - sheet of	STB52
Details	STB54
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

Sheets	Cell Name
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
File Room Filing Stamp	FILERM
Title Sheet Tennessee Map Outline	TNMAP
Title Sheet Index	TSINDX
Title Sheet Project Lengths (Construction)	PROLNC
Title Sheet Project Lengths (Resurfacing)	PROTMLL
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	EQU TTL
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
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
Construction Field Review	SPCFR
Standard Drawings	Cell Name
Large Break Line	BLLG

Standard Drawings	Cell Name
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

Typical Sections	Cell Name
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 2-Lane	TS42T
RD01-TS-4 Superelevated 1-Lane	TS41S
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

Typical Sections	Cell Name
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	SSR3D
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
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
4-Lane to 2-Lane - 2-Lane Split Diagrammatic	DARRO4
3-Lane to 2-Lane - 2-Lane Split Diagrammatic	DARROW

Details	Cell Name
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
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
Shoulder Drop-Off	W8.9A
Special Sign – Low Shoulder	W8.9AM
Uneven Lanes	W8.11
Special Sign – Uneven Lanes	W8.11A
No Center Stripe	W8.12
Center Lane Closed Ahead	W9.3A
XX MPH – Supplemental Speed Advisory Plate	W13.1C
XXX Feet – Supplemental	W16.2C
Road Work Ahead	W20.1
Road Work ? FT	W20.1F
Road Work ? MI	W20.1M

Construction Signs	Cell Name
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	W20.7A
Workers Present	W21.1M
Workers Symbol	W21.1A
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

Highway Route Signs	Cell Name
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	M4.6M
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 – 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
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
4-Way	R1.3
All Way	R1.4
Speed Limit ? mph	R2.1
Speed Limit 55 mph	R2.1_5
Speed Limit 65 mph	TN.7A
Speed Limit ? Trucks ?	TN.7B
Speed Limit 55 Trucks 50	TN.7B5
Speed Limit 65 Trucks 55	TN.7C
Minimum Speed ? mph	R2.4
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	R3.5B
Right Lane – Supplemental	R3.5F
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
2 Persons Minimum 7 AM to 9 AM – Vertical	R3.11AM
2 Persons Minimum 4 PM to 6 PM – Vertical	R3.11AM2
No Trucks w/ 3 Axles 7 AM to 9 AM	R3.11AM3
No Trucks w/ 3 Axles 4 PM to 6 PM	R3.11AM4
HOV Lane Ahead – Vertical	R3.12A
HOV Lane Ends – Vertical	R3.12M
2 Persons Minimum 7 AM to 9 AM – Horizontal	R3.14M
2 Persons Minimum 4 PM to 6 PM – Horizontal	R3.14M2
HOV Lane Ahead – Horizontal	R3.15
HOV Lane Ends – Horizontal	R3.15A
Motorcycles Allowed	TN.46
Bike Lane	R3.17
Ahead – Supplemental for Bike Lane	R3.17A
Ends – Supplemental for Bike Lane	R3.17B
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
Truck Lane 500 Feet	R4.6
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

Regulatory Signs	Cell Name
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	R8.3A
Emergency Stopping Only	R8.7
Do Not Stop On Tracks	R8.8
Keep Left Right Bicycles Pedestrians	R9.7
Stop Here On Red	R10.6
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
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	S4.2

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

Tennessee 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
Speed Limit 65	TN.7A
Speed Limit ? Trucks ?	TN.7B
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

Tennessee Signs	Cell Name
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
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

Warning Signs	Cell Name
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
Hill Symbol	W7.1
Trucks Use Lower Gear - Supplemental	W7.2B
? % Grade - Supplemental	W7.3
Next ? Miles - Supplemental	W7.3A
? % Grade Next ? Miles - Supplemental	W7.3B
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

Warning Signs	Cell Name
XX MPH – Supplemental Speed Advisory Plate	W13.1
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)	W16.1
XXX Feet - Supplemental	W16.2
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	D5.5AM
Hospital Exit XXXX - Interstate Hospital Service	TN.33
Hospital Symbol	D9.2
Handicap Symbol	D9.6
Bike Route	D11.1
Bike Trail	D11.1M
End - Supplemental for Bike Route or Trail	M4.12
Directional Arrow Left - Supplemental for Bike Route or Trail	M7.1L
Directional Arrow Right - Supplemental for Bike Route or Trail	M7.1R
Directional Arrow Left & Right - Supplemental for Bike Route or Trail	M7.5
Airport Symbol	I.5
Long Arrow - Supplemental (Used under Airport Symbol, Etc.)	I.5A
Type 3 Object Marker – left (old TN-14L)	OM.3L
Type 3 Object Marker – right (old TN-14R)	OM.3R
End of Roadway Object Marker	OM4.1
Hikers Symbol	RL.100
School Advance Symbol	S1.1
When Children Are Present	S4.2
School - Supplemental	S4.3

Manual Revisions

May, 2011

1. Updated table of contents.

2. Under **Standard Office Templates, TDOT Letters:**

Added new templates **Construction Plans Revision.dotx**, **Letting Plans Revision.dotx** and **ROW Plans Revision.dotx**.

Deleted template **PlansRevision.dot** which was replaced by the new templates for specific revision types.

3. Under **Standard Office Templates, TDOT 2nd Sheets:**

Added new template **Project Commitments.xlt**.

4. Under **Standard Office Templates, Survey:**

Added new templates **Survey Check List_Field.dot** and **Survey Check List_Office.dot**.

Deleted template **SURVEY CHECK LIST.DOC** which was replaced by the new templates.

4. Under **Standard MicroStation Macros**, the following changes have been made:

Added the following new program:

Visual Basic Applications

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 breaklines. The program allows processing of multiple files.

5. Under **Standard Aerial Survey Files**, the following new standard file has been added:

camera UCX April 09

File used for calibration of the Microsoft/Vexcel UXC large format digital aerial photography camera

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

In **STDS.cel** :

These changes have been made to our Geopak drainage node cells to separate drainage structures with square sub-structures from those that are circular. All circular structures now include the letters **DIA** to indicate that the dimension is a diameter. Cell names for square structures were renamed as needed to include both the length & width dimension.

The following Geopak drainage node cells have been renamed:

<u>Old Cell Name</u>	<u>New Cell Name</u>
CB5X5	CB5DIA
CB5X5B	CB5DIAB
CB5X5M	CB5DIAM
CB6X6	CB6DIA
CB8X8B	CB8DIAB
CB8X8M	CB8DIAM
CBX10	CB10DIA
CBX32	CB32X32
CBX32B	CB32X32B
CBX32M	CB32X32M
CBX32S	CB32X26S
CBX62	CB62X62
CBX62B	CB62X62B
CBX62M	CB62X62M
CBX62R	CB62X62R
DI5X5	DI5DIA
DI6X6	DI6DIA
DI8X8	DI8DIA
DIX32	DI32X32
DIX62	DI62X62
JBX32	JB32X32
JBX62	JB62X62
MH5X5	MH5DIA
MH6X6	MH6DIA
MH8X8	MH8DIA
MHX10	MH10DIA
MHX62	MH62X62

Added the following new Geopak drainage node cells:

CB4DIA	Catch Basin, 4' diameter, gutter origin
CB4DIAS	Catch Basin, 4' diameter, gutter origin (CB #10 only)
CB7DIA	Catch Basin, 7' diameter, gutter origin
CB7DIAB	Catch Basin, 7' diameter, base of barrier wall origin
CB7DIAC	Catch Basin, 7' diameter, barrier center origin
CB7DIAM	Catch Basin, 7' diameter, median center origin
CB9DIA	Catch Basin, 9' diameter, gutter origin
DI7DIA	Drop Inlet, 7' diameter, center origin
MH7DIA	Manhole, 7' diameter, center origin
MH9DIA	Manhole, 9' diameter, center origin

The descriptions for Geopak drainage node cells **EW** and **STUB** were revised to reflect all current uses.

Deleted old title sheet commissioner signature cell **SIGGFN** and added new title sheet signature cell **SIGJS** for Commissioner John Schroer.

7. Added the latest manual revision notes. Deleted revision notes from June of 2009.

December 2010

1. Updated table of contents.
2. Under **Standard Office Templates, TDOT Letters:**
Added new templates **ResurfacingSafetyReviewChecklist.dot**, **Retaining Wall Transmittal.dot** and **Red Flag Report Form 6-18-10.dotx**.
Deleted obsolete templates **EvaluationOfSurvey.dot** and **ProjectDevelopmentDelayForm.dot**.
3. Under **Standard MicroStation Macros**, the following changes have been made:

Added the following new program:

Visual Basic Applications

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

Revised description for visual basic application, **ErosionControlCells.mvba**, to include all command button options including new option to access the Label EPSC Storm Water Outfalls tool.

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

Under **Typical Sections and Criteria Files**

Added the following new typical sections:

WALLLEFT Retaining wall left of roadway centerline

WALLRIGHT Retaining wall right of roadway centerline

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

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.

Moved criteria file, **RetainingWall.x**, to group of main criteria files used by typical sections since it now utilized by new typical sections WALLLEFT and WALLRIGHT.

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

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

Added the following new cell to update current plan sheets with the new engineer's seal box:

SHTSEALBOX Engineer Seal Box for Sheets

Deleted the following obsolete cells:

XSTCOL **SIGJCJ**

6. Added the latest manual revision notes. Deleted revision notes from February of 2009.

June, 2010

1. Updated table of contents.
2. Under **Standard Office Templates, TDOT Tabulated Quantities**, added new template **EnhancedSiltFenceCheckDesignDimensions.xlt** based on standard roadway drawing EC-STR-4B.
3. Under **Standard Office Templates, Survey**, added new template **Property Owner Contact Letter - Aerial Flagging.dot** and updated list to reflect all Office templates for Survey.
4. Under **Standard Line Styles - TDOTLINE.RSC**, added the following new linestyles:

C&G 4-30 RM	INSTREAM DIVERSION
MB SINGLE SLOPE WALL-HALF	MB SINGLE SLOPE WALL-PIER
MB WALL-HALF	RADIUS SLOPE
RUMBLE STRIP 16" CONT	RUMBLE STRIP 16" NON-CONT
RUMBLE STRIP 36" CONCRETE	RUMBLE STRIPE 4" NON-CONT
RUMBLE STRIPE 8"NON-CONT	TRENCH DRAIN
YIELD LINE	

5. Under **Standard MicroStation Macros**, the following changes have been made:

Visual Basic Applications

Added the following new program:

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.

Revised description for visual basic application, **DrawHandicapRamp.mvba**, to reflect new ramp options for roundabout splitter island refuge areas and bicycle ramps as shown on standard roadway drawing RP-R-2. Also listed new check box control to set perpendicular ramp landing beginning to the sidewalk edge when the grass separator width plus the curb offset is greater than the minimum of 8 feet

Revised description for visual basic application, **PavementMarkingCells.mvba**, to include new command button option to access the Place Yield Line tool.

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

Under Typical Sections and Criteria Files

Added the following new typical sections for roundabout intersections:

ROUNDABOUT	Rural or Urban Roundabout
ROUNDAMP	Roundabout Intersecting Roadway

Added the following new criteria files used by roundabout typicals:

RoundaboutC&G4in30RM.x	4" Roundabout Mountable Curb & Gutter
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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

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

SimpleSideSlopeRamp.x	Places user specified slope to ground and includes subgrade closure for use on ramps only.
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.

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

Added the following new 3PC program files:

DoubleTurnArrow_Computation.x	This application reads a D&C Manager set & then counts the specified pavement marking cells and reports the quantity back to D&C Manager.
DoubleTurnArrow_ComputationMetric.x	Metric version of DoubleTurnArrow_Computation.x.

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

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

Added the following new erosion prevention and sediment control legend cell:

INSTRDIVL	Instream Diversion Legend
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Added the following new signalization video detection area cells:

VDA20	Video Detection Area 20 Feet
VDA25	Video Detection Area 25 Feet
VDA45	Video Detection Area 45 Feet (Originally named VDA)
VDA50	Video Detection Area 50 Feet
VDADVD	Video Detection Area – Double Volume Density
VDASVD	Video Detection Area – Single Volume Density

Added the following new pavement marking cells:

PVFFHAL	Left Turn (Fish-hook for Roundabouts)
PVFFHALS	Straight & Left Turn (Fish-hook for Roundabouts)
PVFFHARS	Straight & Right Turn (Fish-hook for Roundabouts)
PVFFHARL	Left & Right Turn (Fish-hook for Roundabouts)
PVFFHARSL	Straight, Left & Right Turn (Fish-hook for Roundabouts)
PVYIELD	“Yield” Word Pavement Marking

Added the following new roundabout typical section cells:

TS9RT	RD-TS-9 Single Lane Roundabout
TS9IRT	RD-TS-9 Single Lane Roundabout Intersecting Roadway
TS10RT	RD-TS-10 Multi-Lane Roundabout
TS10IRT	RD-TS-10 Multi-Lane Roundabout Intersecting Roadway

Deleted the following obsolete cells which are handled by options in Geopak Design & Computation manager under Drafting Standards > Parcels:

TRACT	TRACT2
TRACT3	TRACT4
TRANO	TRANO2
TRANO3	TRANO4

In **SIGN.cel** :

Added the following new regulatory sign cells:

R6.4	Roundabout Directional Arrow (2 Chevrons)
R6.4A	Roundabout Directional Arrow (3 Chevrons)
R6.4B	Roundabout Directional Arrow (4 Chevrons)
R6.5P	Roundabout Circulation Plaque - Supplemental

Added the following new warning sign cells:

W5.4A	Path Narrows
W5.4AM	Bikeway Narrows
W16.12P	Traffic Circle - Supplemental
W16.17P	Roundabout - Supplemental

8. Added the latest manual revision notes. Deleted revision notes from November of 2008

December, 2009

1. Updated table of contents.
2. Added default file folders where standard files are found to various file groups where they were not previously shown.
3. Under **Standard Office Templates, TDOT Tabulated Quantities**, added template **SpecialDitches.xlt** which was left out on a previous update.
4. Under **Standard Plot Control Files, sub-section MicroStation Print**, added new plot driver file **Tdotpdffulc.plt**. This new file is for creating color full size PDF files from inside MicroStation using MicroStation Print.
5. Under **Standard Line Styles - TDOTLINE.RSC**, added new linestyle **HANDICAP RAMP**.
6. Under **Standard MicroStation Macros**, the following changes have been made:
Added the following new programs:

Visual Basic Applications

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 break lines 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.

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 V8, 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.

DrawHandicapRamp.mvba This program draws proposed handicap ramps in the plan view based on standard roadway drawings RP-H-3 to RP-H-9. 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 handicap ramp dimensions. Additional check box controls are offered to match parallel ramps to the sidewalk width when greater than minimum and to place a leader line with text labels. The outer limits of all ramps are created as a shape using the handicap 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.

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. The Open DGN command button is provided to go to the File Open dialog so the user can jump to the next sheet file

Revised description for visual basic application, **SignalizationDeviceCells.mvba**, to include new command button option to access the Draw Handicap Ramp tool.

Under **MicroStation Basic Macros**, removed the macros, **PB.ba** and **pdfPB.ba** which have been replaced by the new visual basic application described above.

7. Added new section **Standard MicroStation Image Files**, with the following JPEG image files which 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.

Phase Stamp - Construction Field Review.jpg

Phase Stamp - For Incidentals Only.jpg

Phase Stamp - For Title Search Only.jpg

Phase Stamp - Hydraulic Grade Approval.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

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

Under **Typical Sections and Criteria Files**

Added the following new typical sections:

1LNRMPU 1 Lane Urban Interchange Ramp

1LNRMPRTU 1 Lane Urban Interchange Ramp, FG on left edge of lane

2LNRMPU 2 Lane Urban Interchange Ramp

4LNMBU 4 Lane Urban with Median Barrier

4LNRMD 4 Lane with Raised Median

Added the following new criteria files used by typical:

RampUrbanInsideShoulder.x Urban Inside Shoulder for Ramps
RampUrbanShoulder.x Urban Outside Shoulder for Ramps

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

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
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

Added the following new metric criteria files:

RampUrbanInsideShoulderMetric.x Urban Inside Shoulder for Ramps
RampUrbanShoulderMetric.x Urban Outside Shoulder for Ramps

Under 3PC Files for D&C Manager

Added the following new 3PC program files:

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.

Deleted obsolete programs, **Striping_Preformed_Computation.x**, **Striping_Preformed_ComputationMetric.x**, **Striping_Thermo_Computation.x** & **Striping_Thermo_ComputationMetric.x**.

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

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

Added the following new resurfacing project length cells:

PROTLML	Title Sheet Project Lengths (Resurfacing)
PROTLMR	Title Sheet Project Length (Resurfacing) (Project & Lane Miles Lengths only)

Added the following new plan phase stamp cells:

SPHGA	Hydraulic Grade Approval
SPPP	Preliminary Plans
SPRPAP	ROW Plans Permit Application Plan Set
SPRFRUO	ROW Field Review (Utilities Only)
SPRPUO	ROW Plans (Utilities Only)

Added the following new typical section cells:

TS3CRM4T	Rural Raised Median Tangent 4-Lane
TS3CRM4S	Rural Raised Median Superelevated 4-Lane
TS3CMB4UT	Urban Median Barrier Tangent 4-Lane
TS3CMB4US	Urban Median Barrier Superelevated 4-Lane
TS41UT	Urban Ramp Tangent 1-Lane
TS42UT	Urban Ramp Tangent 2-Lane
TS41US	Urban Ramp Superelevated 1-Lane
TS42US	Urban Ramp Superelevated 2-Lane

Revised the following plan phase stamp cells:

SPTITL	For Title Search Only
SPINCO	For Incidentals Only
SPPFR	Preliminary Field Review
SPCPP	Caution Preliminary Plans Subject to Change
SPRFR	ROW Field Review
SPROW	ROW Plans
SPCFR	Construction Field Review

Deleted the following obsolete cell which is now handled by the new Draw Handicap Ramp tool:

HCR	Proposed Handicap Ramp
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10. Added the latest manual revision notes. Deleted revision notes from July of 2008